Hand-Out: Dataharvest Digital / Health Track

September 8, 9, 10, 2020

Description and speakers' bio: https://dataharvest.eu

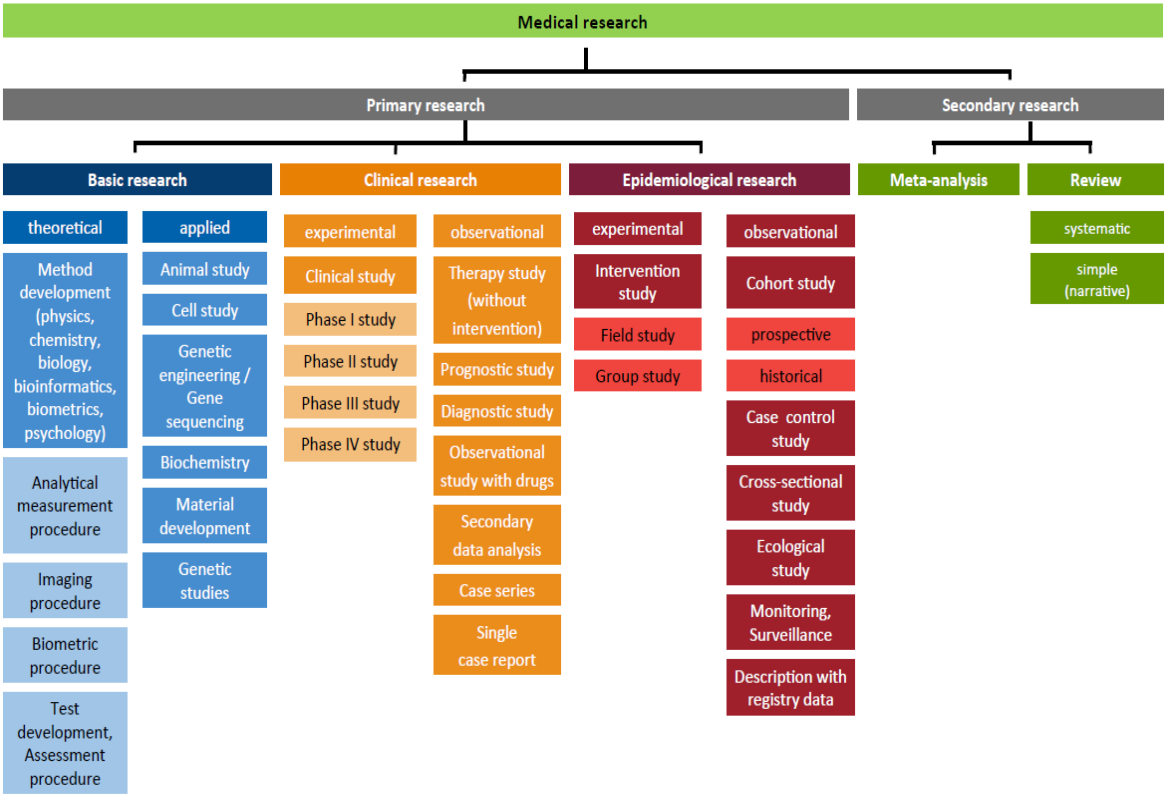
Hosts: Serena Tinari and Ruben Brugnera

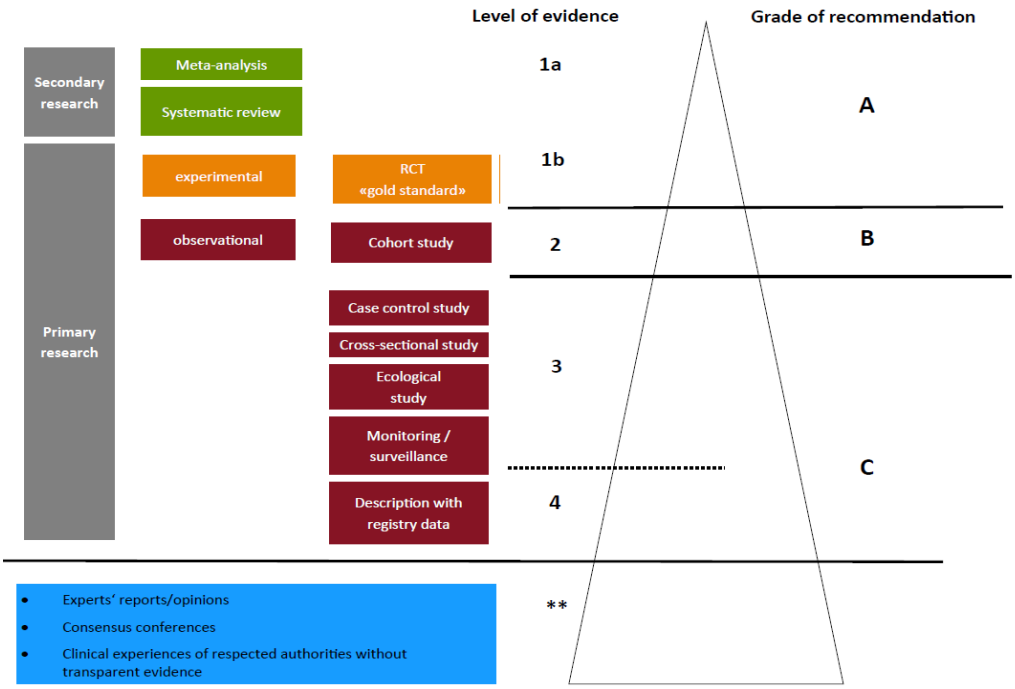
Hand-out by Serena Tinari
(www.re-check.ch / @serenatinari @RecheckHealth)

Tuesday, 8 September

14:00 - 14:45 Crash Course EBM for Journos / 1
Basics on how to bring together Evidence-Based Medicine (EBM) and Muckraking. Serena Tinari, Re-Check.ch

A study is not just 'a study'





COVID-19. Back to the past.
Evidence-based VS Eminence-based medicine.

"The experts know it best": the opinions of scientists, doctors and public health authorities drive the decision-making, through guidelines and regulations based on their reputation. The most evidence-free public health crisis of our time.
Beware of observational studies and experts' opinion.
Numbers need a denominator; healthcare and health policies need a context.

CFR, IFR

https://www.cebm.net/covid-19/global-covid-19-case-fatality-rates/
https://www.cebm.net/covid-19/european-case-fatality-rates-beyond-lockdown-and-the-uks-outlier-status/
https://www.cebm.net/covid-19/declining-covid-19-case-fatality-rates-across-all-ages-analysis-of-german-data/

Imperial College Model

2002: Neil Ferguson predicts that BSE might kill in the UK up to 50'000 people (150'000 in case of additional sheep epidemic). 177 died.
2005: Ferguson predicts that up to 200 million people might be killed by Bird Flu (H5N1). 282 people died worldwide from the disease between 2003 and 2009.
2009: Ferguson predicts that Swine Flu (H1N1) might kill 65'000 in the UK alone. 457 died.

Modelling the models

https://www.cebm.net/covid-19/modelling-the-models/

Where to get your COVID-19 data from:

Our World in Data: https://ourworldindata.org/
For Europe, EUROMOMO: https://www.euromomo.eu/
National agencies for statistics. Primary care monitoring databases.

Take home messages:

1. Read the full paper!
2. Assess the quality of the available evidence
3. Learn from the past

15:00 - 16:00 Hands-on Evidence-Based Medicine on COVID-19 Masks and PCR tests - the end of clinical medicine

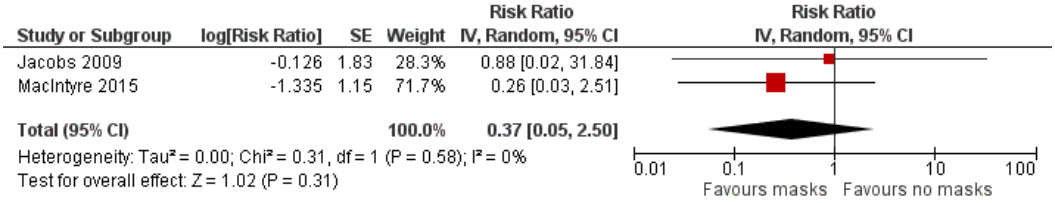
Tom Jefferson, CEBM COVID-19 Evidence Service Oxford
https://www.cebm.net/oxford-covid-19-evidence-service/

What is the best available evidence on masks?

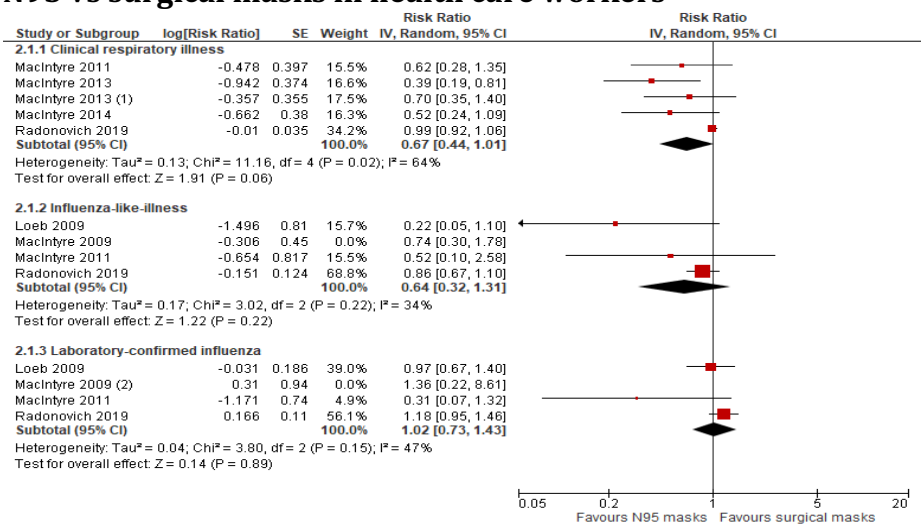
https://www.cebm.net/covid-19/masking-lack-of-evidence-with-politics/
https://pubmed.ncbi.nlm.nih.gov/21735402/
https://www.medrxiv.org/content/10.1101/2020.03.30.20047217v2
https://bmjopen.bmj.com/content/5/4/e006577

Maks vs no masks in health care workers (RCTs)

https://www.medrxiv.org/content/10.1101/2020.04.14.20065250v1.article

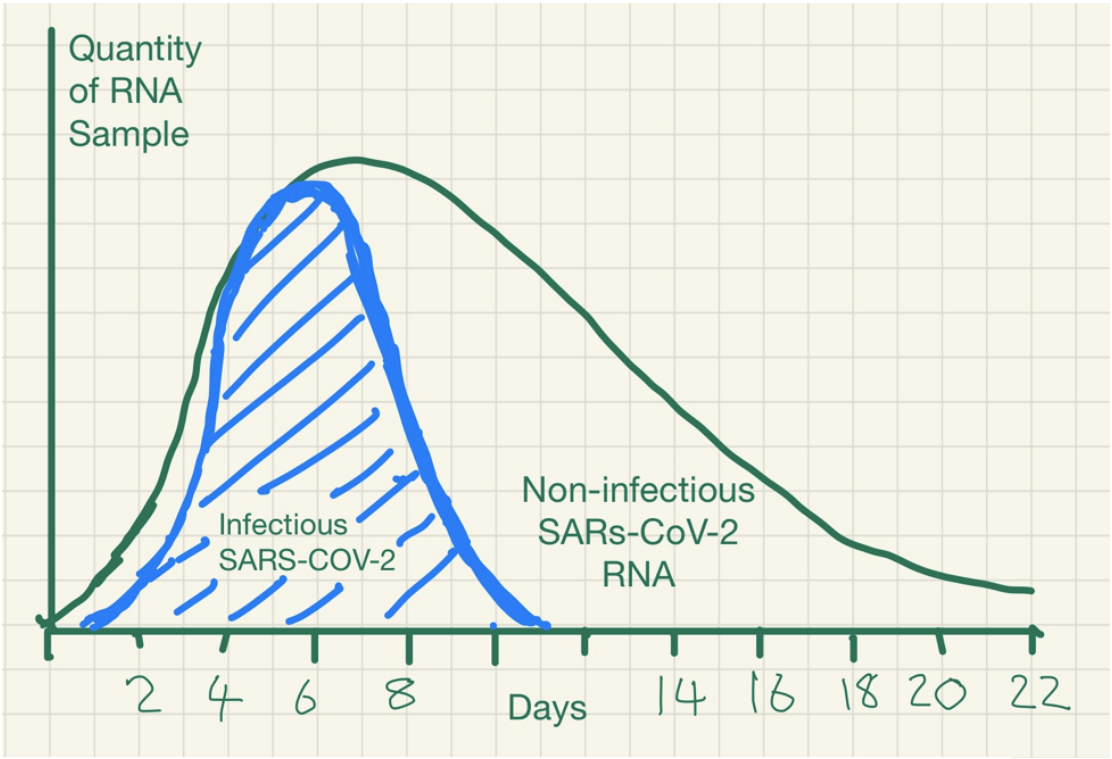


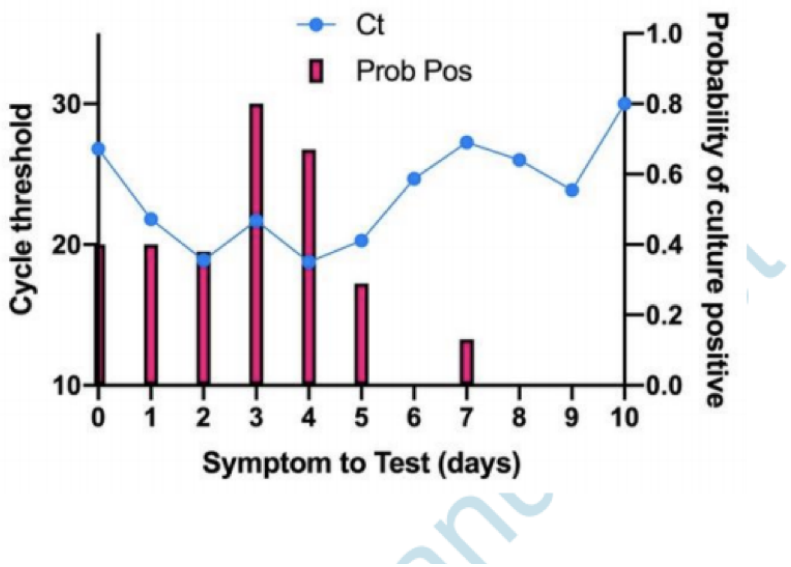
N95 vs surgical masks in health care workers



Footnotes
(1) MacIntyre 2013 includes 2 comparisons: N95 vs surgical masks and targeted N95 vs surgical masks
(2) MacIntyre 2009 reported on outcome laboratory confirmed infections

PCR - polymerase chain reaction – test
https://www.cebm.net/covid-19/infectious-positive-pcr-test-result-covid-19/
https://www.cebm.net/evidence-synthesis/transmission-dynamics-of-covid-19/
https://www.medrxiv.org/content/10.1101/2020.08.04.20167932v3





Jefferson T, Spencer E, Brassey J, Heneghan C. Viral cultures for COVID-19 infectivity assessment. Systematic review. medRxiv. 2020:2020.08.04.20167932. https://www.medrxiv.org/content/10.1101/2020.08.04.20167932v3

16:15 - 17:15 Medical investigations for a wide public Deborah Cohen, BBC Newsnight.

The scientific evidence behind UK Lockdown (12:54)
https://youtu.be/kQrtd-WCjos

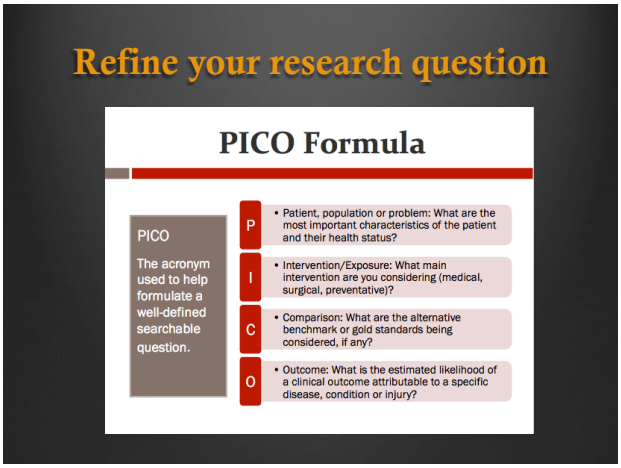
Should Leicester have been locked down? (7:37)
https://youtu.be/FVGSozH6a3A

On Sept 17, re Immunity this piece was published by the BMJ:
Covid-19: Do many people have pre-existing immunity?
The BMJ, Sep 17 2020 (https://doi.org/10.1136/bmj.m3563)
Free-text link: http://bmj.com/cgi/content/full/bmj.m3563

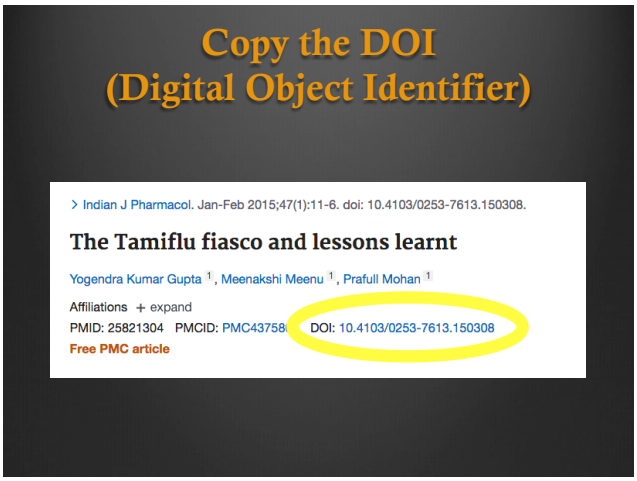
On Sept 17, Deborah Cohen did a new piece for BBC Newsnight:
As #Covid19 cases rise again, how can we compare figures internationally when no two countries have the same testing regime? https://bbc.in/3muTn8p

Wednesday, 9 September

14:00 - 14:45 Crash Course EBM for Journos / 2 Scientific studies, protocols, routines. KOL and COI. Serena Tinari, Re-Check.ch



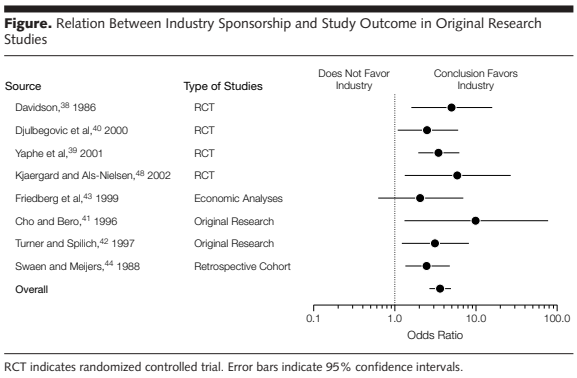
Biomedical literature: Pubmed.gov and Sci-Hub



Key Opinion Leaders & Conflicts of interest

„A conflict of interest is a set of conditions in which professional judgment concerning a primary interest (such as a patient's welfare or the validity of research) tends to be unduly influenced by a secondary interest (such as financial gain).“ - Dennis. F. Thompson, NEJM, 1993
Primary interests: do no harm / Work out a health issue as good as possible
Secondary interests:
Career, status, reputation, titles/ income, honoraria, patents, gifts…

Why are Conflicts of Interest important?
- Reciprocity
- Cognitive bias: framing, wish bias, self-serving bias, confirmation bias….
-> We are not capable of self-evaluating if and how far we are influenced
-> Influence impact doesn't directly depend on the scope of perceived advantage



Key Opinion Leaders are everywhere
Research / Medical training / Continuing medical education (CME)
Guidelines / Public institutions' advisory committees

Line by line editing (Nils Hanson, Mission Investigate SVT)
https://ijnet.org/en/story/how-edit-your-story-accuracy
Presentation:
https://drive.google.com/file/d/1j0Rj5SCcJ9CwOZIhyswNqlPttSWgTaee

Overtreating COVID-19 patients
Scienza in Rete, Luca Carra
https://www.scienzainrete.it/articolo/perch%C3%A9-si-muore-sempre-meno-di-covid/luca-carra/2020-05-25

Take home messages:
1. Read the full paper!
2. Assess the quality of the available evidence
3. Re-Check the expert

15:00 - 16:00 COVID-19 Journalism: Pitfalls and Opportunities Who are the experts, risk perception, trust in science and scientists. Martin Kulldorff, Harvard Medical School.

Outline

Pitfalls

1. Who are the experts?
2. What we do not know.
3. Short-term COVID19 mortality vs long-term all-cause mortality

Journalism Opportunities

4. Collateral public health damage
5. Risk perception and fear
6. Trust in science and scientists

Who are the Experts?

Basic/Bench Science

- Virologists
- Immunologists
- Vaccine developers

Clinical Care/Treatment

- Infectious disease physicians
- Clinical trialists
- Pharmacoepidemiologists
- Hospital epidemiologists

Public Health

- Infectious disease epidemiologists
- Vaccine safety epidemiologists
- Other epidemiologists
- Behavioral epidemiologists
- Public health officials
- Health policy experts

Medicine vs Public Health

Medicine

- Treating individual patients
- Physicians & nurses
- Focus on specific diseases
- Prevention through patient behavior
- Delaying death and disease is a goal
- Health insurance system

Public Health

- Caring for whole populations
- Public health officials & epidemiologists
- All-cause mortality and morbidity
- Prevention through community and national interventions
- Delaying infections/outbreaks are inconsequential
- National health policy

2. What We Do Not Know

- How many people have been infected? *(we have minima)*
- How many are currently infected? *(some exceptions)*
- What is the infection fatality rate? *(also, depends on age)*
- How many will die? *(depends on the above and strategy)*
- What percent infected is needed for herd immunity? *(depends)*
- When will we have a vaccine? *(between three months and never)*
- Will a vaccine be safe? *(safety monitoring is needed)*

No respectable epidemiologist will provide answers to these questions.

Individuals vs Community

Individualistic

- Hunker down to avoid infection until pandemic is over
- General lockdown, protecting young low-risk professionals working from home.
- Protection available to the well-off, but not the working class
- More deaths overall
- Longer length of pandemic

Communitarian

- Protecting the elderly and other high-risk groups
- Ensure that society functions, open schools etc, with age-targeted counter-measures
- Protection available to all high-risk individuals
- Fewer deaths overall
- Shorter length of pandemic

What is Known: Relative Mortality Risk

	Scenario A: Equal probability of exposure		*Scenario B: Younger are more exposed*	
Age	RR	1/RR	RR	1/RR
0-19	0.0003	**3560**	0.0001	7120
20-29	0.0034	**297**	0.0017	595
30-39	0.010	**99**	0.005	199
40-49	0.025	**40**	0.013	80
50-59	0.11	**9**	0.05	18
60-69	0.43	**2.3**	0.21	4.7
70-79	1	**1**	1	1
80+	1.5	**0.7**	2.9	0.34

Source: https://www.linkedin.com/pulse/covid-19-counter-measures-should-age-specific-martin-kulldorff/

What percent is needed for herd immunity?

- Depends on the location. More in urban areas.
- Depends on who gets infected. Less if social widely connected people are infected.
- Depends on social distance measures and hygiene. Less if people do not shake hands and wash them often.
- Less if there is more innate immunity or cross immunity from other diseases.
- May depend on season. More in winter?
- Changes over time, with increasing or relaxing counter measures.
- We will not know until there are close to zero prevalence without major counter measures in place.

3. Short-Term COVID19 Mortality

Popular but problematic country comparisons:

- Long-term mortality is important, not short-term. We do not judge marathon runners by their position at the one kilometer point.
- All-cause mortality is important. Need to account for collateral damage from lockdowns, even tough harder as most are long-term.
- Different regions in the same country have very different mortality despite identical strategies.
- Country comparisons should adjust for age.
- Countries use different COVID19 case definitions.
- Temporal trends within a country are valid to monitor.

4. Collateral COVID19 Damage

"My patients, most are parents of special needs children, have suffered enormously during lockdown. Depression/anxiety, suicidality, hospitalizations. Lack of access to care/therapies/school has been devastating. We must consider total harms." – Sylvia Fogel, MD (@FogelSylvia)

"Suicidal ideation has been going up exponentially in the past 4 weeks in my practice." – Michael Mantz, MD (@michaelmantzmd)

"Where are they going to go? … COVID-19 has imposed a tremendous cost on our economy and evict someone? That does not make sense" – Matt Ward (@MattwardNss121)

5. Fear and the Perception of Risk

- Difficult to comprehend risks. Especially for new dangers.
- Anecdotes versus data.

COVID19 Mortality by Age

In the United States, how many of the COVID19 deaths were among people under the age of 45?

Survey average: 30%

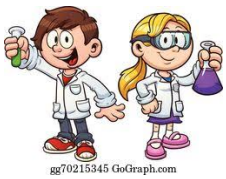
Actual: 3%

6. Trust in Science and Scientists

- My most popular tweet: *"It is absolutely stunning to observe how the scientific community has reacted to the public health aspects of the pandemic. When the fog clears, one of the consequences of the pandemic will be public distrust in science and scientists."*
- Am I correct? How big is the problem?

Trust in Science and Scientists

- Many scientists from other fields, unrelated to infectious diseases, have been prominent COVID19 commentators in media. Why? Why do they offer their views?
- Many public health scientists with infectious disease expertise have been absent from debate. Why? Have they been silenced? Are they afraid to speak out against herd-thinking? How can that be rectified?
- In Sweden, the majority of infectious disease epidemiologists are in favor or the age-targeted approach with open schools, etc. What about other countries? Can one do surveys to find out?
- How can we maintain/restore the trust in science? In scientists?



16:15 - 17:15 Medical investigative journalism
It's not just about the money trail.
@jeannelenzer1 - www.jeannelenzer.com

Lenzer J, Brownlee S. Pandemic Science Out of Control.
Issues in Science and Technology 2020.
https://issues.org/pandemic-science-out-of-control/
A toxic legacy of poor-quality research, media hype, lax regulatory oversight, and vicious partisanship has come home to roost in the search for effective treatments for COVID-19.

EMOTIONAL arguments in the time of pandemic
Dropping the bar of scientific evidence only leads to bloodletting
Arrowsmith – What's your control? Who's the sponsor?

The Curious Case of Hydroxychloroquine: Or - How everything bad is good

- Lenzer J. Covid-19: US gives emergency approval to hydroxychloroquine despite lack of evidence. *BMJ.* 2020;369:m1335. https://www.bmj.com/content/369/bmj.m1335.

26 patients treated with hydroxy		16 control patients
	RESULTS	
70% tested NEG		12.5% tested NEG

Fabulous, right? Hydroxy works, right? Trump touted it, 40% of U.S. doctors were prescribing it to patients for covid – even to patients without covid – Trump even took it prophylactically

Why didn't the patients fail complete six days of treatment?

1 patient died
3 had to be transferred to the intensive care unit (ICU)
2 patients withdrew from the study

Six bad outcomes in the study: Which group do you think they were in?

How everything bad was still good

- ALL bad clinical outcomes were in the hydroxychloroquine group. (Significantly, the patient who died was PCR negative at the time of death)
- None of the 16 patients in the control group died, were transferred to ICU or withdrew
- ***Six bad outcomes, all in the treatment arm*** - Problem of surrogate markers & cure as cause

Many ways of gaming studies

Surrogate markers
Subgroup analyses
Observational studies
Historical controls
Reporting relative risk vs absolute risk
Exclusion bias

You won't be able to spot all the tricks

So here's what I recommend:

1.) Toolkit at https://www.healthnewsreview.org/
2.) List of Industry Independent Medical Experts for the media at healthnewsreview and at jeannelenzer.com
3.) organizations – list also available at my website

Case study: John Ioannidis

Typecast as a rightwing ideologue who took money from a funder and got his stats wrong. Reality – his concerns about lockdown were consistent with his long history of showing that medical research frequently overestimates benefit of interventions while underestimating harms.

J. Ioannidis. Why Most Published Research Findings Are False
Published: August 30, 2005. https://doi.org/10.1371/journal.pmed.0020124

John Ioannidis and Medical Tribalism in the Era of COVID-19
By Shannon Brownlee & Jeanne Lenzer – published June 12, 2020
https://www.realclearscience.com/articles/2020/06/12/john_ioannidis_and_medical_tribalism_in_the_era_of_covid-19_111427.html

Never only one metric

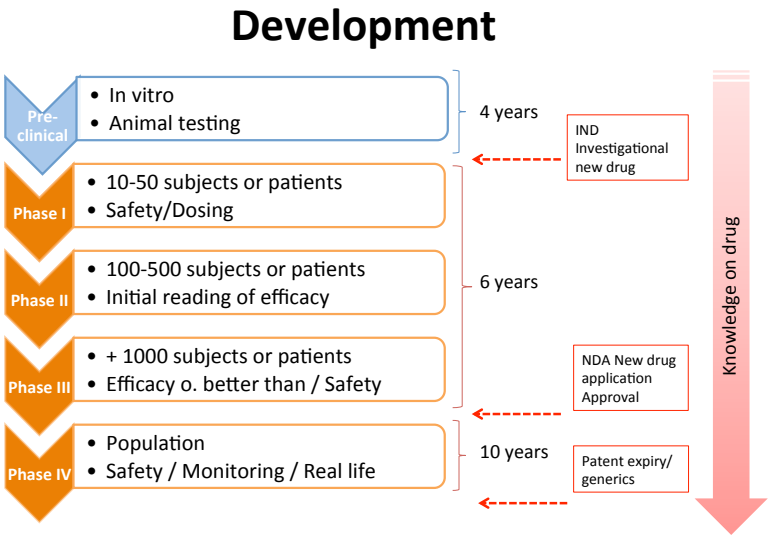
The sole metric is not infections or even deaths from COVID-19 – it is deaths of despair – unemployment, suicides, homicides, domestic violence, untreated conditions.

And what I learned from Stefan Baral

https://www.jhsph.edu/faculty/directory/profile/2433/stefan-baral
@sdbaral

Thursday, 10 September

14:00 - 14:45 Crash Course EBM for Journos / 3
Drugs and vaccines approval. Pandemic pharmaceuticals.
Serena Tinari, Re-Check.ch



All clinical trials must be registered: https://clinicaltrials.gov
Much information there, many red flags can be spotted.

Innovative drugs are extremely rare, even though thousands new drugs are approved every year. The "Golden Pill Award" by independent drug bulletin Prescrire, can't be assigned in most years.
https://english.prescrire.org/en/115/1985/ReportList.aspx

Remdesivir: See coverage by: https://www.healthnewsreview.org

COVID-19 vaccines. Learn from the past. The industry tried hard – and years long - to develop a vaccine for other Corona viruses. And failed.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7177048/

15:00 - 16:00 Hands-on EBM applied to COVID-19
What we do know and what we don't when a vaccine is approved, and how we learn more after. Areas of interest and worry for muckrakers to dig deeper on.
Rebecca Chandler, WHO Uppsala Monitoring Center.

Priti Patnaik attended our Health track and right after interviewed Rebecca Chandler for a piece that contains relevant background information: https://bit.ly/2FGn5GX

16:15 - 17:15 Tenders and procurements. How to dig into public procurement to investigate health contracts, also for COVID-19.

Maria Manuela Cruz, head of TED and EU public procurement
https://simap.ted.europa.eu/
https://simap.ted.europa.eu/web/simap/covid-related-tenders

Eva Belmonte
Civio.es
https://civio.es/en/area/procurement/