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BRINGING AMBITION TO LIFE

**Using the tools of
evidence-based practice
in making decisions on
national security**

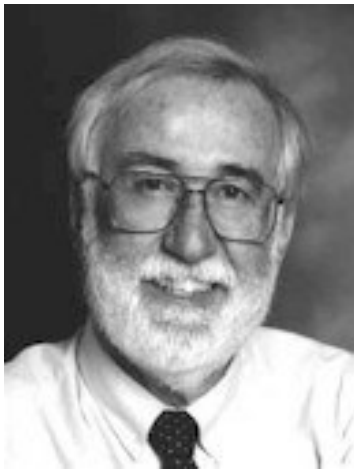




**WHAT ARE
YOU
LOOKING AT?**

where did EBP come from?

- McMaster medical program
- Medical practice
- Maastricht
- Wide dissemination



Dave Sackett



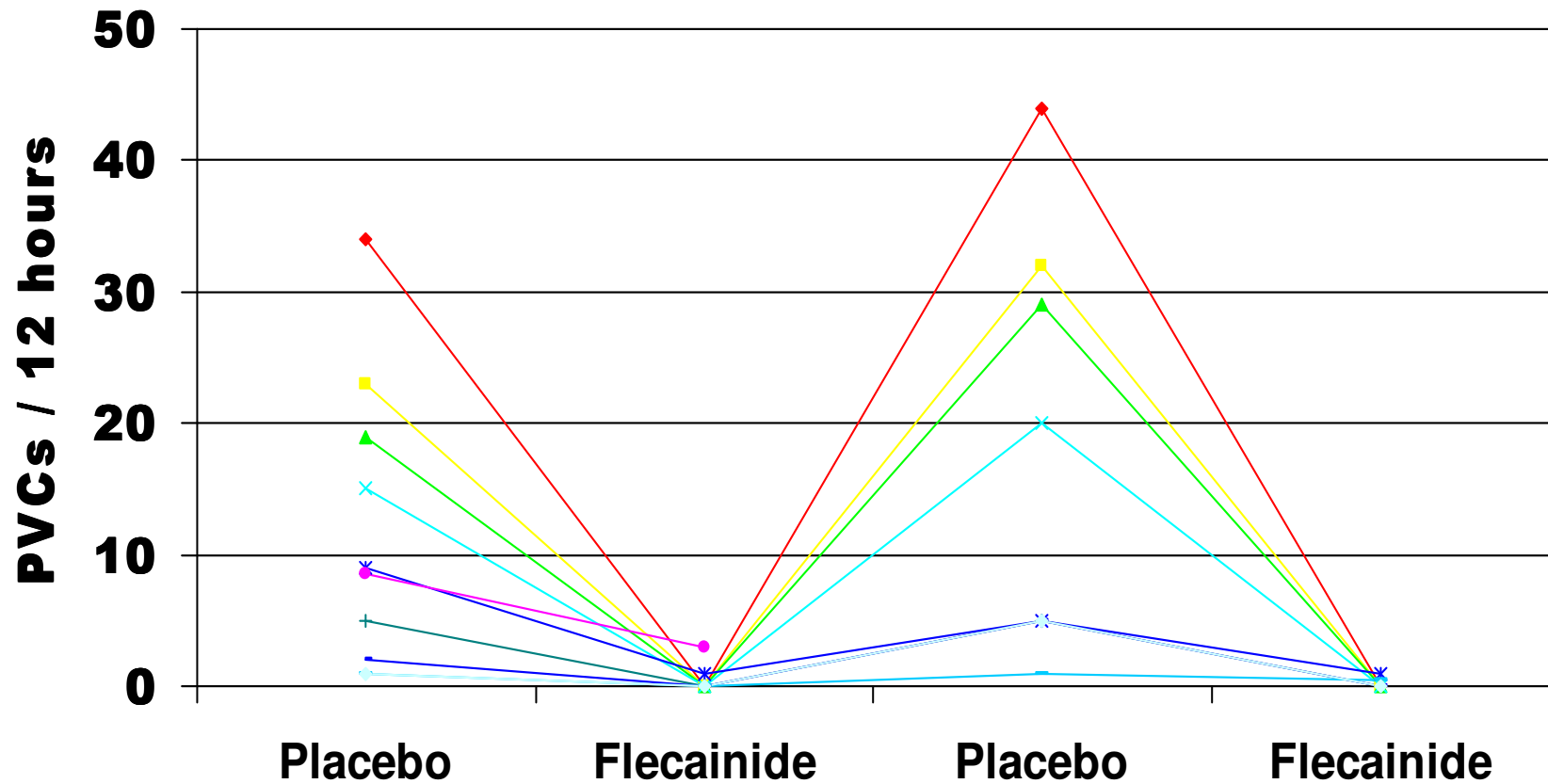
what *is* EBP?

empirical

- “Sudden death leading cause of death among 20-64 year olds”
- Prevention requires “safe and long-acting antiarrhythmic drugs that protect against ventricular fibrillation”

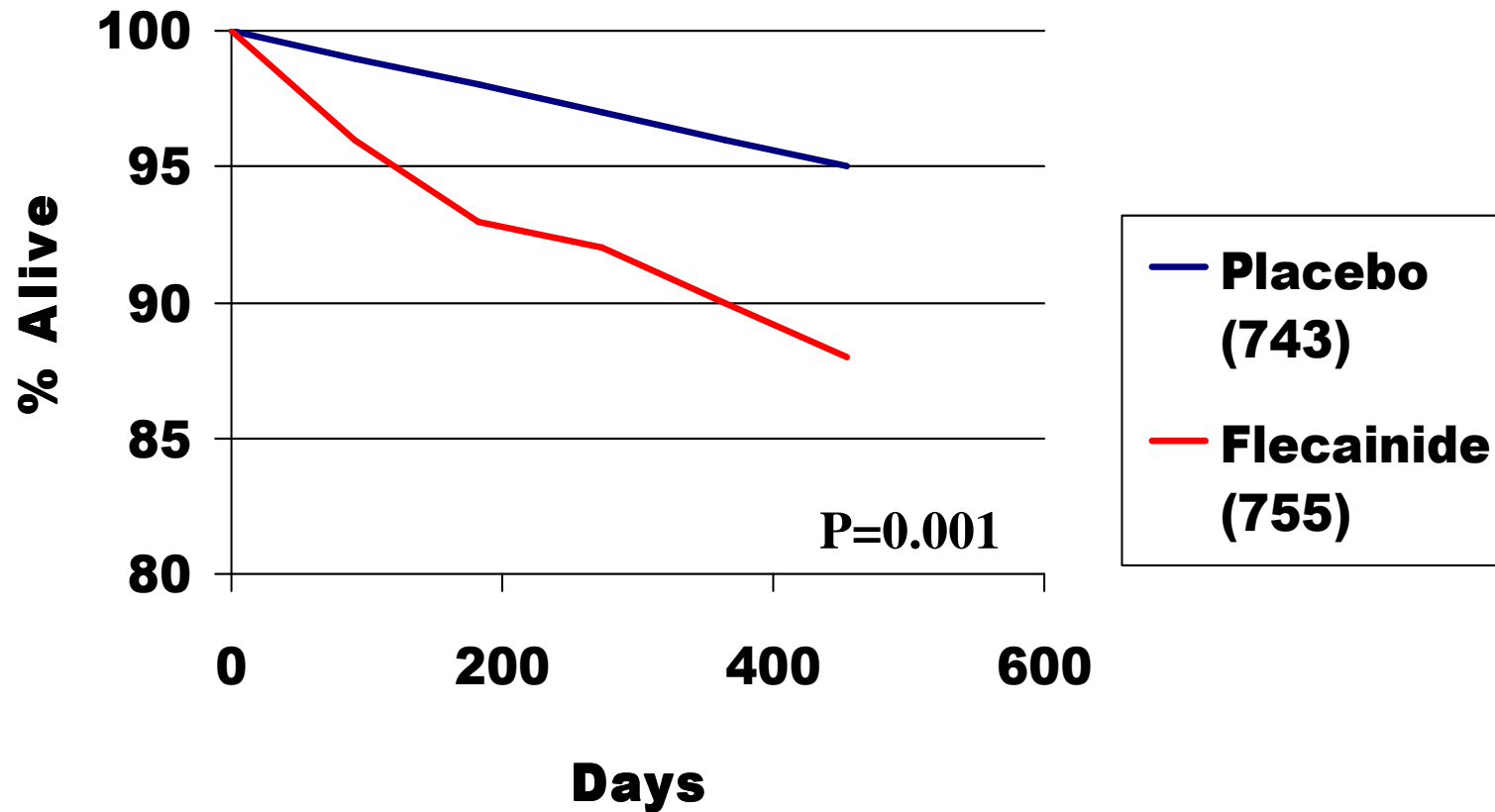


Suppression of arrhythmias



Anderson et al, NEJM, 1981

The Cardiac Arrhythmia Suppression Trial, CAST



Echt et al, NEJM, 1991

Steps: the four 'A's

- **A**sk ...an answerable Q
- **A**ccess ...literature for the As
- **A**ppraise ...the quality of the As
- **A**pply ...these As to your specific environment

Qs and As...

What EBP *does*

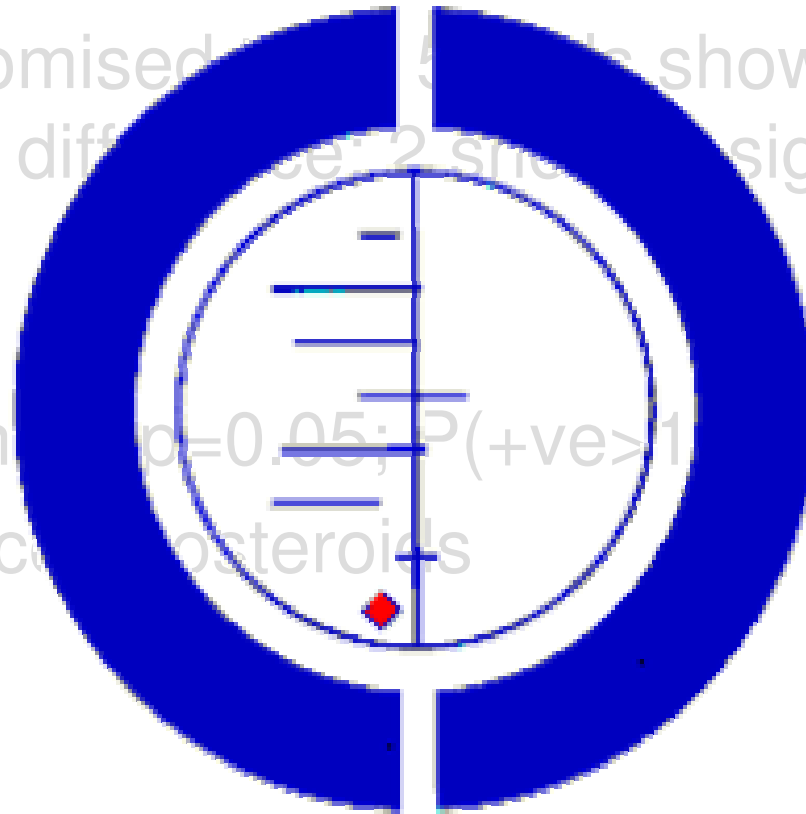
- answers Qs
- provides CPD (CME)
- sorts out conflicting evidence...

Would you use drug X?

- Drug X has been studied in preterm delivery
- Of 7 randomised trials 5 trials showed no significant difference; 2 showed significant benefit
- Binomial $n=7$, $p=0.05$; $P(+ve>1) = 0.04$

Would you use drug X?

- Drug X has been studied in preterm delivery
- Of 7 randomised trials, 5 showed no significant difference; 2 showed significant benefit
- Binomial $n=7$, $p=0.05$; $P(+ve > 1) = 0.04$
- Drug X is compared to corticosteroids



www.TheCochraneLibrary.com



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Welcome to The Cochrane Library 2006, Issue 1
the best single source of reliable evidence about the effects of healthcare



Systematic review

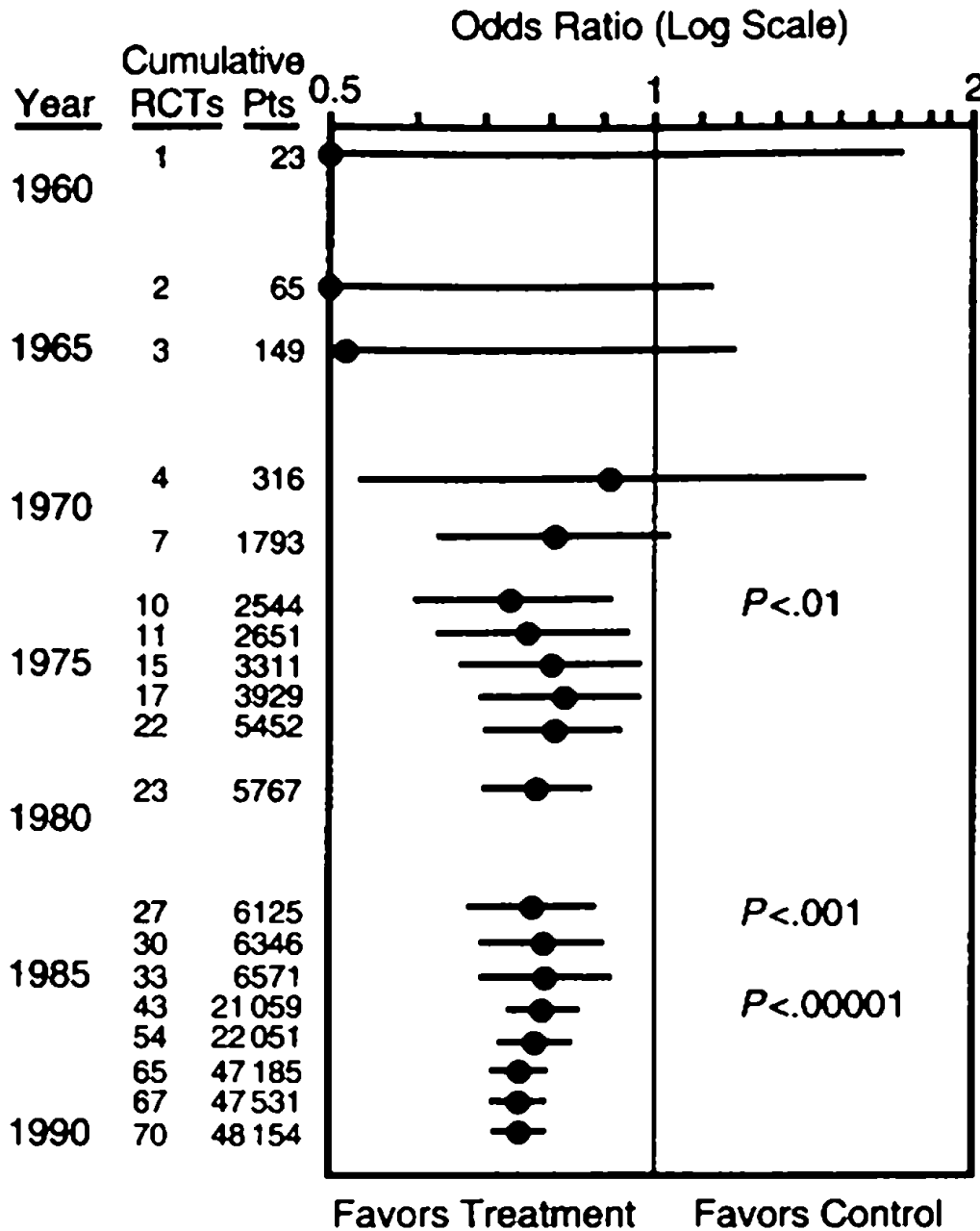
Meta-analysis

Would you recommend Drug Y?

- Drug Y has been studied in trials of myocardial infarction.
- Of 24 randomised, 4 showed a significant benefit; 20 showed no significant benefit
- Binomial $n = 24$, $p = 0.05$, $P(r > 3) = 0.03$
- Drug Y is streptokinase (circa 1982)



A. Thrombolytic Therapy



Textbook/Review Recommendations

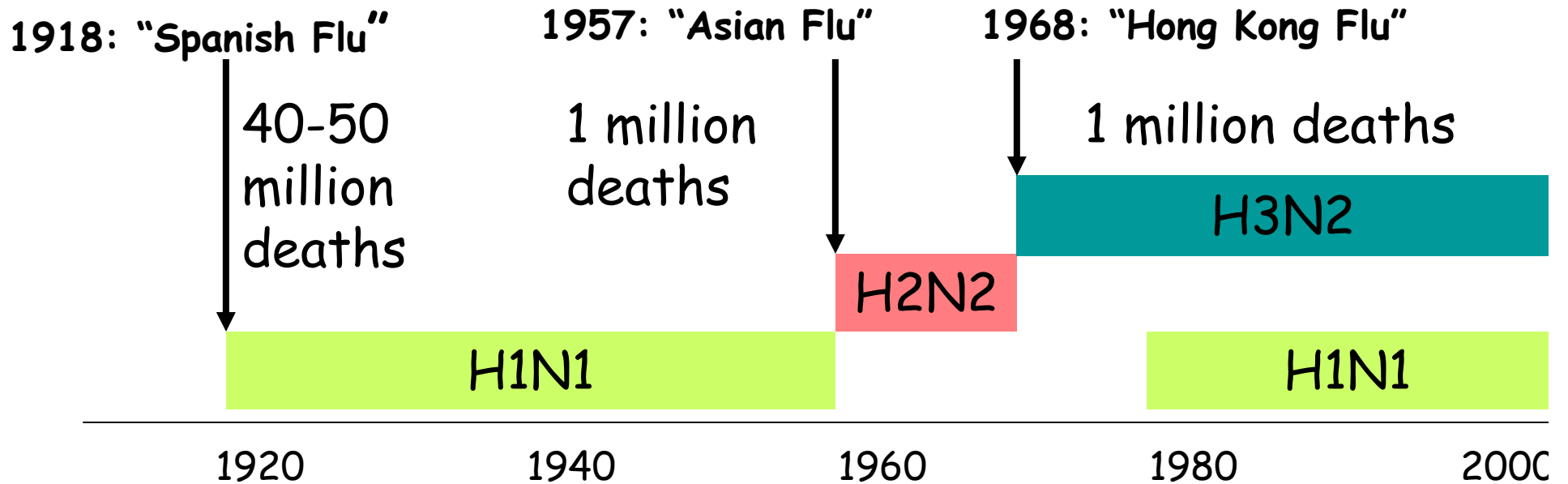
	Routine	Specific	Rare/Never	Experimental	Not Mentioned
					21
					5
				1	10
				1	2
				2	8
					7
					8
		1			12
M		1		8	4
M		1		7	3
M		1		2	1
M	5	2		2	1
M	15	8			1
M	6	1			



- SARS
- H5N1 influenza
- terrorist initiated infection
 - Anthrax
 - others

Do 'barrier methods' work in preventing transmission?

- epidemics can occur.
- 36,000 deaths and 226,000 admissions to hospital in the United States annually are attributable to influenza
- incidence rates as high as 50% during major epidemics worldwide,
- 2003 SARS (coronavirus) infected ~8,000 people
 - 780 deaths
 - social and economic crisis, (Asia)
- avian influenza pandemic (H5N1 virus) threats

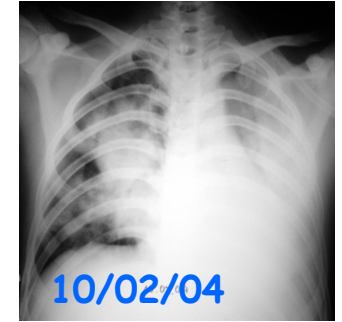
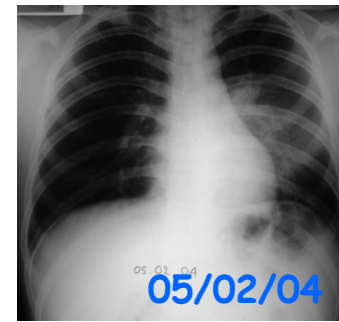


Influenza H5N1 virus causes severe disease in chickens and humans

Prof Jeremy Farrar (Oxford)



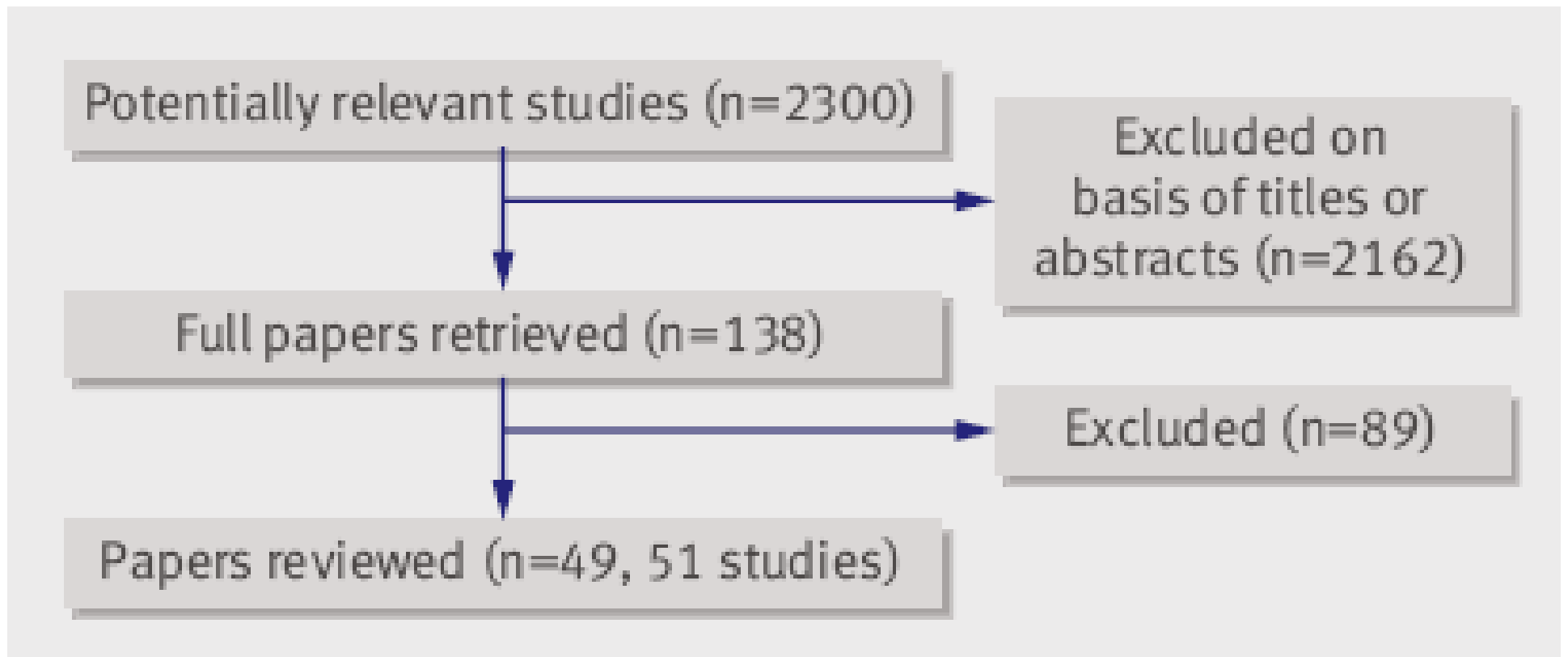
- pneumonia
- severe systemic infection
- diarrhoea
- encephalitis
- death

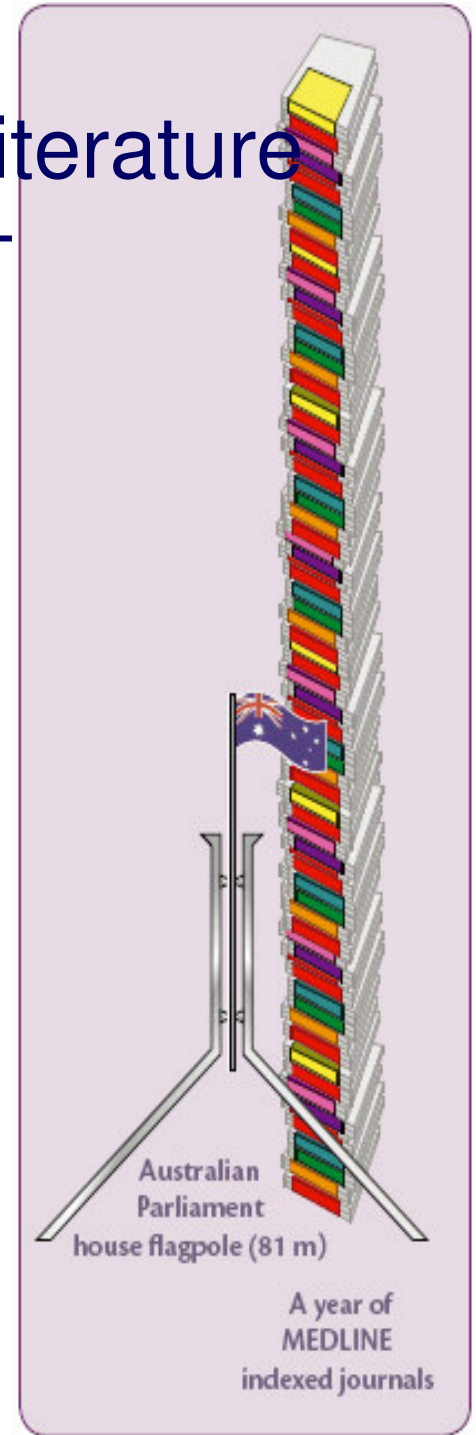
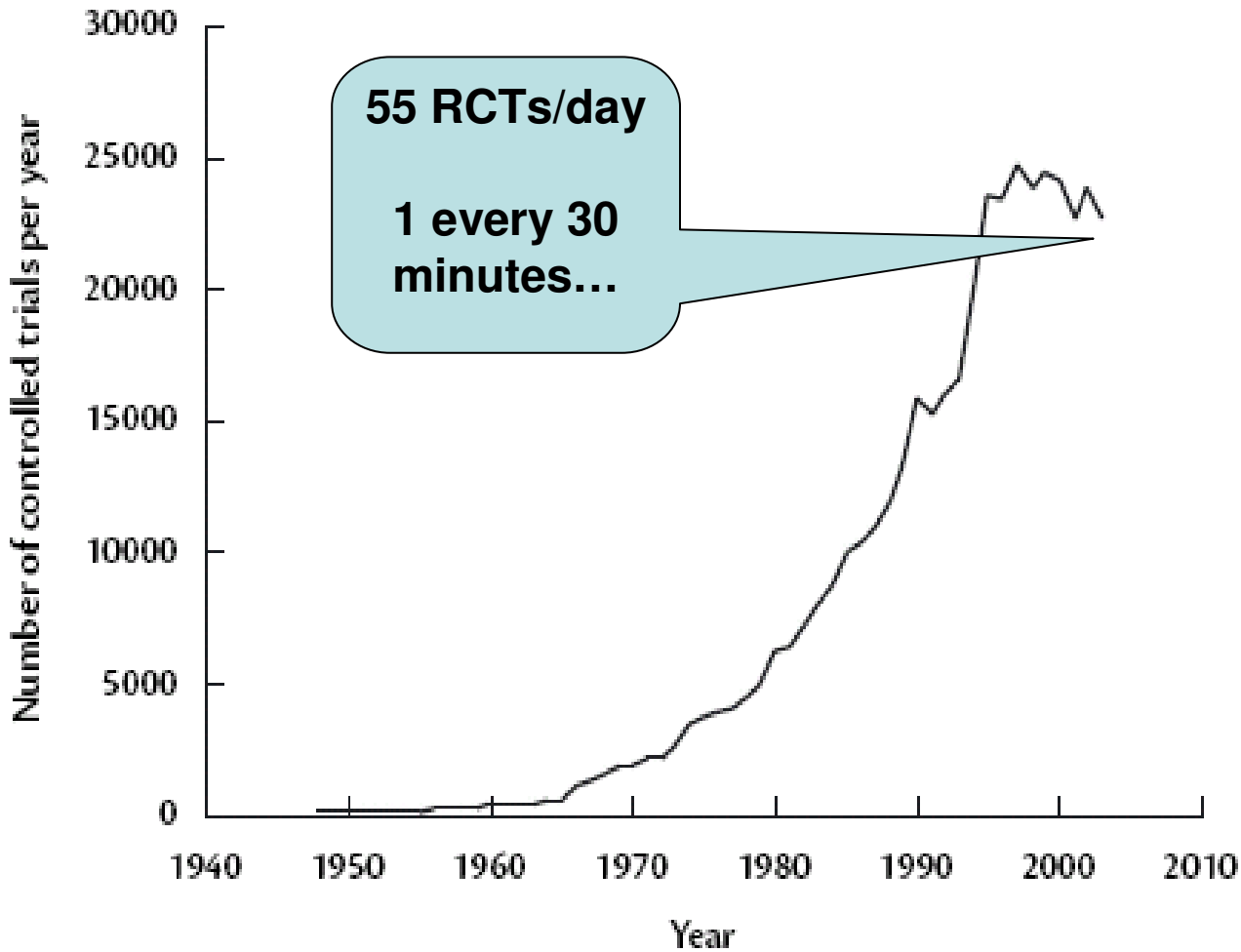


- High viral load and high viral infectiousness probably drive virus pandemics
- need for interventions to reduce viral load.
- But single measures, (vaccines antivirals), probably insufficient
- A recent trial found handwashing to be effective in lowering the incidence of pneumonia in the developing world
- link between personal (and environmental) hygiene and infection

- **search**
 - RCTs
 - observational studies
 - other comparative designs with control of confounders
- **interventions**
 - anything physical
- **outcomes**
 - deaths; case numbers, severity; proxies, burden on health services

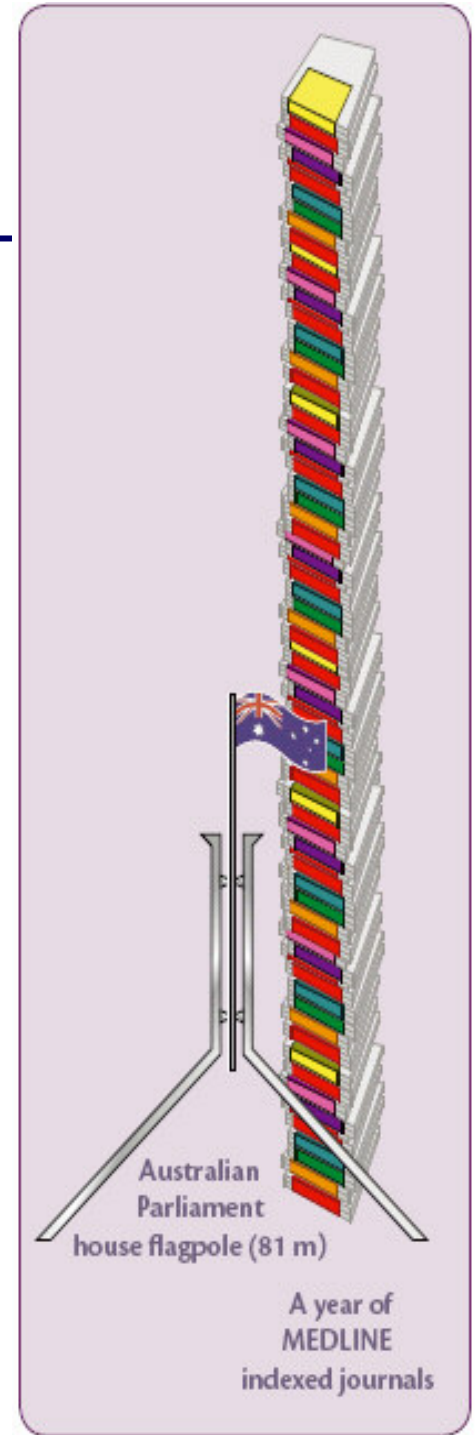
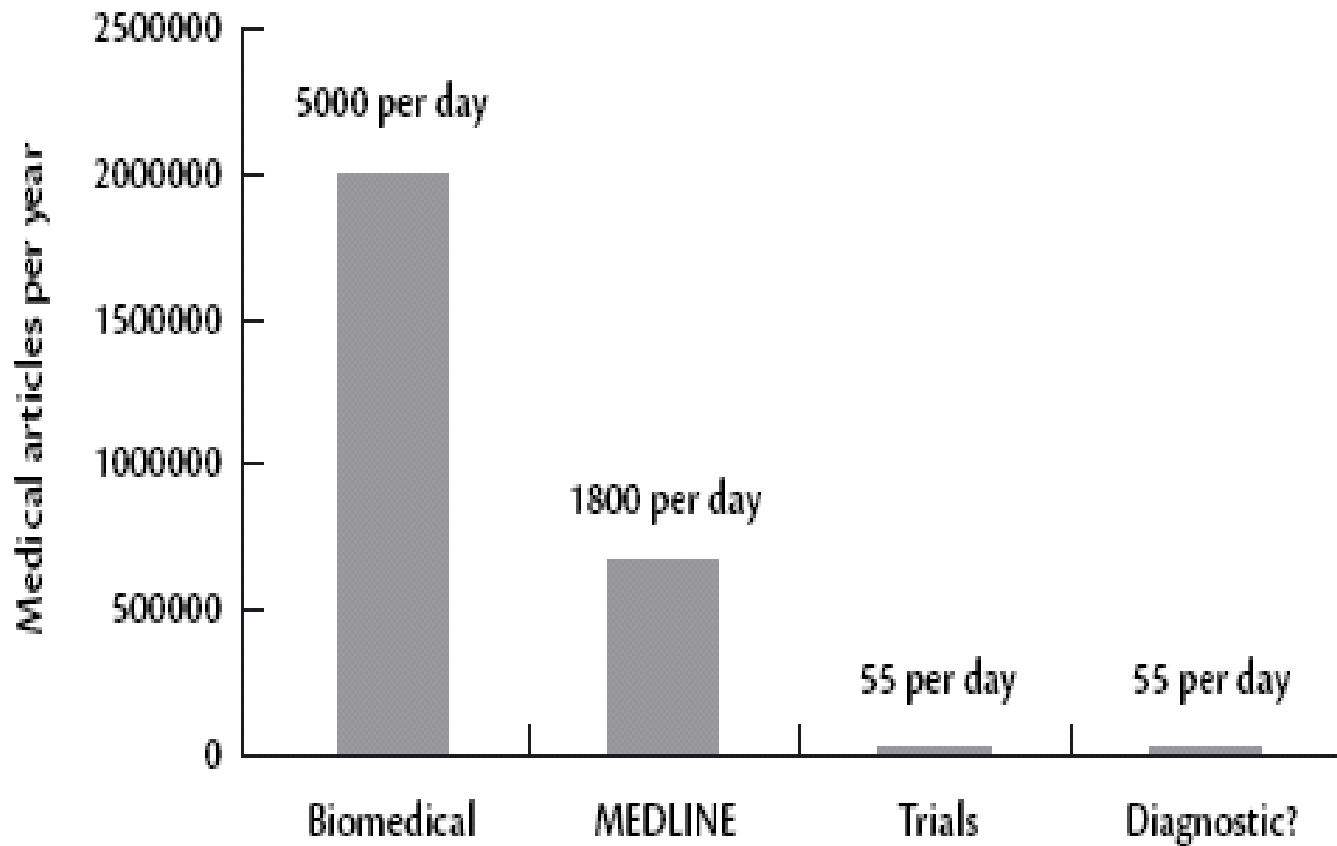
the search process





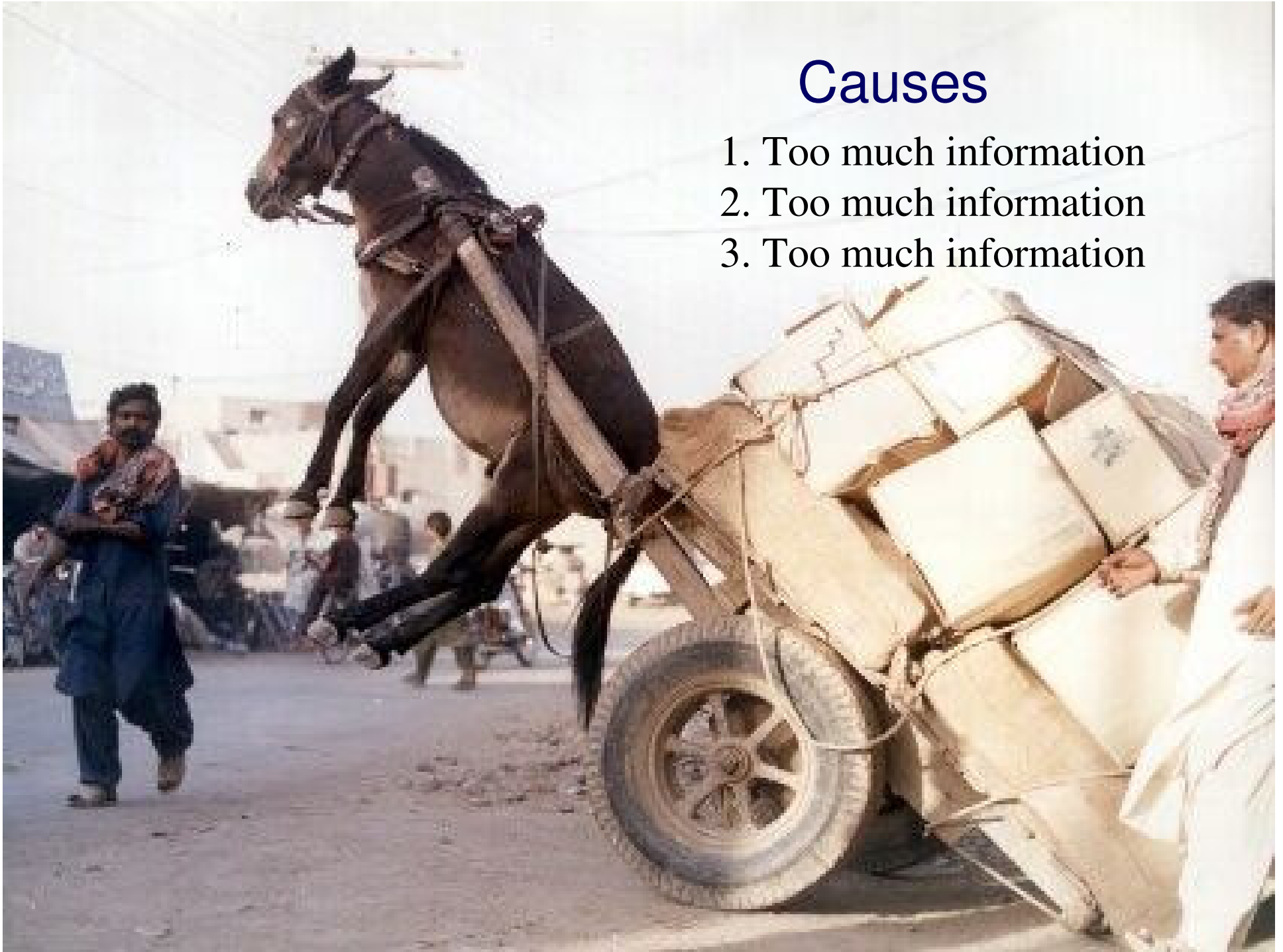


the size of the medical literature



Causes

1. Too much information
2. Too much information
3. Too much information










Too much information

“...sipping from the
fire hose...”



frequent handwashing



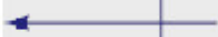



Study or subcategory	Cases n/N	Control n/N	Odds ratio (fixed) (95% CI)	Weight (%)	Odds ratio (fixed) (95% CI)
Frequent handwashing					
Lau 2004 ^{w45}	61/330	222/660		57.26	0.45 (0.32 to 0.62)
Nishiura 200 ^{w46}	15/25	56/90		4.62	0.91 (0.37 to 2.25)
Seto 2003 ^{w47}	10/13	227/241		2.55	0.21 (0.05 to 0.83)
Teleman 2004 ^{w48}	27/36	46/50		4.57	0.26 (0.07 to 0.93)
Wu 2004 ^{w49}	73/94	253/281		13.45	0.38 (0.21 to 0.72)
Yin 2004 ^{w50}	28/77	97/180		17.56	0.49 (0.28 to 0.85)
Total (95% CI)	575	1502		100.00	0.45 (0.36 to 0.57)

Total events: 214 (cases), 901 (control)

Test for heterogeneity: $\chi^2=4.58$, $df=5$, $P=0.47$, $I^2=0\%$

Test for overall effect: $z=6.56$, $P<0.001$

wearing masks






Study or subcategory	Cases n/N	Control n/N	Odds ratio (fixed) (95% CI)	Weight (%)	Odds ratio (fixed) (95% CI)
Wearing masks					
Lau 2004 ^{w45}	96/330	388/660		71.85	0.28 (0.21 to 0.37)
Nishiura 200 ^{w46}	8/25	35/90		4.00	0.74 (0.29 to 1.90)
Seto 2003 ^{w47}	0/13	51/241		2.10	0.14 (0.01 to 2.34)
Wu 2004 ^{w49}	25/94	121/281		17.22	0.48 (0.29 to 0.80)
Yin 2004 ^{w50}	68/77	178/180		4.82	0.08 (0.02 to 0.40)
Total (95% CI)	539	1452		100.00	0.32 (0.25 to 0.40)

Total events: 194 (cases), 773 (control)

Test for heterogeneity: $\chi^2=9.62$, $df=4$, $P=0.05$, $I^2=58.4\%$

Test for overall effect: $z=9.52$, $P<0.001$

wearing gloves






Study or subcategory	Cases n/N	Control n/N	Odds ratio (fixed) (95% CI)	Weight (%)	Odds ratio (fixed) (95% CI)
Wearing gloves					
Nishiura 200 ^{w46}	8/25	30/90		12.18	0.94 (0.36 to 2.43)
Seto 2003 ^{w47}	4/13	117/241		11.39	0.47 (0.14 to 1.57)
Teleman 2004 ^{w48}	10/36	22/50		18.27	0.49 (0.20 to 1.23)
Yin 2004 ^{w50}	37/77	136/180		58.15	0.30 (0.17 to 0.52)
Total (95% CI)	151	561		100.00	0.43 (0.29 to 0.65)

Total events: 59 (cases), 305 (control)

Test for heterogeneity: $\chi^2=4.33$, $df=3$, $P=0.23$, $I^2=30.6\%$

Test for overall effect: $z=4.07$, $P<0.001$

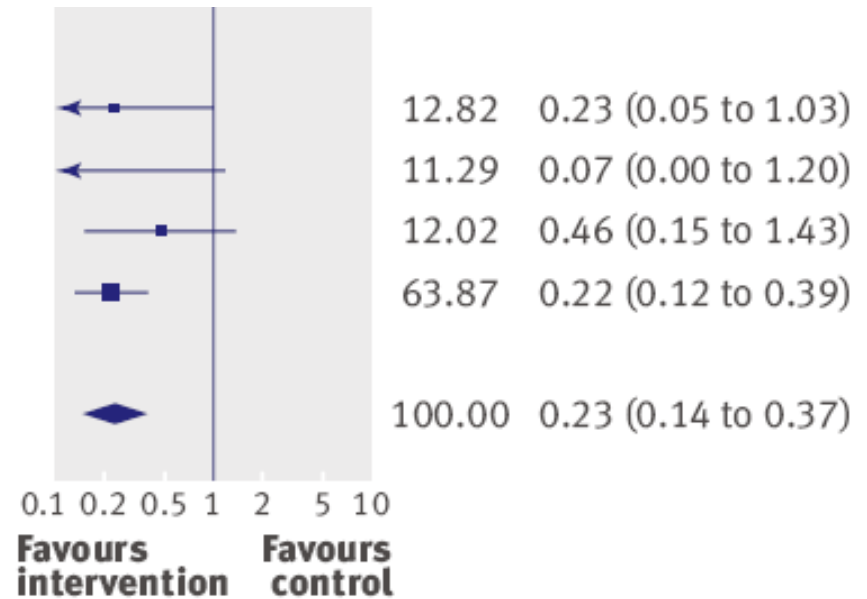
wearing gowns

Study or subcategory	Cases n/N	Control n/N	Odds ratio (fixed) (95% CI)	Weight (%)	Odds ratio (fixed) (95% CI)
Wearing gowns					
Nishiura 200 ^{w46}	2/25	25/90		12.82	0.23 (0.05 to 1.03)
Seto 2003 ^{w47}	0/13	83/241		11.29	0.07 (0.00 to 1.20)
Teleman 2004 ^{w48}	5/36	13/50		12.02	0.46 (0.15 to 1.43)
Yin 2004 ^{w50}	27/77	128/180		63.87	0.22 (0.12 to 0.39)
Total (95% CI)	151	561		100.00	0.23 (0.14 to 0.37)

Total events: 34 (cases), 249 (control)

Test for heterogeneity: $\chi^2=2.10$, $df=3$, $P=0.55$, $I^2=0\%$

Test for overall effect: $z=5.99$, $P<0.001$





Intervention	No of studies	Odds ratio (95% CI)	Intervention-effectiveness	NNT
hand washing >10 times daily	6	0.45 (0.36, 0.57)	55	4
Wearing mask	5	0.32 (0.25, 0.40)	68	6
Wearing N95 mask	2	0.09 (0.03, 0.30)	91	3
Wearing gloves	4	0.43 (0.29, 0.65)	57	7
Wearing gown	4	0.23 (0.14, 0.37)	77	5
Handwashing, mask, gloves, and gown combined	2	0.09 (0.02, 0.35)	91	3



- more physical means?
- less reliance on
 - vaccines
 - antivirals

Other areas of policy: Counselling after trauma



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view]

Psychological debriefing for preventing post traumatic stress disorder (PTSD)

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- [Abstract](#)
- [Plain language summary](#)
- [Background](#)
- [Objectives](#)
- [Criteria for considering studies for this review](#)
- [Search methods for identification of studies](#)

(PTSD)

S Rose, J Bisson, R Churchill, S Wessely

Cochrane Database of Systematic Reviews 2008 Issue 3 (Status: *Unchanged*)
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DOI: 10.1002/14651858.CD000560 This version first published online: 22 April 2002 in Issue 2, 2002

This record should be cited as: Rose S, Bisson J, Churchill R, Wessely S. Psychological debriefing for preventing post traumatic stress disorder (PTSD). *Cochrane Database of Systematic Reviews* 2002, Issue 2. Art. No.: CD000560. DOI: 10.1002/14651858.CD000560.

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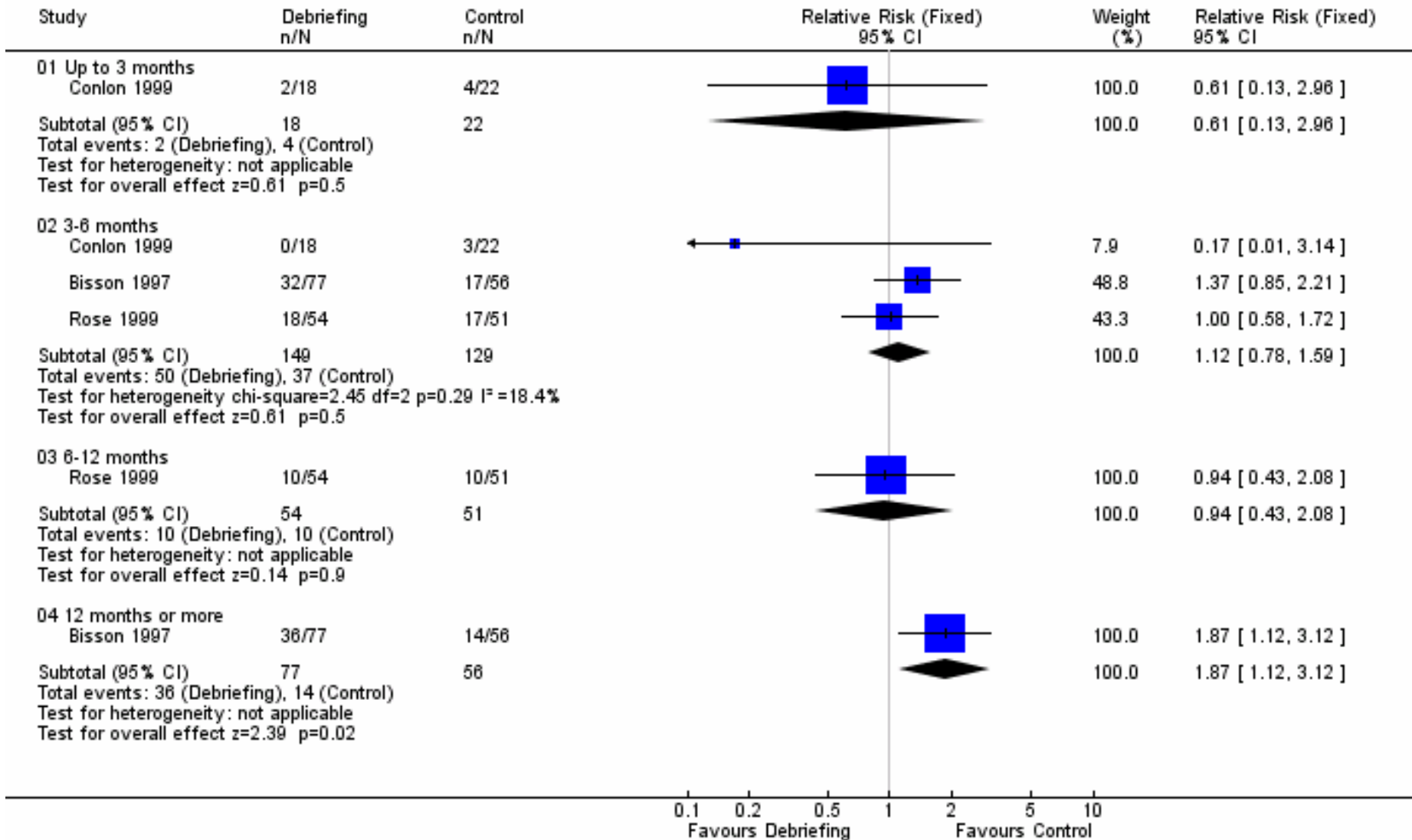
Abstract

Background

Over approximately the last fifteen years, early psychological interventions, such as psychological 'debriefing', have been increasingly used following psychological trauma. Whilst this intervention has become popular and its use has spread to several settings, empirical evidence for its efficacy is noticeably lacking. This is the third update of a review of single session

Cochrane review

Review: Psychological debriefing for preventing post traumatic stress disorder (PTSD)
 Comparison: 01 Debriefing versus Control
 Outcome: 01 PTSD diagnosis - ITT data



Other areas of policy: Counselling after trauma



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how do we get decision-makers to use
empirical evidence?

carrots?

sticks?

Eg mandatory jail for not implementing cost-
saving options?

opportunities for trialling options *as public
policy?*



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questions?

