



Critical thinking for new Skeptics

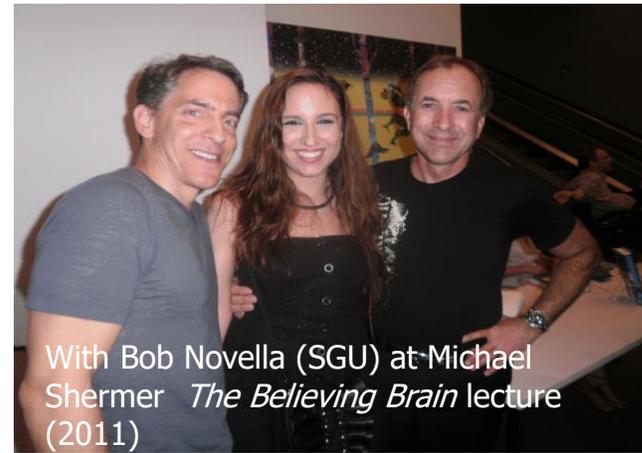
Dr Paulie Stehlik

GC Skeptics President

Senior Research Fellow, Institute for Evidence-Based Healthcare,
Bond University

My skeptical journey...

- Always fascinated by science, evidence and logic...
- 2009-ish
 - “Gate way drug” – Skeptics Guide to the Universe
- 2011
 - Lectures for lectures for Monash Pharmacy Students:
 - Critical thinking in the context of CAM lecture series
 - Debunking anti-vaccination myths
- 2012
 - Presentation at Vic Skeptics Café in response to Guild-Blackmores deal
 - Skepticon 2012 (Committee member)
 - More lectures: Pharmacists and CAM enquiries, practical aspects
- 2017
 - Moved to GC and baton was passed...



With Bob Novella (SGU) at Michael Shermer *The Believing Brain* lecture (2011)



Paulie Stehlik

Presenting at Vic Skeptics Café (2012)



Pre-Skepticon Dinner with James Randi (2012)

My skeptical journey...

- June 2017-Current
 - 25 GC Skeptics events including 3 Darwin Day and 1 Skepticamp events with BSS and Qld Skeptics
 - Presenting on the Regulatory Panel during 2019 Skepticon
 - Working with A/Prof Ken Harvey on the Whack-a-mole project
 - 1 Public Lecture on Evaluating Health Claims during Bond Research Week

Mar 14, 2012 ·  · Ken Harvey is my new idol. What a champ!!

What is the skeptical movement?

(My perspectives... probably somewhat inaccurate, but some internet skeptic-hero somewhere will correct me)

- Based on **scientific skepticism**
- Roots are in questioning spiritism, superstitions, pseudoscience, and medical quackery
- These beliefs can be **harmful**

A skeptic is one who prefers beliefs and conclusions that are **reliable and valid** to ones that are **comforting or convenient**, and therefore rigorously and openly applies the methods of science and reason to all empirical claims, especially their own. A skeptic provisionally **proportions acceptance of any claim to valid logic and a fair and thorough assessment of available evidence**, and studies the pitfalls of human reason and the mechanisms of deception so as to avoid being deceived by others or themselves. **Skepticism values method over any particular conclusion.**



A/Prof Steven Novella
Yale, *SGU Podcast*

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- These beliefs can be **harmful**

Keep an open mind
but not so open
that your brain
**FALLS
OUT**

The true meaning of the word *skepticism* has **nothing to do with doubt, disbelief, or negativity**. Skepticism is the process of **applying reason and critical thinking to determine validity**. *It's the **process of finding a supported conclusion, not the justification of a preconceived conclusion.***



Brian Dunning
Author, Skeptoid podcast

What I want to discuss today

Skeptical toolkit

- The premise and 3 common issues (false premise, making assumptions, un-stated major premise)
- Occam's Razor (a.k.a.: The Law of Parsimony)
- "Cherry picking"
- Some basic logical fallacies and why they are flawed reasoning

Science denial – What's the harm?

Flawed Logic

- Can be difficult to spot
 - Takes years of practice to fully master this art
- Being able to critically analyse the literature and what is being shown in the media is an important tool for avoiding getting “duped”.
 - This is just an introduction to critical thinking 😊

Making arguments

- When people are trying to “prove a point” they will make an “argument” in order to support their claim
- Some arguments may sound quite good on the surface, but in fact are empty arguments lending nothing to their point
 - So how can we spot the good arguments from the bad?

Formation of an Argument



Formation of an Argument



The Premise

What is a premise?

- Is defined as “a proposition supporting or helping to support a conclusion”
- It is an assumption you make as a starting point of your argument and then apply logic in order to come to a conclusion

Premise 1: $A = B$

Premise 2: $B = C$

Logical conclusion: $A = C$

The Premise

What is a premise?

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Premise 1: All Dalmatians are dogs

Premise 2: All dogs bark

Logical conclusion: Therefore all Dalmatians bark

The Premise

1. The False Premise

- When evaluating arguments, it is important to establish whether or not the premises are true or not. If a false premise is present, then the argument itself is a false one.

Premise 1: pink fluffy elephants that fly exist

Premise 2: pink fluffy elephants that fly are good for transport

Logical conclusion: we can use pink fluffy elephants that fly as a method of transport

The Premise

2. Making assumptions in the premise

- Premises can also be subject to assumptions, especially if there is not a big enough body of evidence to support the premise.
 - Depending on whether or not the premise is valid, your logical conclusions may or may not be valid.

Assuming that drug A is good at treating disease X, we can also use its effects to help with symptom Y

The Premise

3. The un-stated major premise

- Where the premise is actually unstated.
- These are much harder to spot!

Cancers are caused by the fungus *C. albicans*.
Fungi like acidic environments and can be killed in alkaline environments
Therefore, making your blood alkaline with sodium bicarbonate will prevent/ cure cancer

Using a “false premise” as basis of claim

Cancers are caused by the fungus *C. albicans*.
Fungi like acidic environments and can be killed in alkaline environments
Therefore, making your blood alkaline with sodium bicarbonate will prevent/ cure cancer

Stated premise

- Fungus causes cancer
- Alkaline environment will kill fungus
- Able to make blood alkaline with sodium bicarbonate

Unstated premise

- It is safe to make blood alkaline

Using a “false premise” as basis of claim

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Fungi like acidic environments and can be killed in alkaline environments

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Using a “false premise” as basis of claim

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- ✓ Able to make blood alkaline with sodium bicarbonate

Unstated premise

- ✗ It is safe to make blood alkaline

Usual pH (acid level) in body is ~7.4 - body is very good at keeping a tight range

Acidosis if pH is **lower** than 7.35
Alkalosis if pH is **higher** than 7.45

Can lead to **death**

Occam's Razor

- This is a way of thinking which suggests that the hypothesis or theory which makes the least number of assumptions is *most likely* true.
- Another way to think about it is “the simplest answer is most often correct”

Occam's Razor

- My pencil case is missing. The most appropriate answer to where it is would be:
 - A. Aliens came to earth specifically to steal my pencil case
 - B. The boogie monster ate it
 - C. I lost it

Occam's Razor

- When a person hears the sound of hoofs in Australia, they can assume that the sound is being made by:
 - A. Zebras
 - B. Horses
 - C. Centaur

Cherry Picking

- A premise should be based on the best currently available evidence
- “Cherry picking” evidence is a type of bias where the person making the argument only chooses to examine evidence which supports their hypothesis, and ignores other forms of evidence which contradict it.

!Remember

One trial cannot prove or disprove a hypothesis or theory – it is the **body of evidence** (i.e.: when many experiments have been done with similar results) which truly confirm or invalidate them.



Formation of an Argument



Logical Fallacies

- Logical fallacies are errors in reasoning.
- People can use these arguments to support their claim, but because their logic is flawed, they have most likely come to the wrong conclusion.

Logical Fallacies

- Does NOT necessarily mean that the conclusion is wrong, but that the argument used to support the conclusion is an invalid one.

Oranges are a citrus fruit; therefore the sky is blue

Logical Fallacies – Argument from Authority

This is an argument based on an “expert” opinion, which assumes that the expert is somehow correct.

“I use this every day” – Famous athlete

“Dr X, a neurosurgeon with 35 years of medical experience, says that putting pineapples in your ears will help decrease the risk of Alzheimer’s Disease”

Logical Fallacies – Argument from Authority



“With Swisse, ingredients make all the difference.”



Logical Fallacies – Argument from Antiquity and Popularity

- Are similar to an argument from authority and is commonly used in health literature.
- It states that just because a belief has been around for a long time or is popular, it somehow makes it true.

Antiquity

“Treatment X has been used for thousands of years”

“Uses ancient wisdom...”

“Traditionally used in...”

Popularity

“Many people use treatment X”

“Thousands of people around the world are raving about...”

“Best seller...”

Logical Fallacies – Non-Sequitur

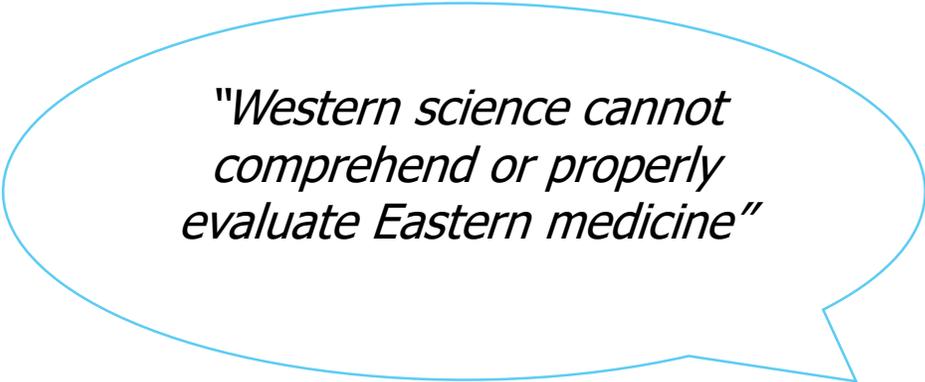
- This means “does not follow” – this is an argument where the conclusion does not follow a true premise.
- A logical relationship is implied where there is none.

“Oranges are an orange colour; therefore, pink fluffy elephants exist”

Logical Fallacies – Special Pleading

- a.k.a moving the goalpost
- This is when a person introduces new elements to an argument in order to fix them. This type of reasoning usually occurs in order to dismiss results that are contrary to the person's point of view.

"You cannot see the pink fluffy flying elephants because you are not a true believer"



"Western science cannot comprehend or properly evaluate Eastern medicine"

Logical Fallacies – Special Pleading

Anti-vaxx Movement

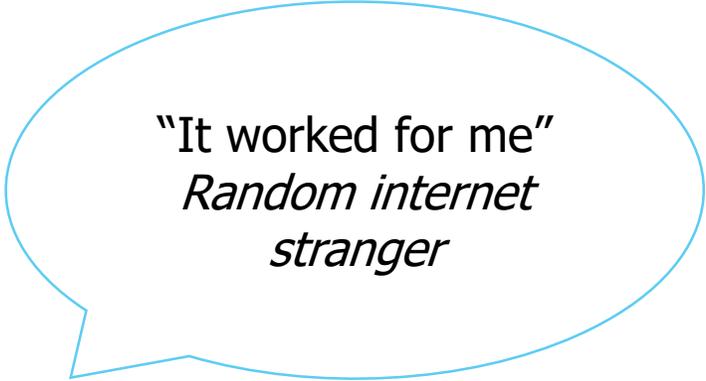
- Wakefield publication linking MMR Vaccines cause autism
 - Brian Deer investigation resulted in the paper being retracted from the Lancet
 - poor study design (case series), unethical practice, falsified data
- ... Actually it's the thiomersal ...
 - Mercury based preservative that *used* to be in vaccines
 - Numerous studies have shown no link between thiomersal and autism
 - Removed in 2000 with no decrease in Autism rates

Logical Fallacies – Post-Hoc Ergo Propter Hoc

- This argument assumes that because there is a temporal relationship between two random events, that the first event caused the second event.

"I sneezed and then there was an earthquake; therefore, my sneeze caused the earthquake"

- A common example is use of **anecdotes** for evidence
 - Anecdotes are the **least** reliable form of evidence
 - Randomised trials are the gold standard for cause-and-effect



*"It worked for me"
Random internet
stranger*

Logical Fallacies – Argument from Nature

Make claims based on assumption that just because something is “natural” that it is somehow safe, good, or better than something that is “unnatural”.

"Herbs are natural, so they must be safe"

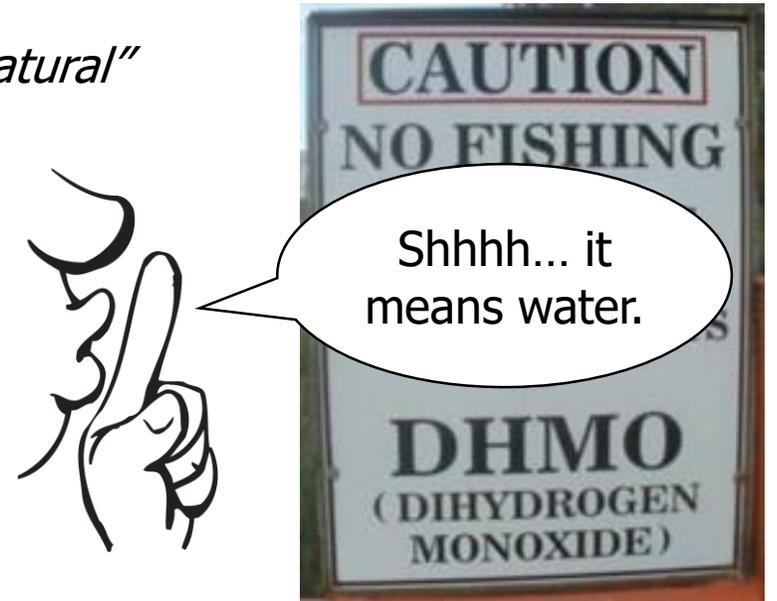
"Chemicals are bad for you because they are unnatural"

"The way nature intended it"

"All-natural ingredients"

"Sourced from nature"

"Organic"



Logical Fallacies – Tu Quoque (“You Too” fallacy)

Basically claims that two wrongs make a right

"Many 'conventional' treatments are not supported by evidence... so use our treatment"

"Australia does not need to do more about climate change, we are responsible for just 1.3 per cent of global emissions. China is one of the biggest polluters, they should do more."

Formation of an Argument



Formation of a **VALID** Argument



Shi* Skeptics Say

John Rael and Ross Blocher (2012 – skepticallypwnd YouTube channel)



Science denial causes harm

- Direct harm
- Indirect harm



Types of scams - Report a scam Get help - News - About Scamwatch -

TYPES OF SCAMS
Identify and protect yourself

REPORT A SCAM
Seen a scam or fallen victim?

GET HELP
What to do next

Latest news and alerts



7 OCTOBER 2019

A quick guide to your personal data for Stay Smart Online Week 2019

Stay Smart Online Week is an annual event focused on empowering people, businesses and the community to protect themselves online.



16 SEPTEMBER 2019

Threat and kidnap scams continue to target Chinese community

The ACCC's Scamwatch service is warning the Chinese community in Australia to be wary about two alarming scams that involve extortion via fake kidnappings and

Enter a search term

SCAMWATCH RADAR

Subscribe for email alerts on the latest scams.

Subscribe now

@SCAMWATCH_GOV

@SCAMWATCH_GOV · 12 NOV

RT @TheNewDailyAu: Airbnb encountered controversy after a sophisticated web of scams were uncovered in a US expose. In Australia, the... <https://t.co/AnwGSiTsF>



www.whatstheharm.net

what's the harm?

What is this site?

368,379 people killed, 306,096 injured and over \$2,815,931,000 in economic damages

List of Topics

Children

Famous people

Scientific studies

FAQ

Resources

Contact

Press

Store

New cases (RSS)

Google Custom Search

Search

Below are the topics in which we have found stories of harm. We encourage you to explore the stories within, especially any topic that is part of your own life or the lives of your loved ones.

Medical

[Acupuncture](#)
[Alphabiotics](#)
[Alternative dentistry](#)
[Alternative medicine](#)
[Applied kinesiology](#)
[Autism denial](#)
[Ayurvedic medicine](#)
[Chelation therapy](#)
[Chiropractic](#)
[Colloidal silver](#)
[Colon cleansing](#)
[Cranio-sacral therapy](#)
[Cupping](#)
[Detoxification](#)
[Ear candling](#)
[Energy medicine](#)
[Escharotics](#)
[Folk remedies](#)
[Herbal remedies](#)
[HIV/AIDS denial](#)
[Holistic medicine](#)
[Home childbirth](#)
[Homeopathy](#)
[Iridology](#)
[Naturopathy](#)
[Osteopathy](#)
[Ozone therapy](#)
[Psychic surgery](#)
[Vaccine denial](#)
[Vitamin megadoses](#)

Supernatural & Paranormal

[Astral projection](#)
[Curses](#)
[Exorcisms](#)
[Faith healing](#)
[Ghosts](#)
[Magick](#)
[Psychics](#)
[Vampires](#)
[Voodoo](#)
[Witchcraft](#)

Religion

[Breatharianism](#)
[Christian Science](#)
[Cults](#)
[Jehovah's Witnesses](#)
[Religious fundamentalism](#)
[Scientology](#)
[Transcendental Meditation](#)

Fears

[Apocalypse fear](#)
[Metal toxicity fear](#)
[Satanic ritual abuse](#)
[Terrorism fear](#)

Pseudo-Science

[Astral projection](#)
[Attachment therapy](#)
[Dowsing](#)
[Dream interpretation](#)
[Evolution denial](#)
[Expert witnesses](#)
[Facilitated communication](#)
[Feng shui](#)
[Hypnosis](#)
[Numerology](#)
[Reparative therapy](#)
[Repressed memory therapy](#)

Misinformation

[GPS navigation systems](#)
[Internet misinformation](#)

Miscellaneous

[Child vegetarianism](#)
[Conspiracy theories](#)
[Holocaust denial](#)
[IRS denial](#)
[Moon landing denial](#)
[Multi-level marketing](#)
[Nigerian emails](#)
[Rituals](#)
[UFOs](#)

[Return to the list of topics](#)

Examples of direct harm

Harm of using medical practice for which there is no evidence & Herbs

Black Cohosh

Traditional North American Indian medicine used for menopausal symptoms

Was TGA-listed: "They are all unscheduled medicines with well-known established ingredients, usually with a long history of use, such as vitamin and mineral products or sunscreens. These are assessed by the TGA for quality and safety but not efficacy."

2005: 47 cases of liver reactions worldwide, including 9 Australian cases, 2 of which received liver transplants

Now must have the warning "Black cohosh may harm the liver in some individuals. Use under the supervision of a healthcare professional."

Cyanide cancer cure banned

25 November 2015 | Raw apricot kernels will be taken off the shelves due to poisoning danger.



By Daniel Graham
DanCGraham

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Examples of direct harm

Harm of using medical practice for which there

What is Kambo?

Kambo is the name given to the traditional Shamanic frog poison cleanse that is used to strengthen and heal mind, body and spirit. The scientific name for this frog is *Phyllomedusa bicolor* or "Giant Monkey Frog". This frog lives in the Northwestern part of the Amazon Rainforest and is used by indigenous tribes there to gain strength, immunity and hunting magic.

The poison from the Giant Monkey Frog is applied to the skin after small burns are made with the tip of a glowing stick. Once applied, Kambo stimulates a strong physical purge while toxins are eliminated from body and spirit.

Kambo is traditionally used by the Native people as 'vaccine' to ward off illness, bad luck, to give hunting strength and even to increase attractiveness! Many people have reported immense physical and psychological benefit from its application. It is a way to clear away dark energy, known as 'Panema'. When Panema is cleared, everything becomes easier, obstacles can be overcome and life flows more naturally.

Kambo: the controversial drug derived from stressed-out frogs

A natural painkiller scraped from the back of an Amazonian tree frog is becoming popular. Fans claim it's good for anything - except maybe the frog ...



▲ A giant monkey frog. Photograph: John Sullivan/Alamy

Examples of direct harm

Kambo: the controversial drug derived from stressed-out frogs

Harm of using medical

What is Kambo?

Kambo is the name given to the traditional medicine that is used to strengthen and heal. The traditional name for this frog is *Phyllomedusa bicolor*. It lives in the Northwestern part of the Amazon. Indigenous tribes there use it to gain strength.

The poison from the Giant Monkey Frog burns are made with the tip of a glowing stick. This stimulates a strong physical purge which cleanses the body and spirit.

Kambo is traditionally used by the Natis to cure illness, bad luck, to give hunting strength, and to increase attractiveness! Many people have reported psychological benefit from its application. It is known as 'Panema'. When Panema is used, obstacles can be overcome and

Clinical and Experimental
HEPATOLOGY

Clin Exp HEPATOL 2017; 3, 1: 33–34
DOI: <https://doi.org/10.5114/ceh.2017.65228>
Received: 05.12.2016, Accepted: 05.01.2017, Published: 19.01.2017

ack of an Amazonian
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Case report

Toxic hepatitis caused by the excretions of the *Phyllomedusa bicolor* frog – a case report

Joanna Pogorzelska, Tadeusz W. Łapiński

Department of Infectious Diseases and Hepatology, Medical University of Białystok, Poland

Abstract

The Kambô ritual consists of various types of skin scarification and subsequent application of *Phyllomedusa bicolor* secretion to the fresh wounds. In Europe, the ritual of Kambô is becoming more popular, but its use can lead to serious multiple organ damage, sometimes life-threatening. Our manuscript shows a patient with toxic liver damage probably associated with the Kambô ritual.

Key words: liver damage, *Phyllomedusa bicolor*, Kambô ritual.

Address for correspondence

Prof. Tadeusz W. Łapiński, Department of Infectious Diseases and Hepatology, Medical University of Białystok, 14 Żurawia St., 15-540 Białystok, Poland, e-mail: twlapinski@gmail.com

Introduction

The Kambô or Sapo ritual is performed in numerous

once a week, he performed the ritual of Kambô, using poison from *Phyllomedusa bicolor* to maintain abstinence of drinking, smoking, and to purify the body.



Examples of direct harm

Harm of using medical practice for which there is no evidence & Kambo

What is Kambo?

Kambo is the name given to the traditional Shamanic frog poison cleanse that is used to strengthen and heal mind, body and spirit. The scientific name for this frog is *Phyllomedusa bicolor* or "Giant Monkey Frog". This frog lives in the Northwestern part of the Amazon Rainforest and is used by indigenous tribes there to gain strength, immunity and hunting magic.

The poison from the Giant Monkey Frog is applied to the skin after small burns are made with the tip of a glowing stick. Once applied, Kambo stimulates a strong physical purge while toxins are eliminated from body and spirit.

Kambo is traditionally used by the Native people as 'vaccine' to ward off illness, bad luck, to give hunting strength and even to increase attractiveness! Many people have reported immense physical and psychological benefit from its application. It is a way to clear away dark energy, known as 'Panema'. When Panema is cleared, everything becomes easier, obstacles can be overcome and life flows more naturally.

Other red flags:

- Claims of cure all for serious illness
 - *"anti inflammatory, to help heal eyesight, and to alleviate pain... treatment of brain diseases such as Alzheimer and Parkinson, depression, migraines, blood circulation problems, vascular insufficiency, organ diseases, cancer, fertility problems in women, AIDS, hepatitis and more."*
 - Not on ARTG
- 19 Dec 2018. Complaint lodged to Office of the Health Ombudsman (OHO) Qld

Examples of direct harm

Harm of u

What is Kambo?

Kambo is the name of a toxin that is used to strengthen the immune system. The name for this frog lives in the North Queensland indigenous tribes.

The poison from the frog burns are made with Kambo stimulates a strong and spirit.

Kambo is traditional medicine, bad luck, to increase attractiveness! Many people believe they get psychological benefit from its application. It is a way to clear away dark energy, known as 'Panema'. When Panema is cleared, everything becomes easier, obstacles can be overcome and life flows more naturally.

April 2019



Natasha Lechner, 39, died at a house in Mullumbimby on March 8. NSW Police are investigating reports she had participated in a "kambo ceremony".

Kambo

no further action

Further action, the
and systemic
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circulation problems, vascular
cancer, fertility problems in
more."

complaint lodged to Office of the Health
(OHO) Qld

Examples of direct harm

Pyramid schemes

- Similar to Multi-level marketing (not all are illegal)
- Most of the money is made through recruiting new members into the scheme (rather than selling a product/service) with the promise of making money
 - Requires upfront payment to join the scheme
 - Promise of more money when they get others to join
- Are **illegal** in Australia
- In 2019 alone > \$1.5 million lost in Australia alone
- Examples
 - Mary Kay Cosmetics
 - dōTERRA (MLM)

Examples of indirect harm

Harm of using medical practice for which there is no evidence & TCM

- Some traditional Chinese medicines contain exotic products such as rhino horn and tiger parts
- Laws have been put in place to prevent poaching – recently lifted
- Demand for these animal products has contributed to organised crime in Africa and Asia
 - This is the MAJOR cause for wild-life extinction in these areas



Examples of indirect harm

Harm of using medical practice for which there is

- Some traditional Chinese medicines contain exotic products
- Laws have been put in place to prevent poaching – reduce demand
- Demand for these animal products has contributed to poaching



Year	Rhino Poaching Statistics (national)
2000	7
2001	6
2002	25
2003	22
2004	10
2005	13
2006	24
2007	13
2008	83
2009	122
2010	333
2011	448



these a

Indirect harm

Harm of using medical practice for which there is no evidence & Homeopathy

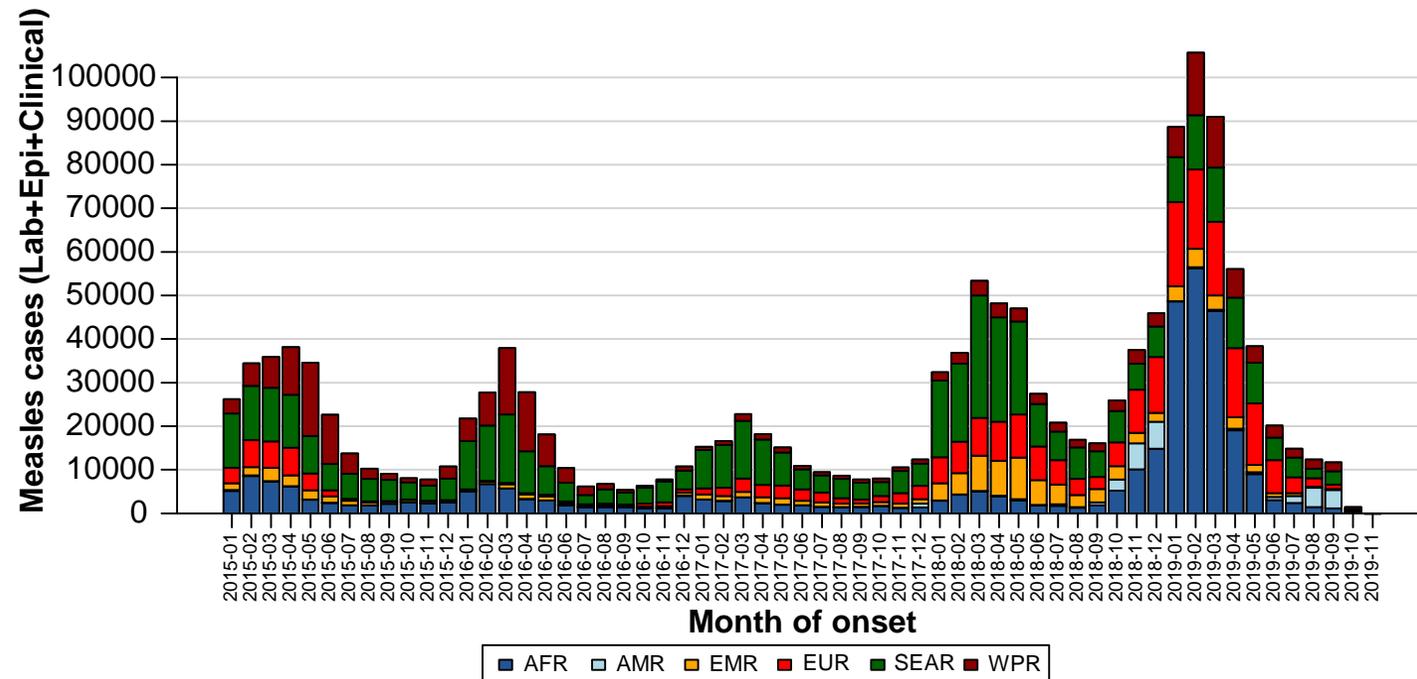
- (2009) 2 Sydney parents charged with manslaughter after their 9 month old daughter, Gloria, died
 - She has severe eczema and was grossly malnourished
 - She was treated with homeopathic products despite the parents being told by the GP to go see a dermatologist
- (2017) Italian parents charged with aggravated manslaughter of their 7-year old son, Francesco
 - Parents took child to see a homeopath who "*who underestimated the seriousness of the illness*".
 - Francesco fell into a coma and died from encephalitis three days later

Examples of indirect harm

Anti-vaccination movement

- Vaccine Hesitancy names as one of the top ten threats to global health in 2019
- In first 6 months of 2019, highest ever measles outbreak since 2006
 - January 1 – July 31, 2019, 182 countries reported 364,808 measles cases to the WHO

Measles case distribution by month and WHO Region (2015-2019)



Examples of indirect harm

Climate Change Denial and “Mean Greenie” Extremism

We are already seeing the effects of inaction/ politicizing what should be based on science and evidence

- Drought/ Rising seas
 - Climate refugees
- Extreme weather events becoming more common
 - Droughts, fires, floods
- Economic loss
 - Logistics
 - Labour force
 - Insurance policy
- Health
 - Extreme heat & heat stress e.g. Europe heat waves
 - Natural disaster
 - Food loss/ malnutrition
 - Infectious disease – malaria, diarrhea
 - Mental health

Examples of indirect harm

Climate Change Denial and “Mean

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Bushfire Weather in Southeast Australia: Recent Trends and Projected Climate Change Impacts (2007)

Consistency between projections and recent trends

Over the recent decade or so, upward trends suggestive of increasing fire danger are seen in the median seasonal FFDI during the most active portion of the fire season and, to a lesser degree, in the surrounding seasons. The annual cumulative FFDI displays a rapid increase in the late-90s to early-00s at many locations (Figure E2). Increases of 10-40% between 1980-2000 and 2001-2007 are evident at most sites. **The strongest rises are seen in the interior portions of NSW**, and they are associated with a jump in the number of very high and extreme fire danger days. The strength of this recent jump at most locations equals or exceeds the changes estimated to occur by 2050 in the different projections. Whether the recent jump will be sustained or revert to lower values remains to be seen.

NAVES

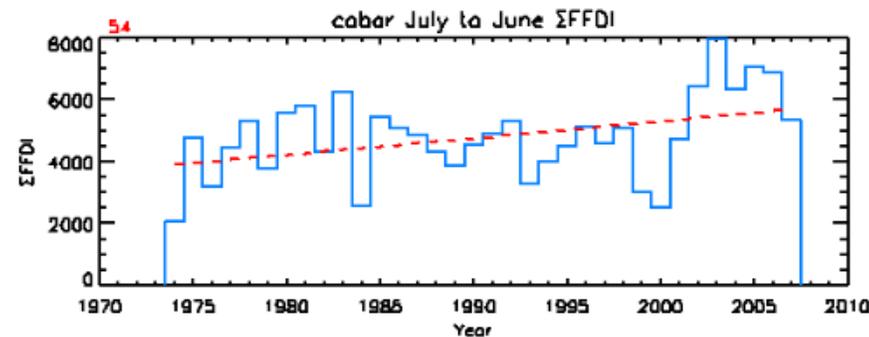


Figure E2: Time series of annual accumulated FFDI at Cobar, NSW. Trend line is shown in red. The last year, 2006-7, only extends to February.

The *MJA–Lancet* Countdown on health and climate change: Australian policy inaction threatens lives

Ying Zhang, Paul J Beggs, Hilary Bambrick, Helen L Berry, Martina K Linnenluecke, Stefan Trueck, Robyn Alders, Peng Bi, Sinead M Boylan, Donna Green, Yuming Guo, Ivan C Hanigan, Elizabeth G Hanna, Arunima Malik, Geoffrey G Morgan, Mark Stevenson, Shilu Tong, Nick Watts and Anthony G Capon

Med J Aust 2018; 209 (11): 474. || doi: 10.5694/mja18.00789

Published online: 29 November 2018

- Drought/ Rising seas
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 - Natural disaster
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 - Infectious disease – malaria, diarrhea
 - Mental health

What's coming up next?

- 16th December – Susan Gerbic
- 20th January – Jonathan Crowe
- February (date TBA) – Darwin Day
- 16th March – Katya May

Tips for a new Skeptic

- Remember that it's about the science behind the argument, not about attacking a person/ pointing out they're "stupid"
- Pick your battles
 - People don't respond well to logic and evidence – Backfire effect
 - Try and discuss something you both agree on first and inject logical thinking there
- Be generous – don't assume people are being intentionally ignorant or malicious
- Try not to get emotional when discussing the science.
 - Sometimes you have to agree to disagree esp where the science has not yet settled.
- Reflect on what your strongly held beliefs/ emotional responses are and how they may be affecting your views

Tips for a new Skeptics - Resources

- www.gcskeptics.com – resources tab
- Podcasts/ media
 - Our GC Skeptics podcast
 - Skeptics Guide to the Universe
 - Skeptics with a K
 - Penn and Tellers Bullshit
 - Gruen (a.k.a Gruen Transfer)
- Choice.com.au



Gold Coast Skeptics

HOME EVENTS PODCAST **SKEPTICAL RESOURCES** CONTACT

Welcome to the Gold Co

Promoters of science, skepticism, rationality, critical th

Blog Feed

Growing Up Neanderthal
October 14, 2019 | Maggie C

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Practice
for Research in Evidence Based
Choosing Wisely Climate change

Tips for a new Skeptics - Resources

- www.gcskeptics.com – resources tab
- Podcasts/ media
 - Our GC Skeptics podcast
 - Skeptics Guide to the Universe
 - Skeptics with a K
 - Penn and Tellers Bullshit
 - Gruen (a.k.a Gruen Transfer)
- Choice.com.au

**If it's too
good to be
true, then it
probably is ...**

CONTACT

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ATSI Adaptation AltMed
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Research in Evidence Based
Wisely Climate change



Skeptical

Calmly, patiently listening to what others have to say and recognizing when they're feeding you a line of s***.