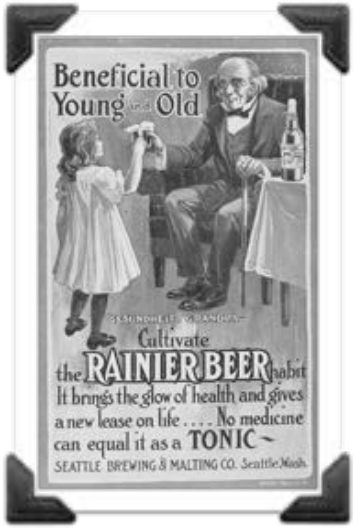
Media, marketing, moisturizers, medications, medical shows and a machination of the mind

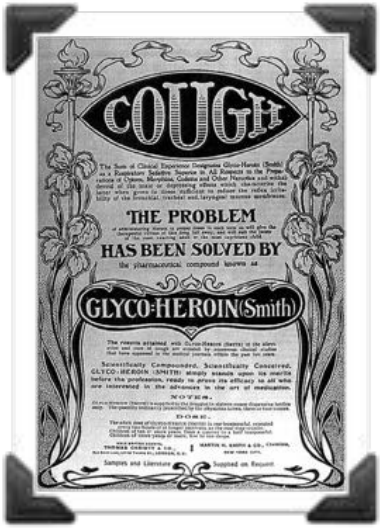
James McCormack
BSc(Pharm), Pharm D
Faculty of Pharmaceutical Sciences
UBC

Evidence and stories behind the Dr. Oz Show, anti-aging creams, medical news

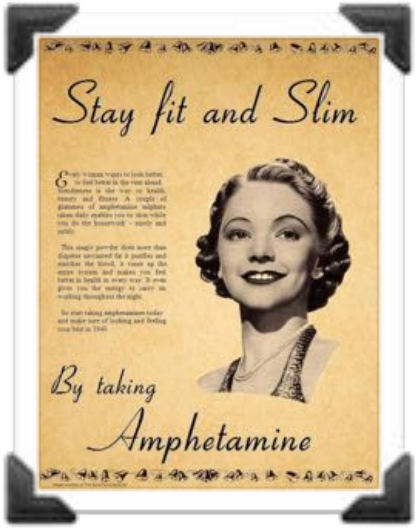


Beer
for children

Barbiturates
for mothers



Heroin
for cough



Amphetamines
for weight loss

These are actual ads

talk about my experience with looking at and interacting with the media when it comes to the dissemination/examination of evidence

suggest that WE are much of the cause of the problem

talk about moisturizers and the evidence

discuss what we should do

Relevant and useful information

I JUST KNOW

A lot of bullshit

Systematic review/ meta-analysis

RCT

Cohort

Case Control

Case Report

“Expert” Opinion

EVIDENCE PYRAMID

Which is either

purposeful

based in ignorance

Need different evidence for different questions

Relevant and useful information

A lot of bullshit

Drugs in the News

How well do Canadian newspapers report the good, the bad and the ugly of new prescription drugs?

by Alan Cassels, Merrilee Atina Hughes, Carol Cole, Barbara Mintzes, Joel Lexchin and James McCormack

April 2003

Canadian Centre for Policy Alternatives

Drugs in the news: an analysis of Canadian newspaper coverage of new prescription drugs

Alan Cassels, Merrilee A. Hughes, Carol Cole, Barbara Mintzes, Joel Lexchin, James P. McCormack

193 articles - 5 selected “new”drugs

100% - mentioned at least one benefit

2/3 - made no mention of possible side effects or harms

1/4 - of mentions of drug benefits and harms presented quantitative information

2/3 - of the articles gave no quantification of the benefits or harms

1/20 - mentioned contraindications - 1/3 mentioned drug costs

After exclusion of industry and government spokespeople, for only 3% was there any mention of potential COI

CMAJ 2003;168:1133-7

Scorecards we developed to evaluate medical media. Does the story…

Adequately discuss costs?
Quantify potential benefits?
Quantify potential harms?
Evaluate quality of the evidence?
Avoid disease-mongering?
Establish true novelty of the idea?
Establish true availability of the idea?
Use independent sources & identify COI?
Compare the new idea with existing options?
Appear to rely on a news release?

media doctor canada

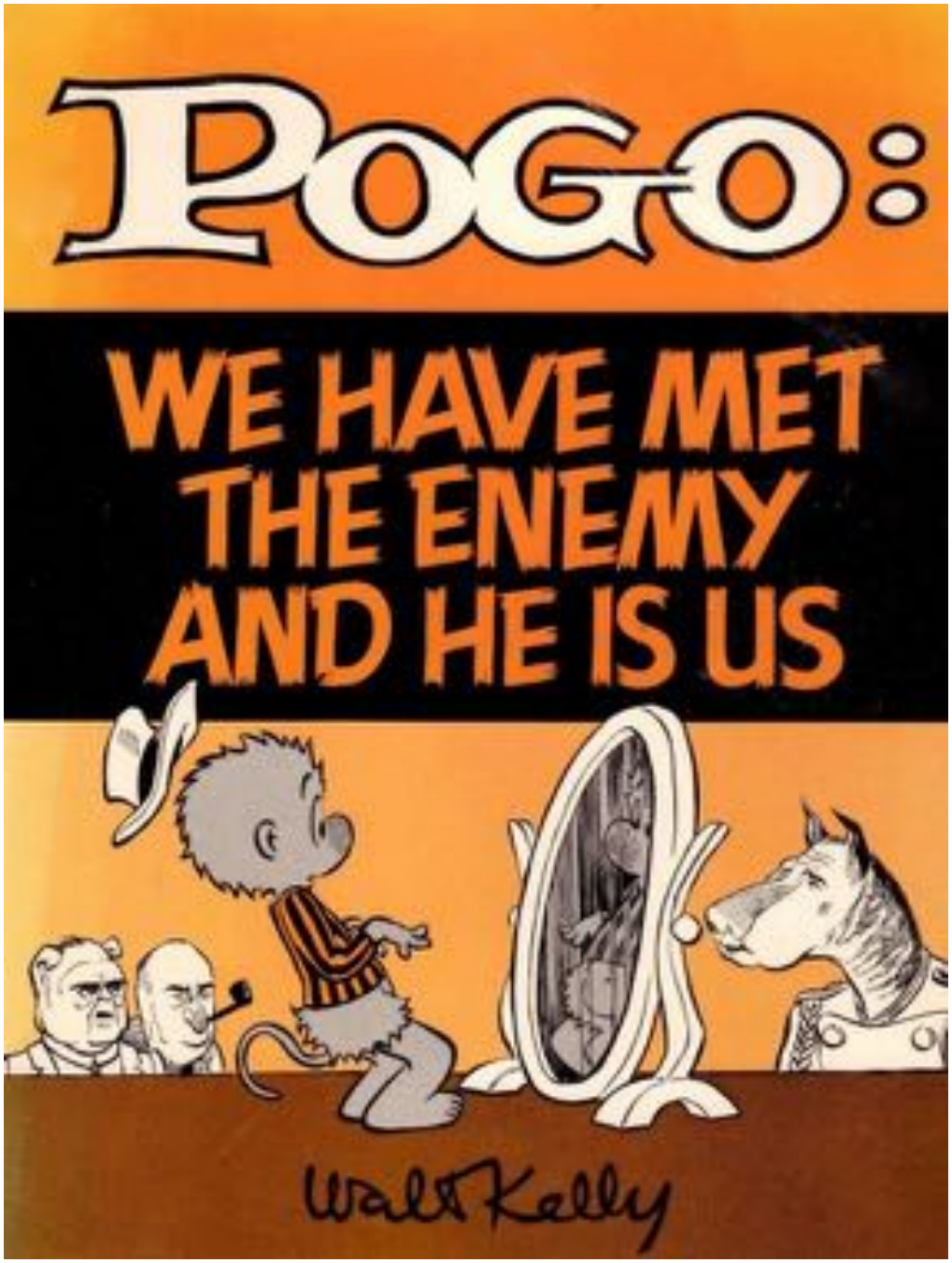
It's simple, just ignore media reports…but

"90% of the general public gets most of its information about science from the mass media"

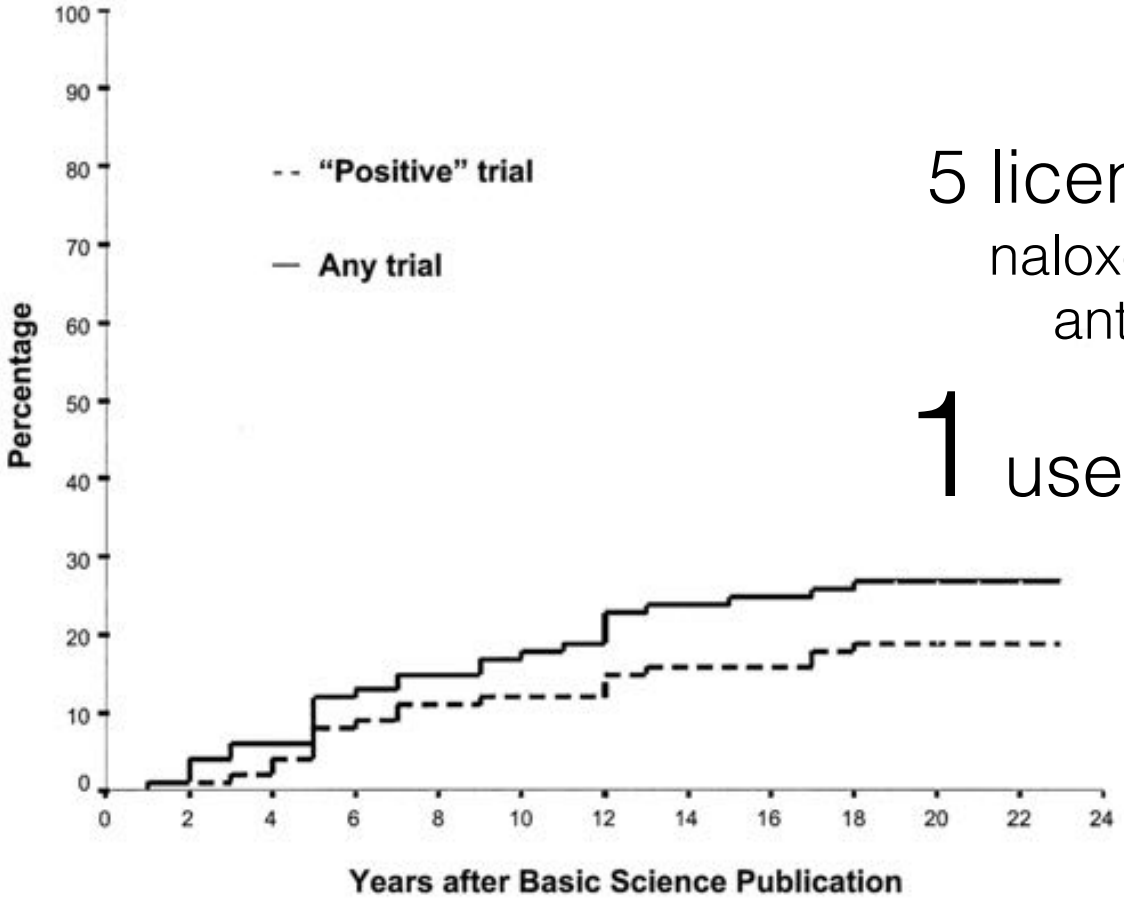
"press releases are a major source of information for 1/3 of medical reports in US Newspapers"

PLoS Med 2012 9(9): e1001308. doi:10.1371/journal.pmed.1001308

THE EASY EXPLANATION



101 articles, published between 1979 and 1983 in six major basic science journals, which clearly stated that the technology studied had novel therapeutic or preventive promises



5 licensed for clinical use

naloxone, pergolide, alpha-1 antitrypsin, interleukin 2

1 used extensively - ACEI

Am J Med 2003;114:477-84

Misrepresentation of Randomized Controlled Trials in Press Releases and News Coverage: A Cohort Study

spin = specific reporting (intentional or unintentional) that emphasizes the beneficial effect of the experimental treatment

at least one kind of spin - primarily no acknowledgement of non statistically significant primary outcome, focus on within group comparisons, suggesting a p value >0.05 demonstrates equivalence

40% of the study abstracts - So this Starts the Process

47% of press releases

31% of press releases misinterpreted the results - 86% overestimated effect

PLoS Med 2012 9(9): e1001308. doi:10.1371/journal.pmed.1001308

The association between exaggeration in health related science news and academic press releases: retrospective observational study

Press releases (n=462) on biomedical and health-related science issued by 20 leading UK universities

"Although it is common to blame media outlets - our principle findings were that most of the inflation detected in our study did not occur de novo in the media but was already present in the text of the press releases produced by academics and their establishments"

"most of the responsibility for exaggeration must lie with the scientific authors"

BMJ 2014;349:g7015 doi: 10.1136/bmj.g7015

Annals of Internal Medicine | ARTICLE

Press Releases by Academic Medical Centers: Not So Academic?

200 press releases

44% - animal/laboratory research
- 74% explicitly claimed relevance to human health
- 90% lacked caveats about extrapolation

48% - primary human research
- 23% omitted study size
- 34% failed to quantify the results

Ann Intern Med 2009;150:613-618

Seeing what you want to see in randomised controlled trials: versions and perversions of UKPDS data

James McCormack, Trisha Greenhalgh

BMJ 2000;320:1720–3

Summary points

Randomised trials are subject to interpretation bias as shown by the example of the UK prospective diabetes study

The UK prospec
benefit on macr
with type 2 diab
or insulin over 1

The study shows
macrovascular e
patients with typ
independent of t
glucose concentr

Nevertheless, ma
the wider scientific community interpreted the study as providing evidence of the benefit of intensive glucose control

Journal editors should be aware of this important potential bias and encourage authors to present their results initially with a minimum of discussion so as to invite a range of comments and perspectives from readers

Nevertheless, many authors, journal editors, and the wider scientific community interpreted the study as providing evidence of the benefit of intensive glucose control

Table 1 Effect of 10 years' treatment with chlorpropamide, glibenclamide, or insulin on patients with newly diagnosed type 2 diabetes

	Any diabetes related end points* (%)	Microvascular disease (%)	Individual macrovascular disease end points†				Median haemoglobin A_1 (%)
	point (%)	diabetes (%)	(%)	(%)	(%)	disease (%)	Median haemoglobin A_1 (%)
Dietary advice plus metformin	28.7†	8.2*	14.6†	11.4*	3.5‡	7.0	7.4
Dietary advice plus chlorpropamide, glibenclamide, or insulin	36.8	10.8	20.0	14.6	6.3	7.8	All similar to metformin
Dietary advice only	38.9	13.4	21.7	17.8	5.6	9.2	8.0
Relative risk reduction (metformin *v* dietary advice)	26.2	38.8	32.7	36.0	44.4§	NS	Significantly lower for all drugs compared with dietary advice
Absolute risk reduction (metformin *v* dietary advice)	10.2	5.2	7.1	6.4	2.8§	NS	
No needed to treat for 10 years to prevent one event (metformin *v* dietary advice)	10	19	14	16	36§	NS	

"We believe that these cases illustrate the principle that interpretations of clinical trial results are often neither objective nor value-free. Rather, researchers, authors, and editors are highly susceptible to interpretive biases"

"We've shown something here" bias

"The result we've all been waiting for" bias

"Just keep taking the tablets" bias

"What the hell can we tell the public?" bias

"If enough people say it, it becomes true" bias

Televised medical talk shows—what they recommend and the evidence to support their recommendations: a prospective observational study

	No (%) of recommendations	
	The Dr Oz Show **(n=479)**	*The Doctors* **(n=445)**
Benefit of recommendation mentioned	453 (94.6)	402 (90.3)
Benefit was specific	204 (42.6)	184 (41.3)
Magnitude of benefit mentioned	79 (16.5)	49 (11.0)
Possible harms mentioned	47 (9.8)	34 (7.6)
Cost mentioned	60 (12.5)	14 (3.1)
Potential conflict of interest declared or mentioned	1 time	3 times

BMJ 2014;349:g7346

“Believable” Evidence for Recommendations

The Dr Oz Show

evidence supported 46%

contradicted 15%

not found for 39%

believable/somewhat believable evidence 33%

The Doctors

evidence supported 63%

contradicted 14%

not found for 24%

believable/somewhat believable evidence supported 53%

BMJ 2014;349:g7346

Moisturizers

Deception in cosmetics advertising: Examining cosmetics advertising claims in fashion magazine ads

289 ads
variety of claims - superiority, scientific, performance, subjective

OVERALL
Vague 42%
Omission 17%
False 23%
Acceptable 18%

J Glob Fas Mark 2015:6:194-206

AGE and SUN

Most (90%+) changes associated with skin aging are due to photoaging from sun exposure and chronologic aging

- FDA has no authority to require companies to test cosmetic products for safety
- most cosmetic marketing claims are unregulated, and companies are rarely, if ever, required to back them up, even for children's products
- companies are allowed to leave some chemical ingredients off product labels
- "Fragrance" may include any number of the industry's 3,100 stock chemicals
- FDA does not have the resources or authority for pre-market approval of cosmetic product labelling

Unregulated terms

These terms can mean ANYTHING or NOTHING AT ALL

Dermatologist recommended
Clinically proven
Hypoallergenic
Non-comedogenic
Alcohol-free
24-hour anything
Non-irritating
Repairing
Detoxifying
Contouring
Healing
Dermatologist tested
Dermatologist approved
Proven formula
Chemical free

Cosmetic Myths

creams designed for different body parts
expensive creams
hydrating serums
age reversing products
toners
body-firming products
sunscreen > 50 SPF
facial masks

Consumer Reports®

April 2012
7 creams studied
Garnier, L'Oreal Paris, Lancome Paris, Olay, Aveeno, Neutrogena

"After 6 weeks ... no product was even slightly better than the rest, including the control."

Which?

August 2009
13 products studied
Nivea, L'Oreal, Simple Kind to Skin, Olay, Dr Brandt, Logona, Clarins, Clinique, StriVectin, Garnier, Boots, Avon, RoC

"Simple moisturiser worked just as well as more expensive creams"

Retin-A
Avita
Altinac
Tretin-X
Refissa
Renova
Stieva-A
Airol
Atralin

"Topical tretinoin
[Retin-A and others]
is considered
the **GOLD** standard
to treat photoaged skin"

Journal of Cosmetic Dermatology 2015;14:40-6

Tretinoin overall

(looking at just the doses that worked >0.01%)

APPLYING TO FACE FOR 6 MONTHS	People using CREAM with **TRETINOIN**	People using CREAM **ALONE**	THE ACTUAL DIFFERENCE
% OF PEOPLE IMPROVED			
Investigator's assessment	75%	40%	35%
Patient's assessment	85%	60%	25%
Fine wrinkles	65%	35%	30%
Coarse wrinkles	45%	25%	20%
Uneven skin discolouration	70%	45%	25%
% OF PEOPLE HARMED			
Redness	30%	5%	25%
Scaling/dryness	55%	20%	35%
Burning/stinging	30%	10%	20%

ADAPTATION OF DATA FROM A COCHRANE REVIEW - NUMBERS ROUNDED OFF

Wrinkles are typically evaluated using a **9** point scale

Average change from using tretinoin **0.5-1.0**

IN 6 MONTHS

Try ones like these first

Are these the best? - no one knows.
But they contain reasonable ingredients.

Notice they come in **BIG** sizes

"The best defence against bullshit is vigilance.
So if you smell something, say something."

The Bullshit Asymmetry

The amount of energy needed to refute bullshit is an order of magnitude bigger than to produce it.