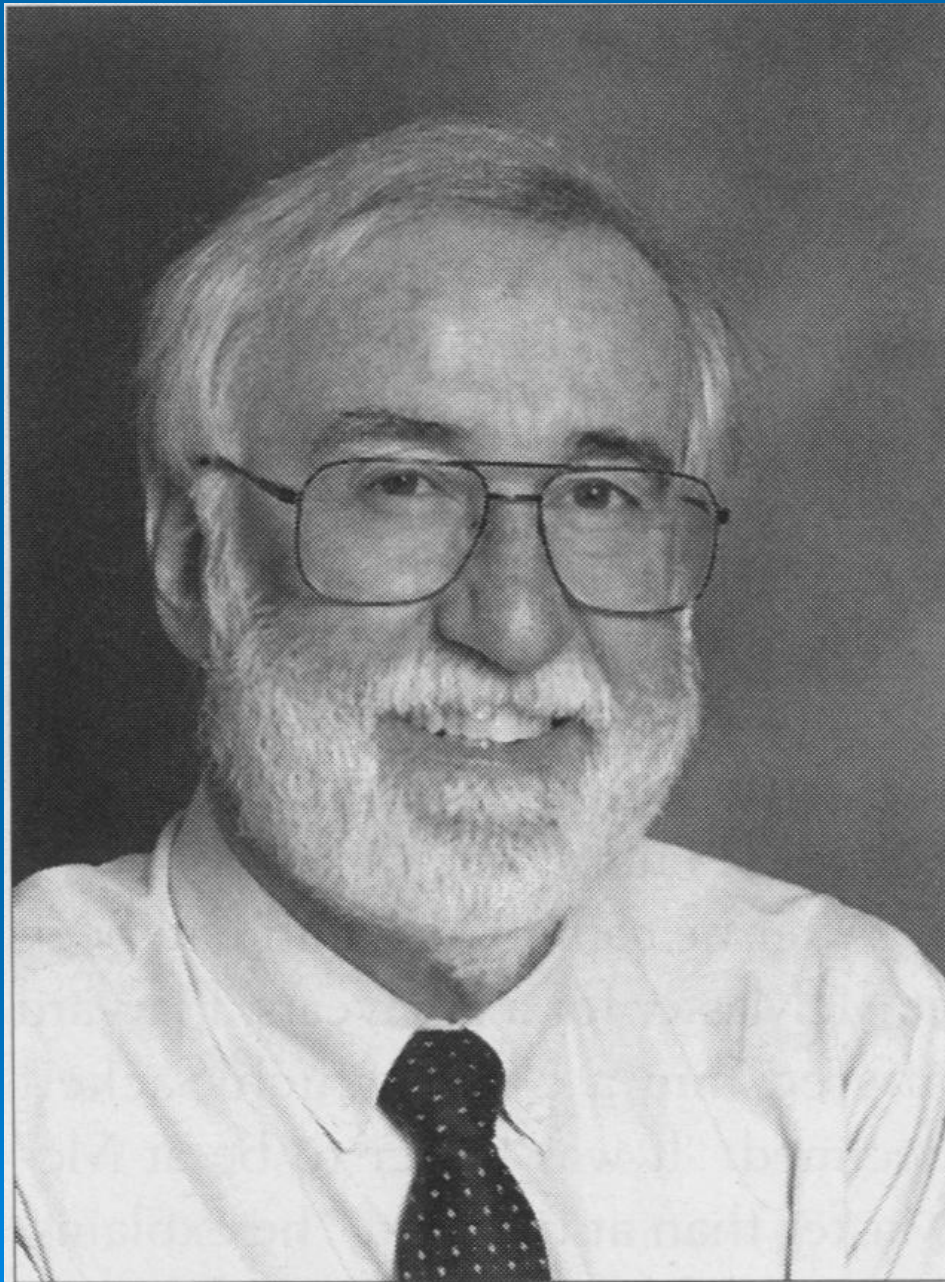


Confession to St David of McMaster

The trials of an evidence biased
physician



David Sackett

GPCME Dunedin 2012



**A guide to the
development, implementation
and evaluation of
clinical practice guidelines**

NHMRC
National Health and Medical Research Council

Guideline Epidemic I

- 2002-2010
- 117 guidelines on prevention and treatment of cardiovascular disease

Proportion of guidelines dealing with management of risk factors for cardiovascular disease, and completeness of monitoring recommendation

Risk factor	No (%) with section on risk factor	No (%) including monitoring	No (%) with section on management	Completeness of monitoring recommendation								
				What to monitor			When to monitor			What to do if target is out of range		
				Not reported	Non-specific*	Specific	Not reported	Non-specific*	Specific	Not reported	Non-specific*	Specific
Lipids	84 (72)	53 (63)	34 (40)	31†	13	40	31†	12	41	31	23	30
Hypertension	79 (68)	40 (51)	26 (32)	39	11	29	39	12	28	39	16	24
Smoking	65 (55)	37 (57)	19 (29)	35	–	30	28	17	20	28	14	23

*Not useful in practice.

†44 guidelines provided no information or non-specific information.

BMJ 2011;342:d1289

Guideline Epidemic II

WHAT THIS STUDY ADDS

Only a fifth (23/117) of English language guidelines published or updated between 2002 and February 2009 dealt with monitoring of all three risk factors, and one or more risk factors was missing from more than half the guidelines

The monitoring recommendations in different guidelines were often confusing and contradictory

It was rare to find a clear description of the monitoring phase in any guideline that would help clinicians to apply the recommendations directly in clinical practice

BMJ 2011;342:d1289

The High Risk Patient

- Angina, MI, Angioplasty, CABG
- Ischaemic Stroke or TIA
- Peripheral Vascular Disease
- Diabetes and nephropathy/renal disease

NZGG Best practice Evidence based guideline 2003

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Blood Pressure Recommendations

Secondary prevention

➤ NZGG

IHD - Beta Blocker and ACE “regardless of blood pressure”

Diabetes and nephropathy – “irrespective of baseline levels”

Stroke – “irrespective of blood pressure”

➤ NICE

IHD - <140/90 post MI

Diabetes - <140/80 or <130/80 for those “at more particular risk”

Stroke - nothing specific

Cholesterol Recommendations (secondary prevention)

➤ NZGG

IHD – LDL < 2.5mmol/l

Diabetes – Nothing

Stroke – Lipid lowering drugs for..... those with normal or low cholesterol values

➤ NICE

- IHD – statins for “all” with CVD (no recommended dose or target)
- Diabetes – titration to target levels of 4.0/2.0mmol/l TC/LDL
- Stroke – nothing specific

Life expectancy at birth, by ethnic group and sex, selected years, 1950–1952 to 2000–2002

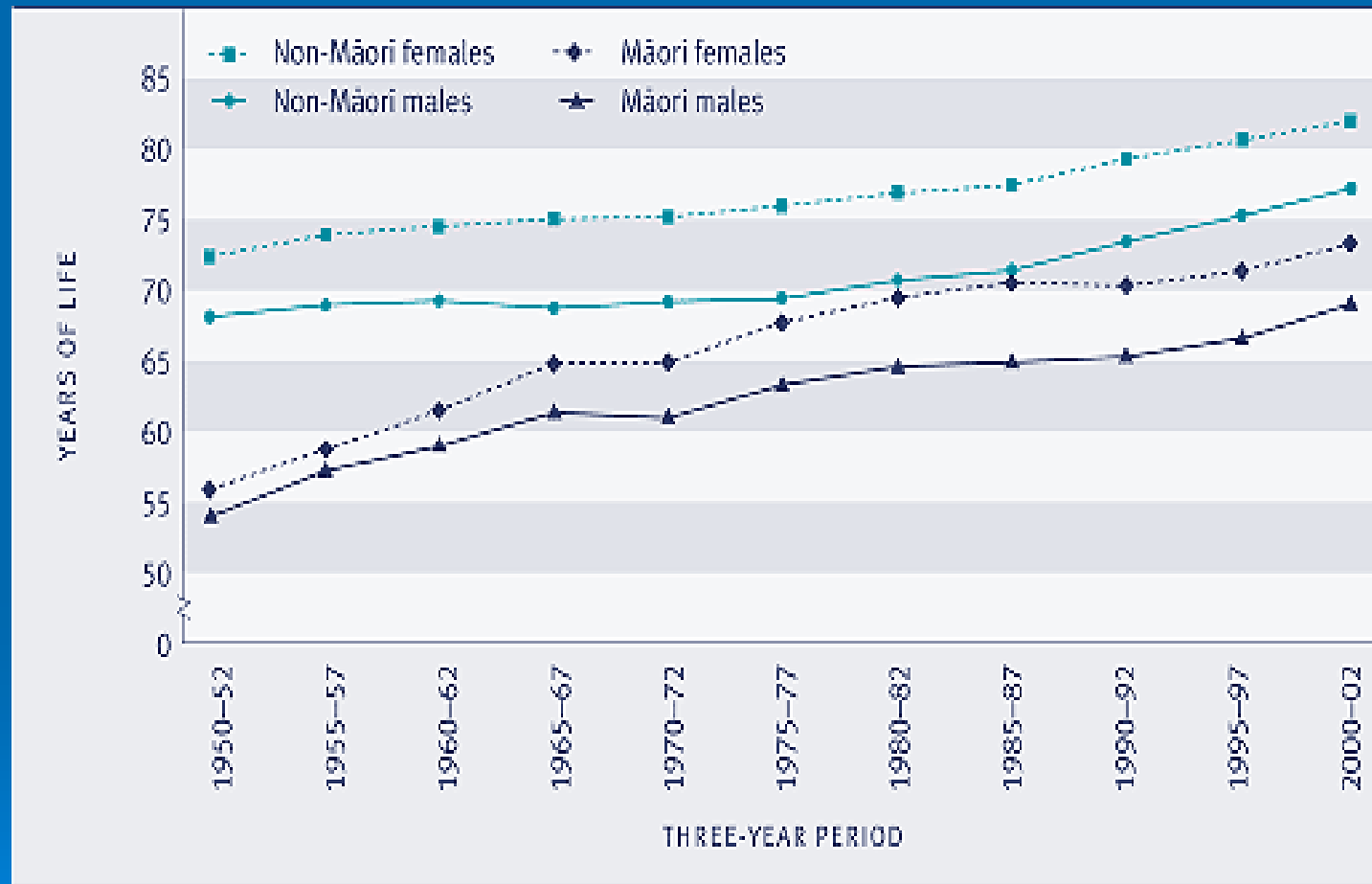
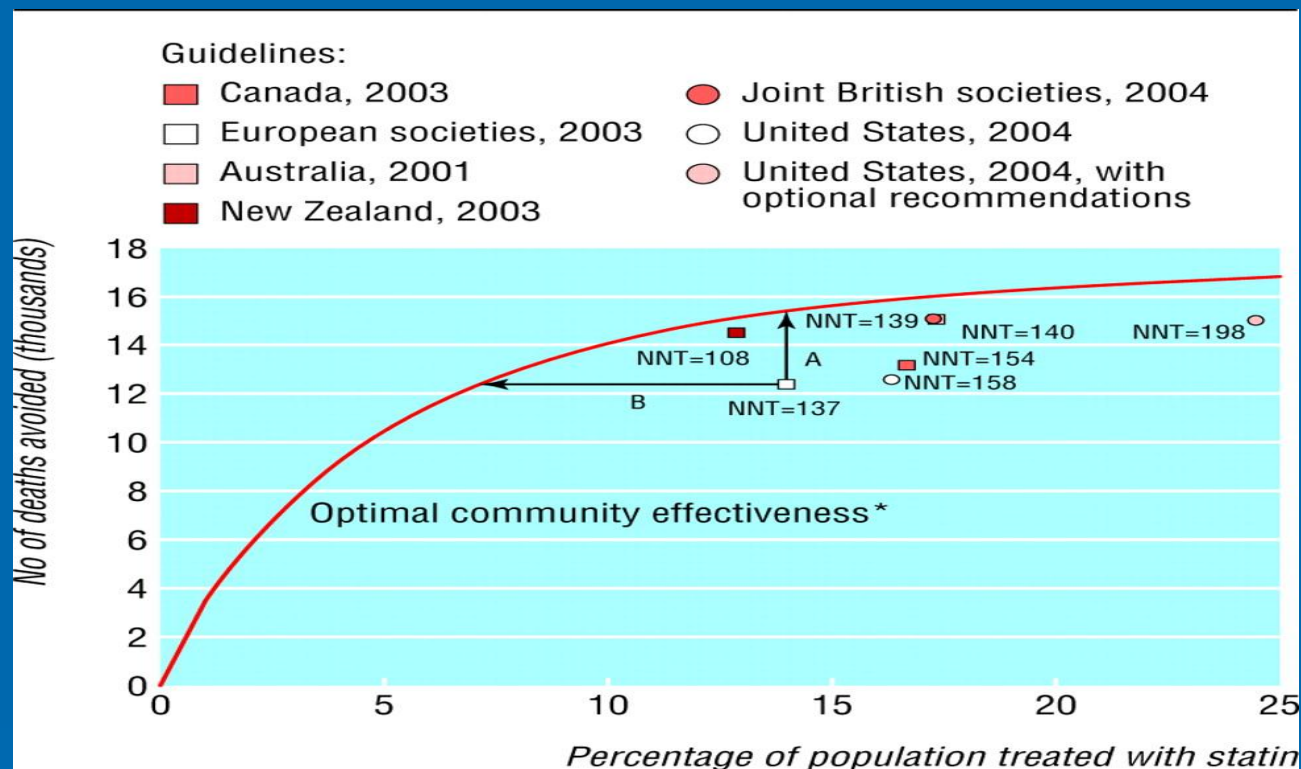


Fig 2 Number of deaths from coronary heart disease (CHD) prevented over five years by percentage of Canadian population aged 20-74 years treated with statins for different guidelines for the management of dyslipidaemia



*The optimal community effectiveness curve shows the number of CHD deaths avoided if the highest risk people were treated first

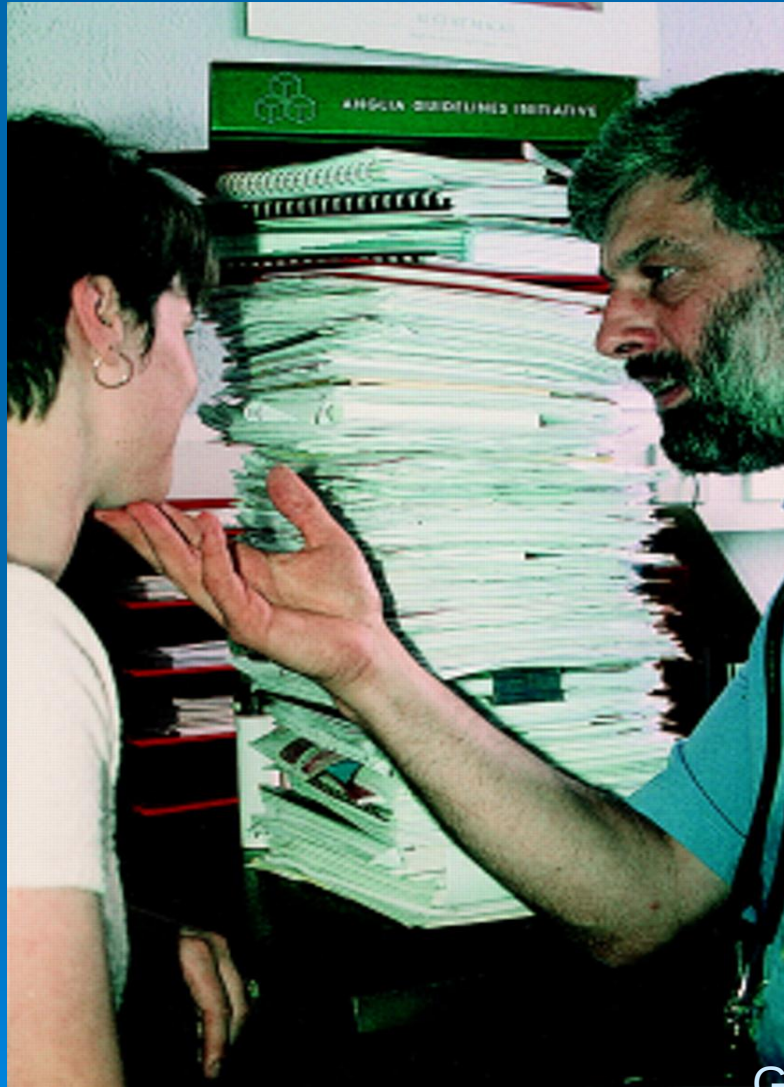
A=The effectiveness gap or the difference between the potential deaths avoided by the guideline recommendations compared with the optimal number of deaths avoided if the highest risk people were recommended treatment.

B=The efficiency gap or the difference between percentage of the population recommended statin treatment compared with the minimum population that could be treated to avoid the same number of deaths.

NNT=Number needed to treat to prevent 1 CHD death over 5 years

Manuel, D. G et al. BMJ 2006;332:1419

21st Century Tower of Babel



GPs with 855 Guidelines

Hibble, A. et al. BMJ 317:862-863
GPCME Dunedin 2012

BMJ

Warfarin in the prevention of stroke associated with nonrheumatic atrial fibrillation. Veterans Affairs Stroke Prevention in Nonrheumatic Atrial Fibrillation Investigators

MD Ezekowitz, SL Bridgers, KE James, NH Carliner, CL Colling, CC Gornick, H Krause-Steinrauf, JF Kurtzke, SM Nazarian et al.

NEJM Volume 327:1406-1412 November 12, 1992
Number 20

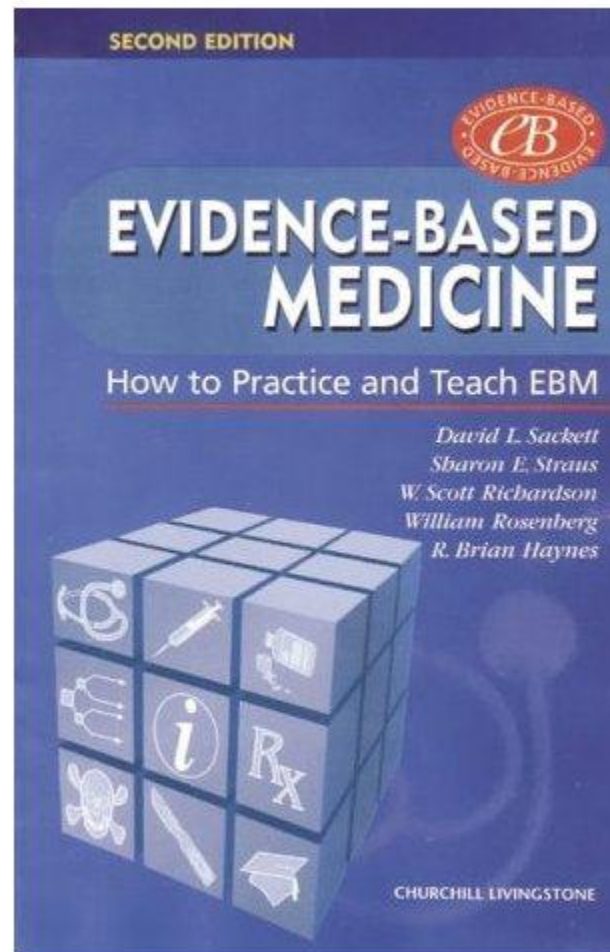


Table 3. Treatment Regimen Based on Clinical Practice Guidelines for a Hypothetical 79-Year-Old Woman With Hypertension, Diabetes Mellitus, Osteoporosis, Osteoarthritis, and COPD*

Time	Medication†	Other
7:00 AM	Ipratropium metered dose inhaler 70 mg/wk of alendronate	Check feet Sit upright for 30 min on day when alendronate is taken Check blood sugar
8:00 AM	500 mg of calcium and 200 IU of vitamin D 12.5 mg of hydrochlorothiazide 40 mg of lisinopril 10 mg of glyburide 81 mg of aspirin 850 mg of metformin 250 mg of naproxen 20 mg of omeprazole	Eat breakfast 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
12:00 PM		Eat lunch 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
1:00 PM	Ipratropium metered dose inhaler 500 mg of calcium and 200 IU of vitamin D	
7:00 PM	Ipratropium metered dose inhaler 850 mg of metformin 500 mg of calcium and 200 IU of vitamin D 40 mg of lovastatin 250 mg of naproxen	Eat dinner 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
11:00 PM	Ipratropium metered dose inhaler	
As needed	Albuterol metered dose inhaler	

Table 4. Potential Treatment Interactions for a Hypothetical 79-Year-Old Woman with 5 Chronic Diseases

Type of Disease	Medications With Potential Interactions	Type of Interaction		
		Medication and Other Disease	Medications for Different Diseases	Medication and Food
Hypertension	Hydrochlorothiazide, lisinopril	Diabetes: diuretics increase serum glucose and lipids*	Diabetes medications: hydrochlorothiazide may decrease effectiveness of glyburide	NA
Diabetes	Glyburide, metformin, aspirin, and atorvastatin	NA	Osteoarthritis medications: NSAIDs plus aspirin increase risk of bleeding Diabetes medications: glyburide plus aspirin may increase the risk of hypoglycemia; aspirin may decrease effectiveness of lisinopril	Aspirin plus alcohol: increased risk of gastrointestinal tract bleeding Atorvastatin plus grapefruit juice: muscle pain, weakness Glyburide plus alcohol: low blood sugar, flushing, rapid breathing, tachycardia Metformin plus alcohol: extreme weakness and heavy breathing Metformin plus any type of food: medication absorption decreased
Osteoarthritis	NSAIDs	Hypertension: NSAIDs: raise blood pressure†; NSAIDs plus hypertension increase risk of renal failure	Diabetes medications: NSAIDs in combination with aspirin increase risk of bleeding Hypertension medications: NSAIDs decrease efficacy of diuretics	NA
Osteoporosis	Calcium, alendronate	NA	Diabetes medications: calcium may decrease efficacy of aspirin; aspirin plus alendronate can cause upset stomach Osteoporosis medications: calcium may lower serum alendronate level	Alendronate plus calcium: take on empty stomach (>2 h from last meal) Alendronate: avoid orange juice Calcium plus oxalic acid (spinach and rhubarb) or phytic (bran and whole cereals): eating these foods may decrease amount of calcium absorbed (>2 h from last meal)
Chronic obstructive pulmonary disease	Short-acting β -agonists	NA	NA	NA

Abbreviations: NA, no interaction is known; NSAIDs, nonsteroidal anti-inflammatory drugs.

*Thiazide-type diuretics may worsen hyperglycemia, but effect thought to be small and not associated with increased incidence of cardiovascular events.

†This interaction is noted to be particularly relevant for individuals with diabetes; no recommendation for treatment is given.

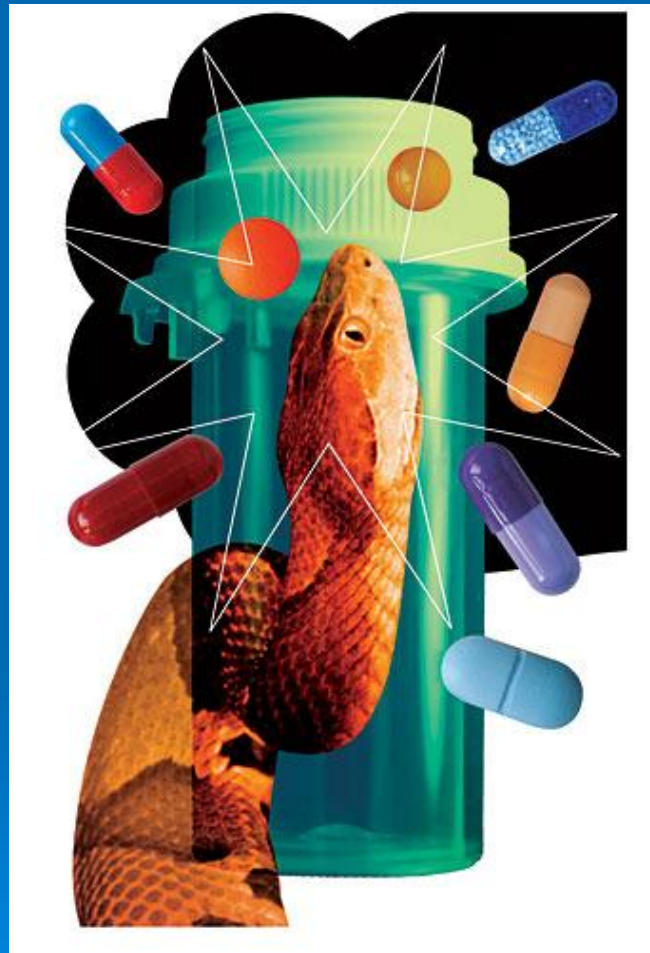
Advanced dementia and Antibiotics

- 225 patients with pneumonia
- 9% none, 55% oral, 16% IM, 20% IV
- Comfort was greatest in those with no abs and progressively less with increased intensity of intervention $p=0.008$

Givens JL, Arch Int med 2010;170(3): 1102



The 'Poisonous Cocktail' of Multiple Drugs



The New York Times

Sept 18th 2007

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- PEARLS are succinct summaries of Cochrane Systematic Reviews for primary care practitioners – developed by the Cochrane Primary Care Field, New Zealand Branch of the Australasian Cochrane Centre at the Department of General Practice and Primary Health Care, University of Auckland and funded by the New Zealand Guidelines Group.
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- Childhood obesity
- Hyperbaric Oxygen in acute MI
- Timing of BP drugs
- Perineal trauma
- Depression in Kids
- Mind-body interventions in pregnancy
- Low dose radiotherapy in Prostate cancer
- Weight reducing diets
- Acupuncture in Labour
- Music Therapy
- Statins in ACS
- Tight glycaemic control in type 2 diabetes

New Zealand Doctor (accessed 2nd July 2012)



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Is Calcium bad for your heart?

- 1471 women (age mean 74 y)
- Randomised to 1g Ca or placebo
- Duration 5 years
- RR MI 2.12 (1.01-4.47) in treated group
- NNH for MI = 44
- NNH for Stroke = 56
- “...if you have heart disease, you should probably be looking after your bones in other ways....”

Prof Reid NZ Herald 25/9/07

Calcium supplements

- Bolus dose supplements are NOT natural
- Bolus dose Calcium is not safe
- Bolus dose calcium is not effective
- Patients should be advised to “obtain their calcium from an appropriately balanced diet”

Reid I, Heart; 2012



Archie Cochrane

Correlation between EJV assessment and measured CVP

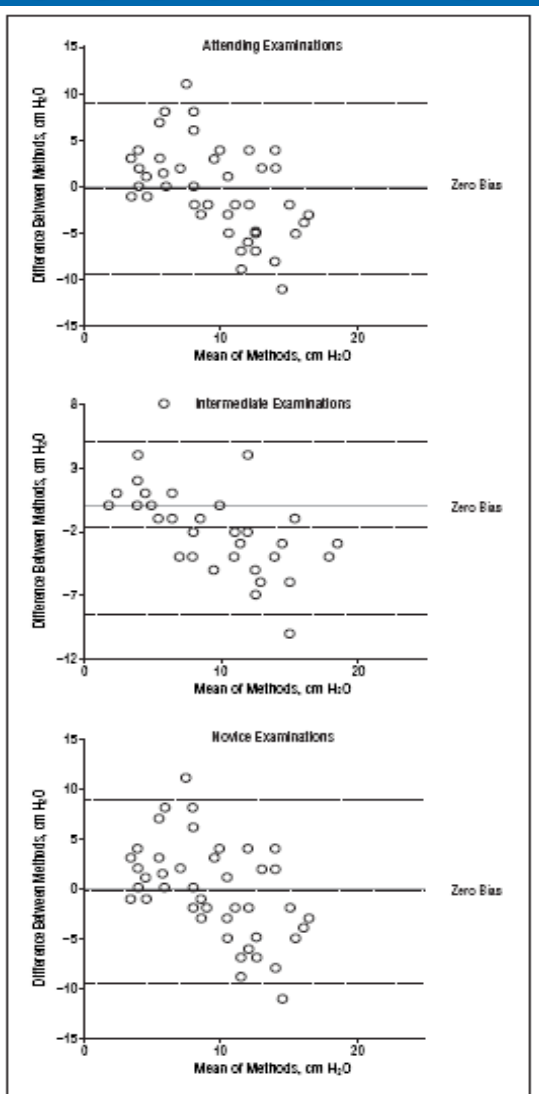


Table 3. Data Summary of the Examinations Shown in Figure 3*

Examiners	No.	Bias (95% Confidence Limits of Agreement), cm of Water	R Value†
Novice	47	-0.3 (-9.6 to 8.9)	0.51
Intermediate	39	-1.7 (-8.6 to 5.2)	0.81
Attending	38	-1.0 (-6.8 to 4.8)	0.82
All	118	-1.0 (-8.6 to 6.7)	0.69

Figure 3. The Bland-Altman plots²² of the correlation between the external jugular vein examination and catheter-measured central venous pressure values.

Vinajak A, Arch Int med; 2006

Breast Cancer Screening – The Numbers

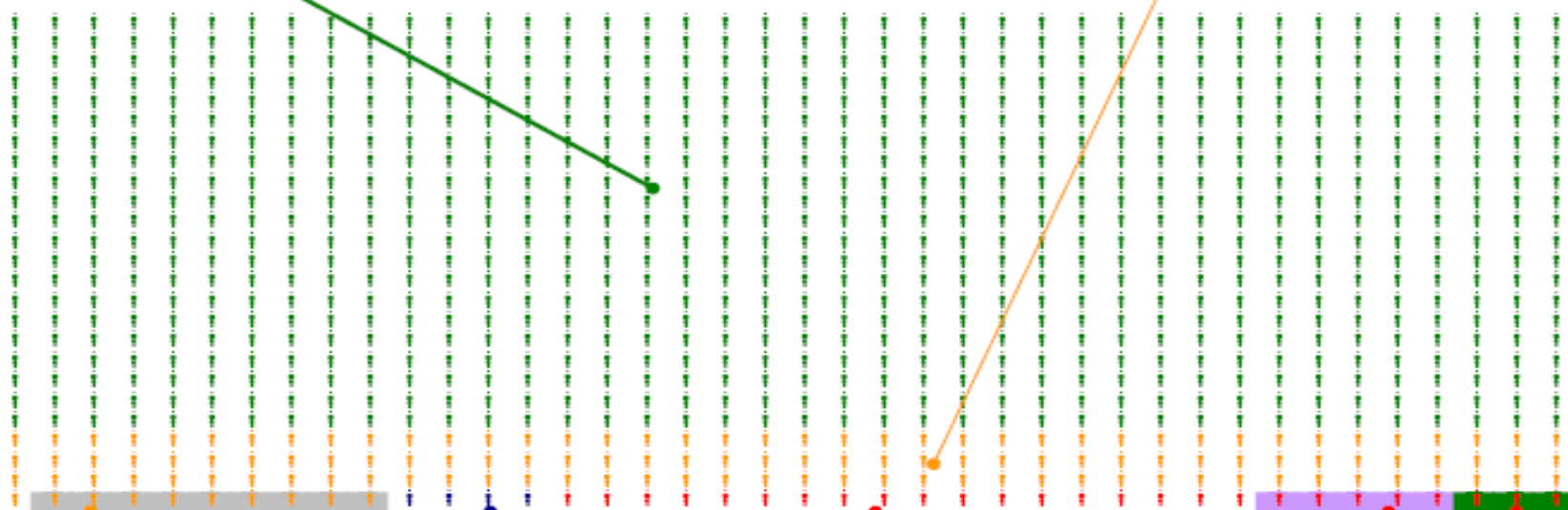
(UK pop)

Imagine 1000 women aged between 50 and 70 years

All attend for regular breast screening over 10 years. What happens to that group of women?

These 840 women are not diagnosed with breast cancer, and would not have been even if they had not been screened

These 121 women are called back for further assessment, but turn out not to have breast cancer. They don't need to have a biopsy to rule it out



These 4 women have breast cancer detected through screening which would not have been known about and would not have affected their health if they hadn't been screened

These 5 women are confirmed as having breast cancer and die from it, just as they would if they hadn't been screened

These 9 women are called back for further assessment, but turn out not to have breast cancer. They need to have a biopsy to rule it out

These 18 women are confirmed as having breast cancer but don't die, just as would have happened if they hadn't been screened

These 3 women are confirmed as having breast cancer but don't die from it because it has been detected early through screening



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