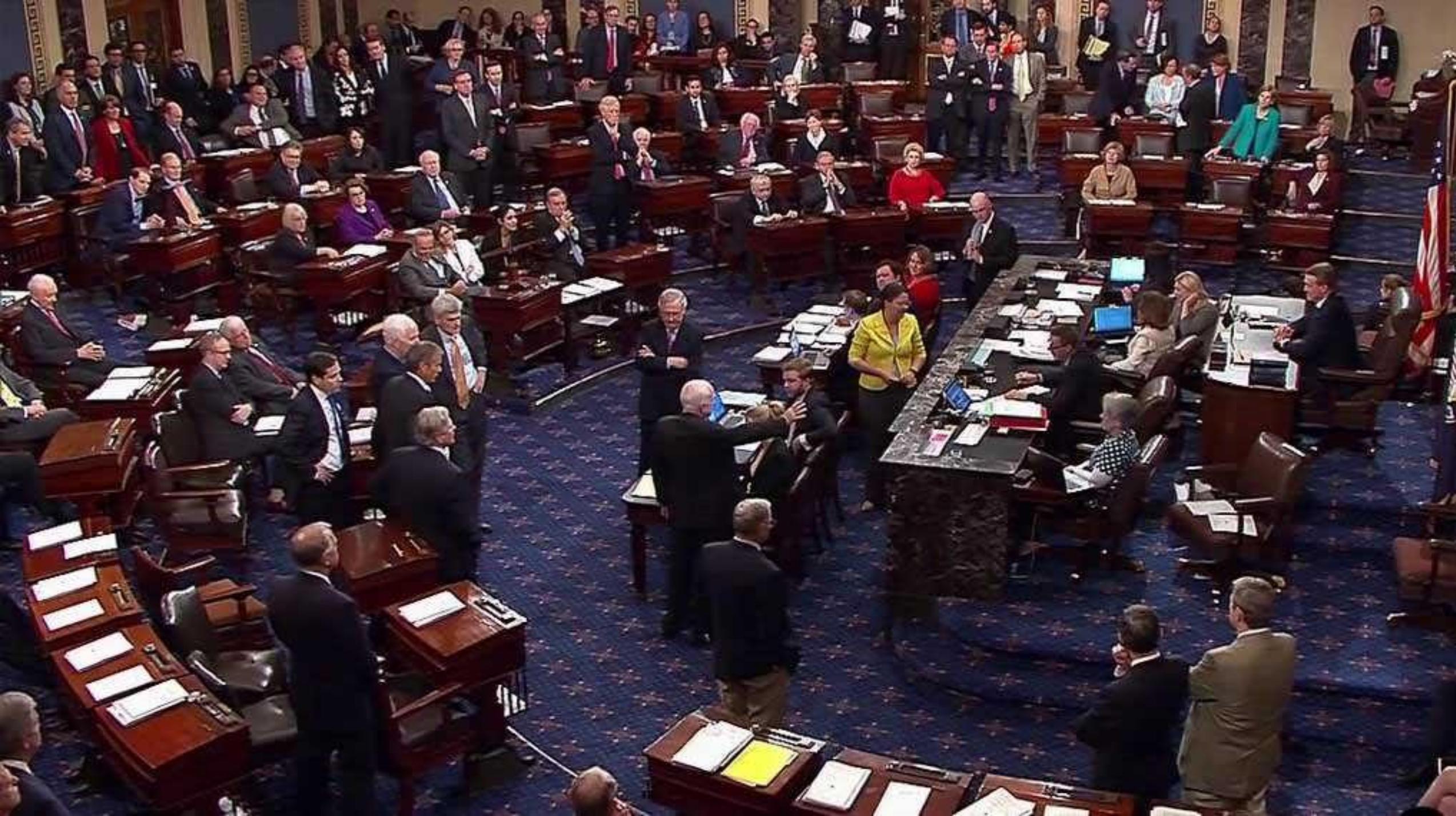


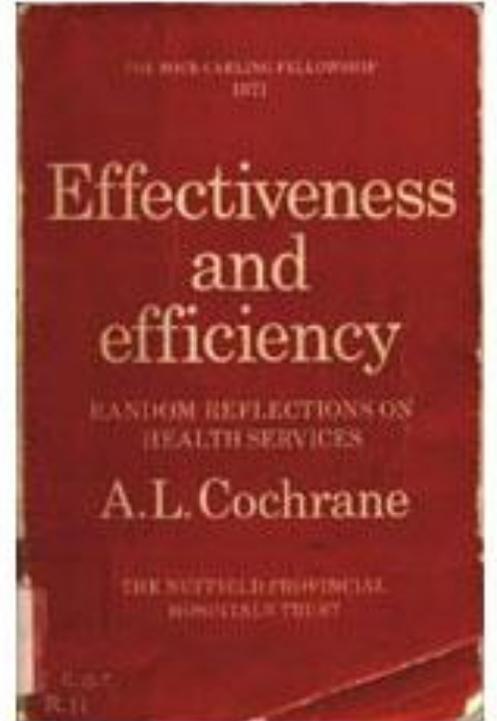
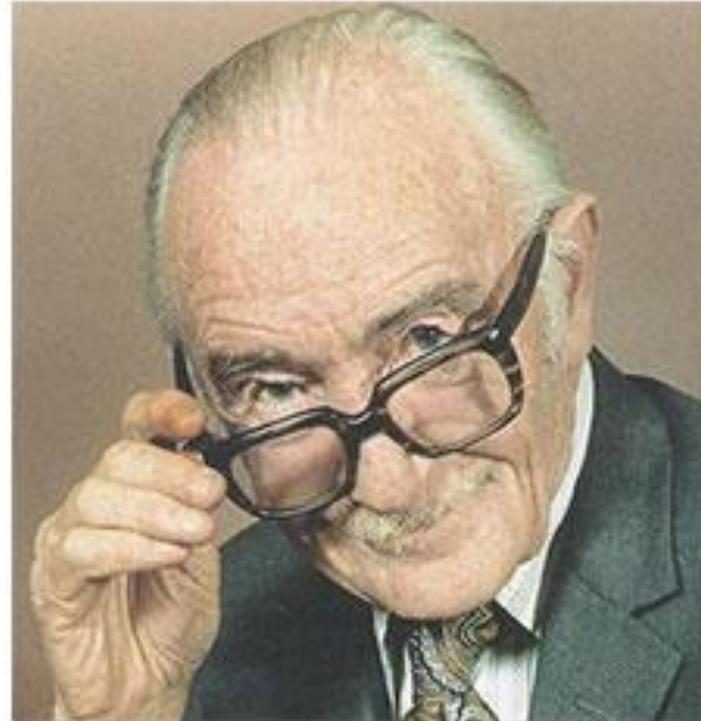
20 Years of the Cochrane Review Top Podiatric Take-aways

Kyle Bruce DPM MPH
Springfield, MA
APMA National 2017



History of the Cochrane Collaboration

- Named in honor of Archie Cochrane, Scottish physician and epidemiologist
 - Mentored in Philadelphia by Bradford Hill who pioneered the randomized control trial and was first to link smoking to lung cancer



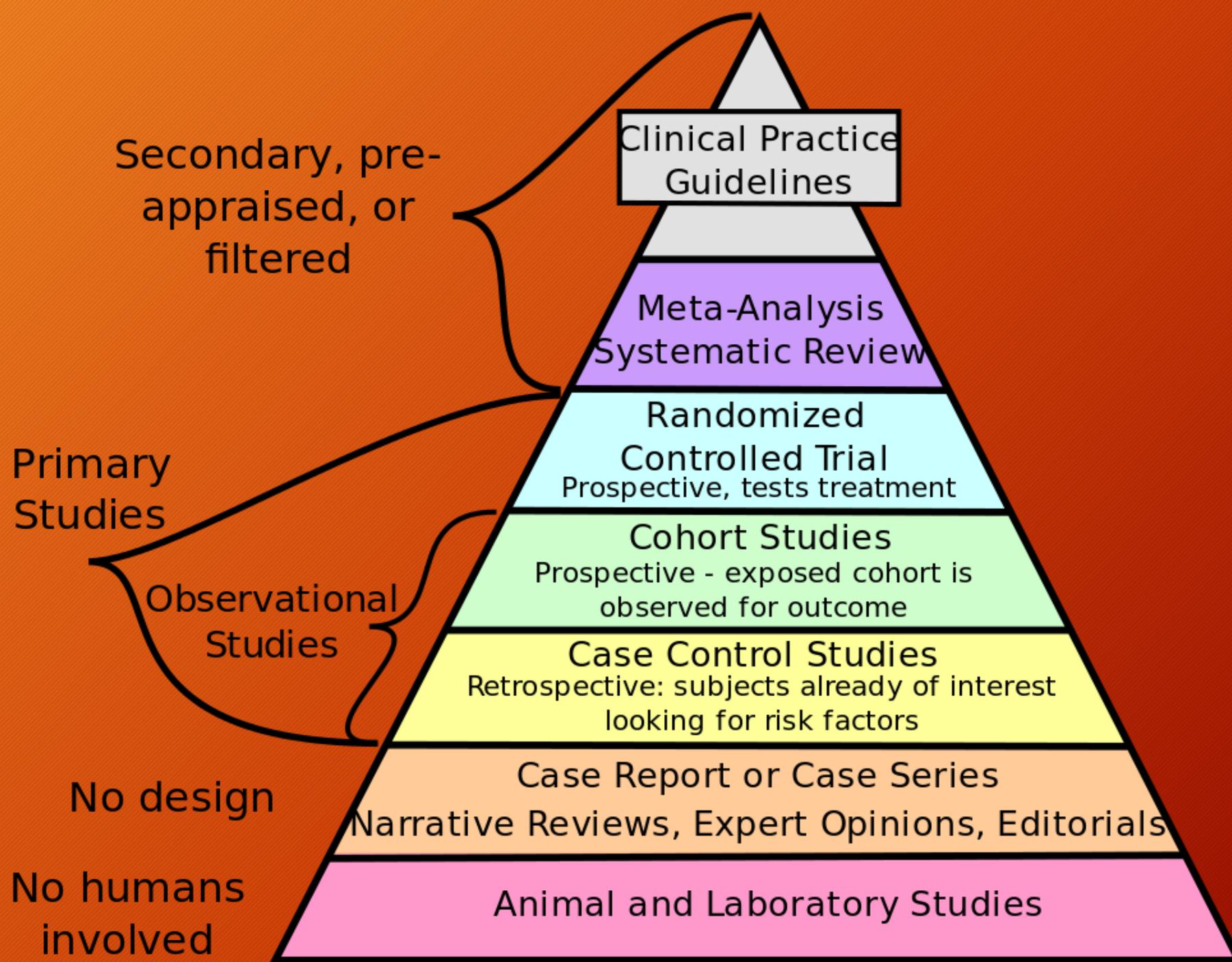
"It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomised controlled trials"

Archie Cochrane 1909-1988

History of the Cochrane Collaboration

- Founded in 1993 by Ian Chalmers
 - Started with 70 colleagues
 - Aimed to create and disseminate up-to-date review of RCTs
- Now an International collaboration with 11,500 contributors
- Went from 100 reviews in 1995 to over 7,300 reviews in 2017

“Our mission is to promote evidence-informed health decision-making by producing high-quality, relevant, accessible systematic reviews and other synthesized research evidence. Our work is internationally recognized as the benchmark for high-quality information about the effectiveness of health care”



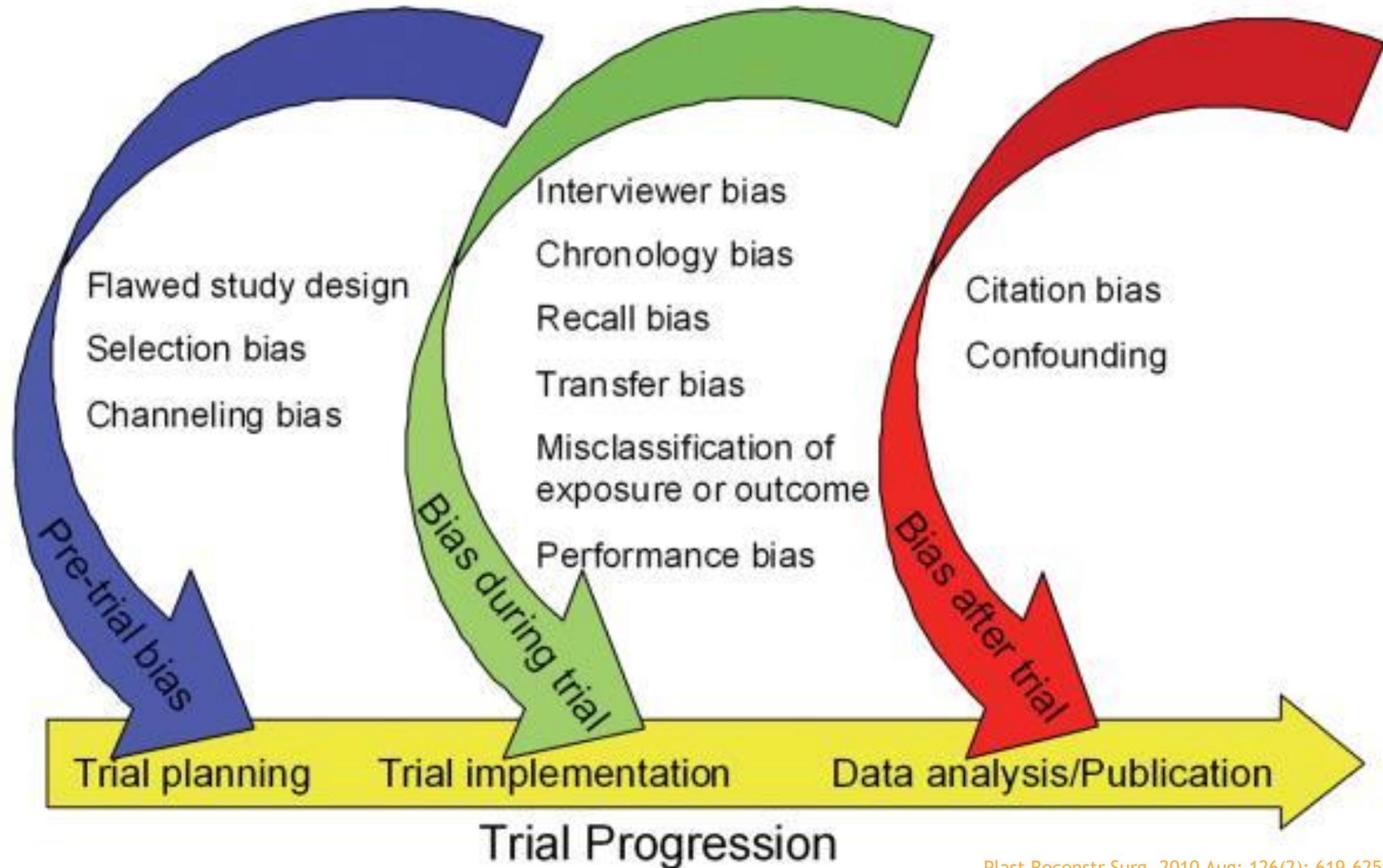
What do we want?

EVIDENCE-BASED
SCIENCE

When do we want it?

AFTER PEER REVIEW

Major Sources of Bias in Clinical Research



High risk of bias

- Not all of the study's pre-specified primary outcomes have been reported.
- One or more primary outcomes is reported using measurements, analysis methods or subsets of the data (e.g. subscales) that were not pre-specified.
- One or more reported primary outcomes were not pre-specified (unless clear justification for their reporting is provided, such as an unexpected adverse effect).
- One or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis.
- The study report fails to include results for a key outcome that would be expected to have been reported for such a study.

How to get involved in doing a Cochrane review?

Directly contact the Cochrane Review Group for your preferred topic to be a systematic reviewer, translator, handsearcher or methodology expert

Bone, Joint and Muscle Trauma Group

Cochrane Bone, Joint and Muscle Trauma Group
The University of Manchester
Centre for Musculoskeletal Research
2nd Floor Stopford Building, Oxford Road
Manchester, UK

Infectious Diseases Group

Department of Clinical Sciences
Liverpool School of Tropical Medicine
Pembroke Place
Liverpool, UK

Drugs and Alcohol Group

Department of Epidemiology
Department of Epidemiology, Lazio Regional Health Service
Via Cristoforo Colombo, 112
Rome , Italy

Public Health Group

School of Population & Global Health, The University of Melbourne
Public Health Insight
Parkville Victoria 3053
Australia

How to get involved in doing a Cochrane review?

Skin Group

Centre of Evidence-Based Dermatology
University of Nottingham
Room A103
King's Meadow Campus
Nottingham, UK

Vascular Group

Usher Institute of Population Health Sciences and Informatics
University of Edinburgh Medical School
Edinburgh, UK

Wounds Group

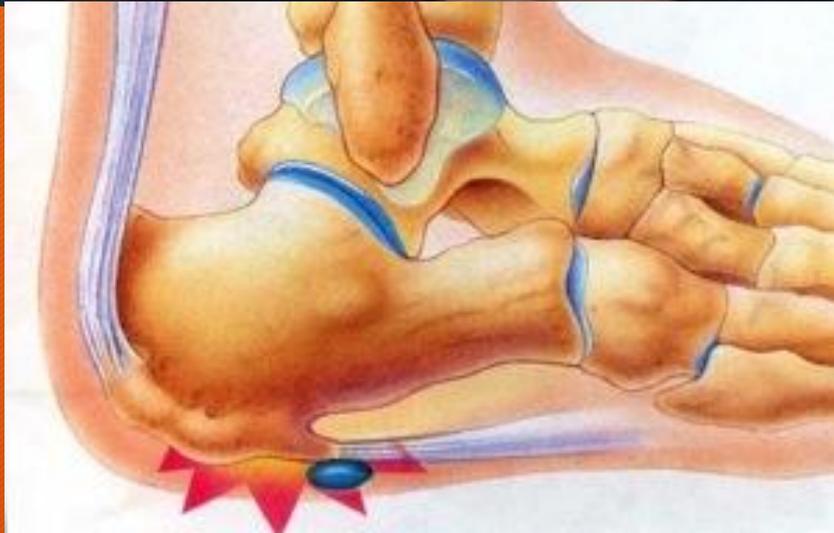
Division of Nursing, Midwifery and Social Work
The University of Manchester
Oxford Road
Manchester, UK



Do Orthotics Work for Foot Pain?



A



Do Orthotics Work for Foot Pain?

- Gold Level evidence
 - Pes cavus
 - Lower foot pain than non-custom insoles at 3 month followup (11 point difference / 100)
- Silver level evidence
 - RA
 - Hindfoot pain better after 3 months but not after 3 years
 - No improvement in forefoot pain
 - Plantar fasciitis
 - Not better than pre-fab insoles
 - Not better compared to night splints
 - Hallux Valgus
 - May not reduce pain after 6 to 12 months

Custom-made foot orthoses for the treatment of foot pain

Review Intervention

Fiona Hawke ✉, Joshua Burns, Joel A Radford, Verona du Toit

First published: 16 July 2008

Can conservative treatment work for pediatric FF?

- The evidence from randomised controlled trials is currently too limited to draw definitive conclusions about the use of non-surgical interventions for paediatric pes planus.
- One trial (40 children with foot pain) indicated that use of custom-made orthoses compared with supportive shoes alone resulted in significantly greater reduction in pain intensity (-1.5 points on a 10-point visual analogue scale 95% CI -2.8 to -0.2)
- 2nd trial (n=178) found no difference in the number of participants with foot pain between custom-made orthoses, prefabricated orthoses and the control group who received no treatment



Non-surgical interventions for paediatric pes planus

[Comment](#) [Review](#) [Intervention](#)

[Keith Rome](#) [✉](#), [Robert L Ashford](#), [Angela Evans](#)

First published: 7 July 2010

Does the Diabetic Wound Dressing Matter?



VS



Does the Diabetic Wound Dressing Matter?

- 13 systematic reviews
- Moderate quality data shows no difference between basic wound dressing and advanced wound dressings
 - Alginates
 - Hydrofiber
 - Protease Matrix
 - Iodoform impregnated dressings
- Very low quality evidence to show superiority →
 - Hydrogel
 - Foam

Dressings for treating foot ulcers in people with diabetes: an overview of systematic reviews

[Review](#) [Overview](#)

[Lihua Wu](#), [Gill Norman](#), [Jo C Dumville](#) ✉, [Susan O'Meara](#), [Sally EM Bell-Syer](#)

First published: 14 July 2015

Does hyperbaric oxygen help heal DFUs?

- 5 trials, 205 patients
- Relative rate of ulcer healing was 2.35 favoring HBO at 6 weeks
- No significant difference at 1 year
 - No change in major amputation rate



Hyperbaric oxygen therapy for chronic wounds

[New search](#) [Review](#) [Intervention](#)

Peter Kranke [✉](#), Michael H Bennett, Marrissa Martyn-St James, Alexander Schnabel, Sebastian E Debus, Stephanie Weibel

First published: 24 June 2015

Is there a best anti-MRSA antibiotic



* The three trials did not report the review's primary outcomes (death and quality of life) and secondary outcomes (length of hospital stay, use of healthcare resources and time to complete wound healing).

- Daptomycin compared with vancomycin or semisynthetic penicillin: RR of MRSA eradication 1.13; 95% CI 0.56 to 2.25 (14 people).
- Ertapenem compared with piperacillin/tazobactam: RR of MRSA eradication 0.71; 95% CI 0.06 to 9.10 (10 people).
- Moxifloxacin compared with piperacillin/tazobactam followed by amoxicillin/clavulanate: RR of MRSA eradication 0.87; 95% CI 0.56 to 1.36 (23 people).

Antibiotic therapy for the treatment of methicillin-resistant *Staphylococcus aureus* (MRSA) in non surgical wounds

Review Intervention

Kurinchi Selvan Gurusamy [✉](#), Rahul Koti, Clare D Toon, Peter Wilson, Brian R Davidson

First published: 18 November 2013

Check the Antibiogram!

	MSSS			MRSS			p value ^a
	MSSA	MSCNS	Total	MRSA	MRCNS	Total	
Clindamycin	65/70 (92.9)	4/6 (66.7)	69/76 (90.8)	21/56 (37.5)	12/19 (63.2)	33/75 (44.0)	< 0.001
Ciprofloxacin	68/70 (97.1)	5/6 (83.3)	73/76 (96.1)	23/56 (41.4)	10/19 (52.6)	33/75 (44.0)	< 0.001
Erythromycin	64/70 (91.4)	4/6 (66.7)	68/76 (89.5)	16/56 (28.6)	8/12 (42.1)	24/75 (32.0)	< 0.001
Fusidic acid	36/57 (63.2)	0/6 (0)	36/63 (57.1)	30/45 (66.7)	5/19 (26.3)	35/64 (54.7)	0.781
Linezolid	63/63 (100)	6/6 (100)	69/69 (100)	49/49 (100)	19/19 (100)	68/68 (100)	NA
Mupirocin	31/32 (96.9)	4/5 (80)	35/37 (94.6)	24/25 (96.0)	6/11 (54.5)	30/36 (83.3)	0.124
Rifampin	69/70 (98.6)	6/6 (100)	75/76 (98.7)	51/56 (91.1)	15/19 (78.9)	66/75 (88.0)	0.008
TMP-SMX	70/70 (100)	5/6 (83.3)	75/76 (98.7)	51/56 (91.1)	12/19 (63.2)	63/75 (84.0)	0.001
Tetracycline	67/70 (95.7)	4/6 (66.7)	71/76 (93.4)	26/56 (46.4)	14/19 (73.7)	40/75 (53.3)	< 0.001

Can you prevent runner's injuries?

- 25 trials (30,252 participants)
 - military recruits (19 trials)
 - runners (3 trials)
 - soccer referees (one trial)
 - prisoners (two trials).



Patellofemoral braces appear to be effective for preventing anterior knee pain (two trials; 227 participants; RR 0.41, 95% CI 0.24 to 0.67)

No evidence that stretching reduces lower limb soft-tissue injuries (6 trials; 5130 participants; risk ratio [RR] 0.85, 95% confidence interval [95% CI] 0.65 to 1.12)

No evidence to support a training regimen of conditioning exercises to improve strength, flexibility and coordination (one trial; 1020 participants; RR 1.20, 95% CI 0.77 to

1.87)
No evidence that a longer, more gradual increase in training reduces injuries in novice runners (one trial; 486 participants; RR 1.02, 95% CI 0.72 to 1.45)

Interventions for preventing lower limb soft-tissue running injuries

[Comment](#) [Review](#) [Intervention](#)

Simon S Yeung [✉](#), Ella W Yeung, Lesley D Gillespie

First published: 6 July 2011

Conservative options for hallux rigidus

- Only one trial satisfactorily fulfilled the inclusion criteria
- Risk of bias was high
 - The trial failed to employ appropriate randomisation or concealment, used a relatively small sample and incorporated a short follow up (four weeks)
- After 4 weeks of physical therapy
 - 3.80 points for self reported pain,
 - 28.30 ° (95% CI 21.37 to 35.23) for big toe joint range of motion, and
 - 2.80 kg (95% CI 2.13 to 3.47) for muscle strength.



Interventions for treating osteoarthritis of the big toe joint

[Review](#) [Intervention](#)

[Gerard V Zammit](#) [Hylton B Menz](#) [Shannon E Munteanu](#) [Karl B Landorf](#) [Mark F Gilheany](#)

First published: 8 September 2010

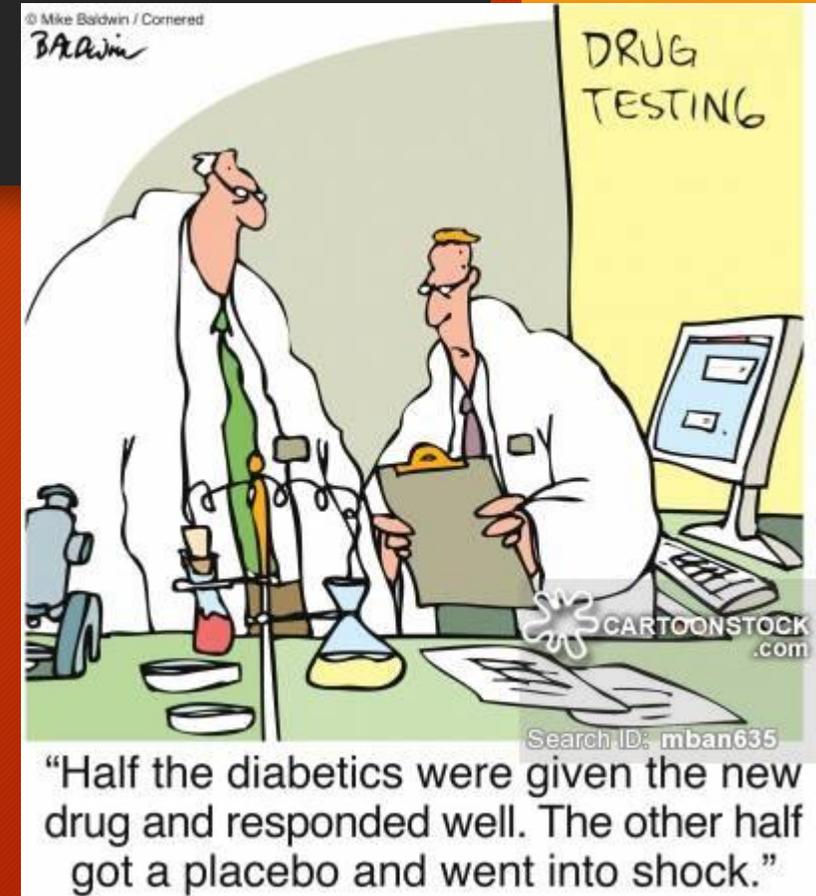
Editorial Group: [Cochrane Musculoskeletal Group](#)

Summary of results

- Very weak evidence that injuries are preventable for intensive running
- No good RCTs on hallux limitus
- Unclear if any IV antibiotic better for MRSA
- Hyperbaric oxygen does not appear to reduce amputations
- The wound dressing does not make much difference
- Orthotics work okay for cavus, but don't help bunions long term and are equivalent to pre-fab insoles for plantar fasciitis
- Not enough orthotic studies to conclude anything for pediatric patients

The real conclusion

- We need more RCTs!
 - Well-conducted RCTs could provide unbiased estimates of the average treatment effect (ATE) in the study population
- The problem
 - Limited external validity (My patients are different)
 - They can be hard to do, take a lot of time and money
 - Not always ethical (mostly preventative/therapeutic studies)



Questions?

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