Twitter Thread by Frédéric Leroy

Frédéric Leroy
@fleroy1974

I applaud the #EUCancerPlan *BUT* caution: putting #meat ■ (a nourishing, evolutionary food) in the same box as ■ to solve a contemporary health challenge, would be basing policy on assumptions rather than robust data.

#FollowTheScience yes, but not just part of it!
THREAD■

> \U0001f534LIVE \U0001f4c5Today \u23f012:00 CET
>
> We are presenting today the #EUCancerPlan as part of a strong \U0001f1ea\U0001f1fa#HealthUnion
>
> Follow the presentation live here: https://t.co/Cr8ATvzNkg#WorldCancerDay pic.twitter.com/zdByuklWV6
>
> — EU_HEALTH - #EUCancerPlan (@EU_Health) February 3, 2021

1/ Granted, some studies have pointed to ASSOCIATIONS of HIGH intake of red & processed meats with (slightly!) increased colorectal cancer incidence. Also, @WHO/IARC is often mentioned in support (usually hyperbolically so).

But, let's have a closer look at all this! ■

2/ First, meat being “associated” with cancer is very different from stating that meat CAUSES cancer.

Unwarranted use of causal language is widespread in nutritional sciences, posing a systemic problem & undermining credibility.
https://t.co/wnCfHTDBdg

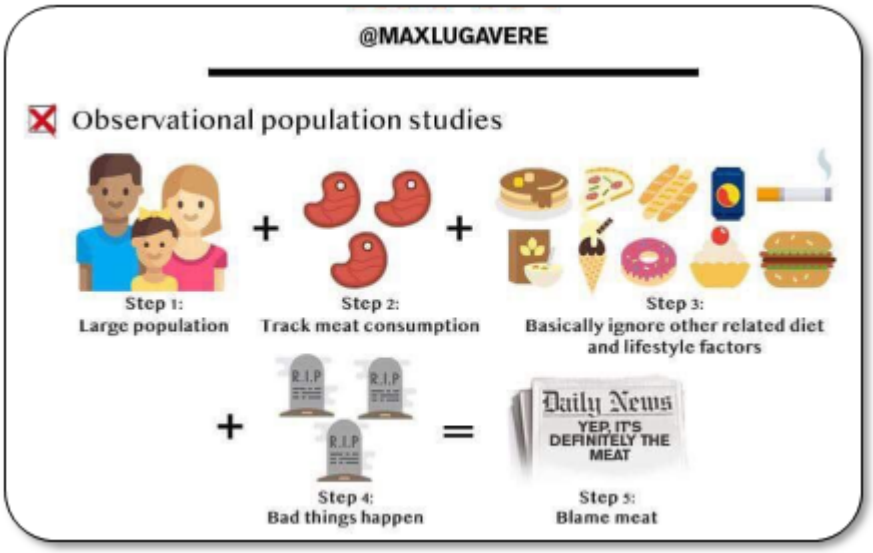
3/ That’s because observational data are CONFOUNDED (even after statistical adjustment).

Healthy user bias is a major problem. Healthy middle classes are TOLD to eat less red meat (due to historical rather than rational reasons, cf link). So, they obey.
https://t.co/7Zxlc3x81u

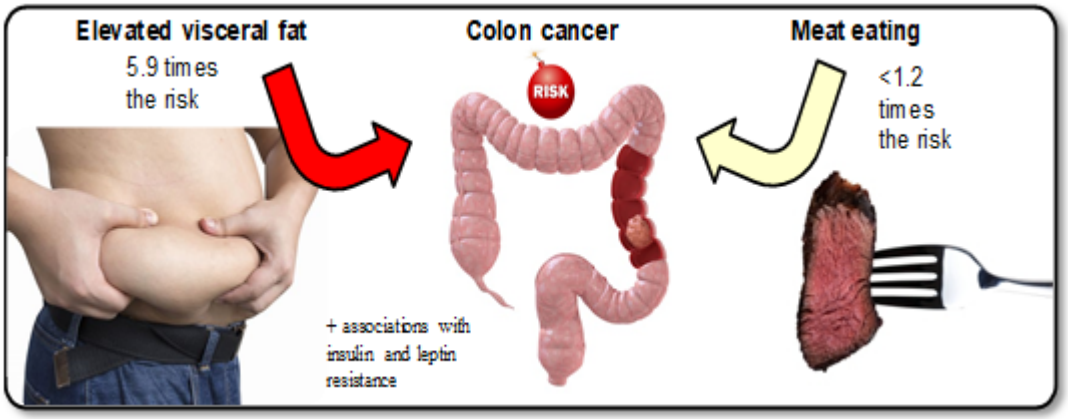
4/ What’s captured here is sociology, not physiology.

Health-focused Westerners eat less red meat, whereas those who don’t adhere to dietary advice tend to have unhealthier lifestyles.

That tells us very little about meat AS SUCH being responsible for disease.



5/ At very small relative risks (<
Example: someone with elevated visceral fat needs indeed to be worried (6x risk of colon cancer!) For meat, however, risk level is so small (close to x1), that we’re out of business.



6/ Worse: the associations are likely mere artifacts.

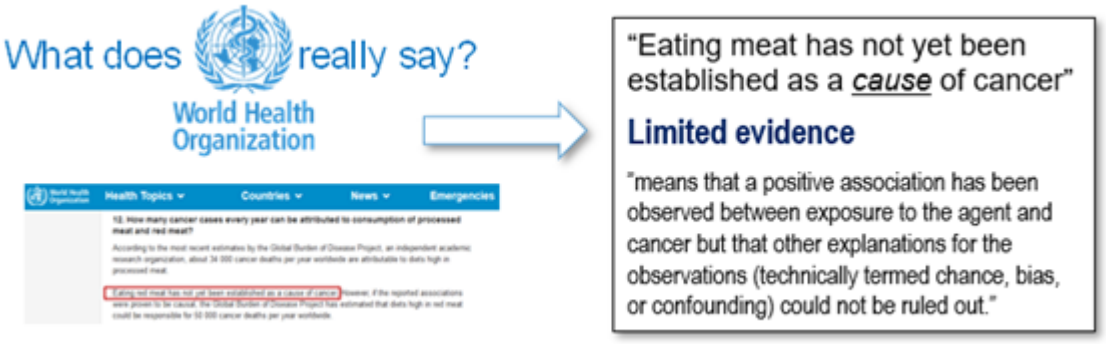
Why?

When we look at studies with better design or move out of a US context (e.g. Asia or worldwide), MORE meat is associated with BETTER health (!?) Indicative of a cultural construct rather than a paradox.

7/ To be fair, researchers are usually more nuanced than policy makers.

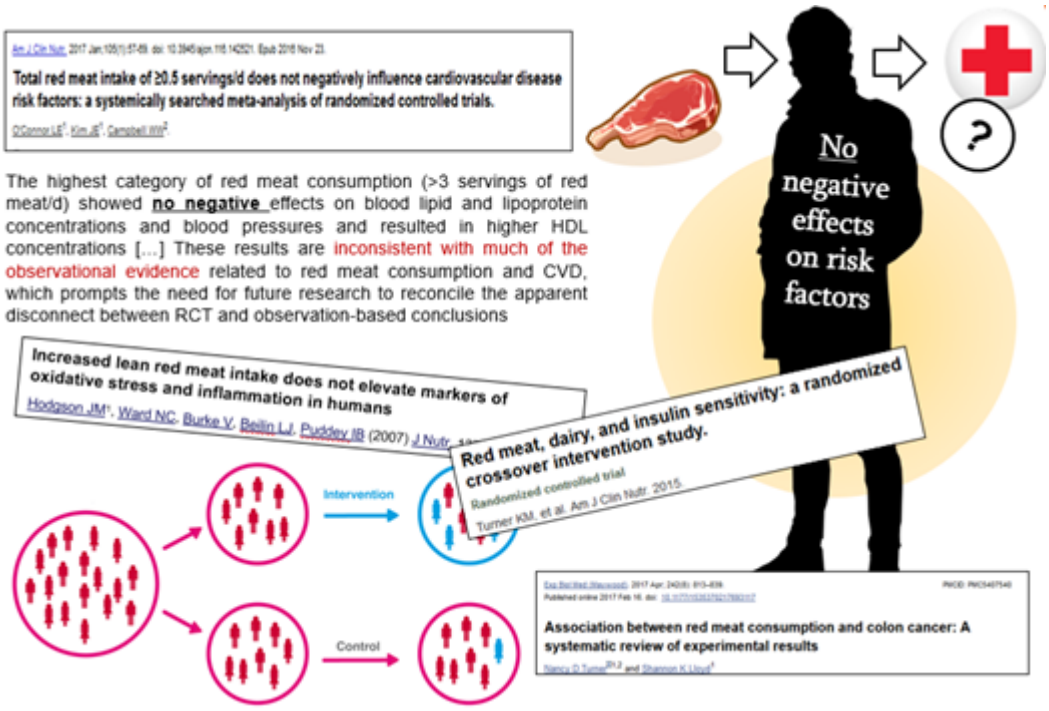
As stated in this highly cited study on meat & mortality, data 'should be interpreted with caution due to the high heterogeneity observed [&] the possibility of residual confounding' https://t.co/1tOA2qglku

8/ Even the WHO/IARC panel looking into the colorectal cancer link declared that 'other explanations for the observations (chance, bias or confounding) could not be ruled out' while 'consumption of red meat has not been established as a cause of cancer' https://t.co/0rvrgrTRZH



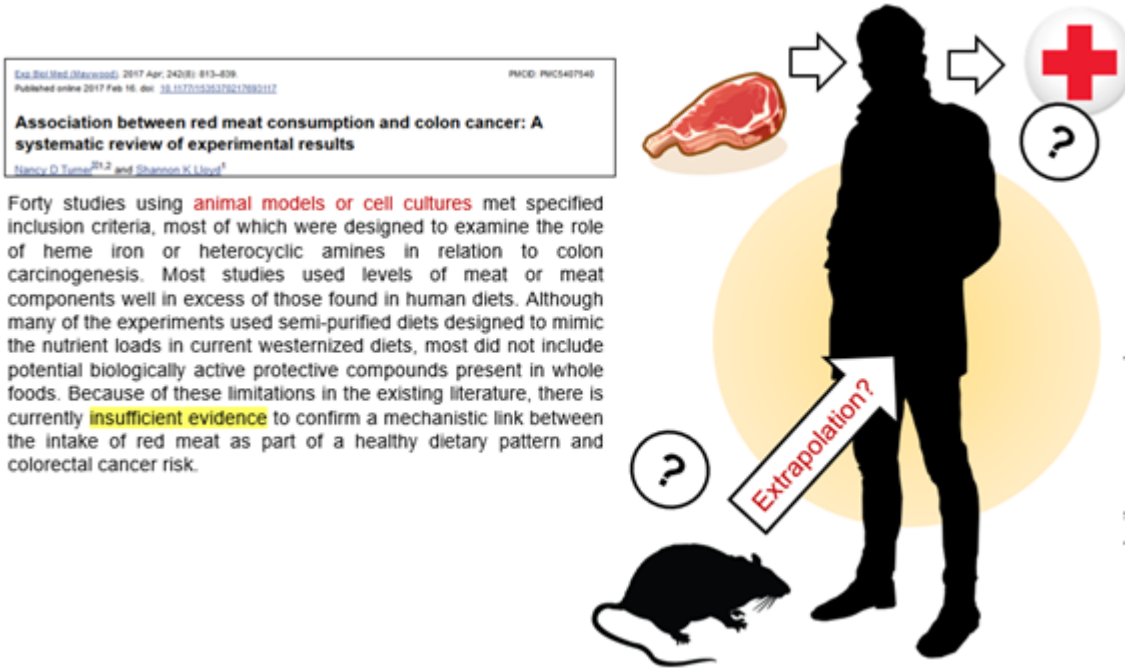
9/ Observational data yielding associations between meat intake and disease thus need to be CAREFULLY inspected. At best, this creates a HYPOTHESIS that needs to be validated in intervention studies.

But.... such studies fail to indicate harm!



10/ It is true of course that such trials are difficult on the long term in humans & rely on biomarkers that are imperfect. Alternatively, one can use animal models or cell cultures.

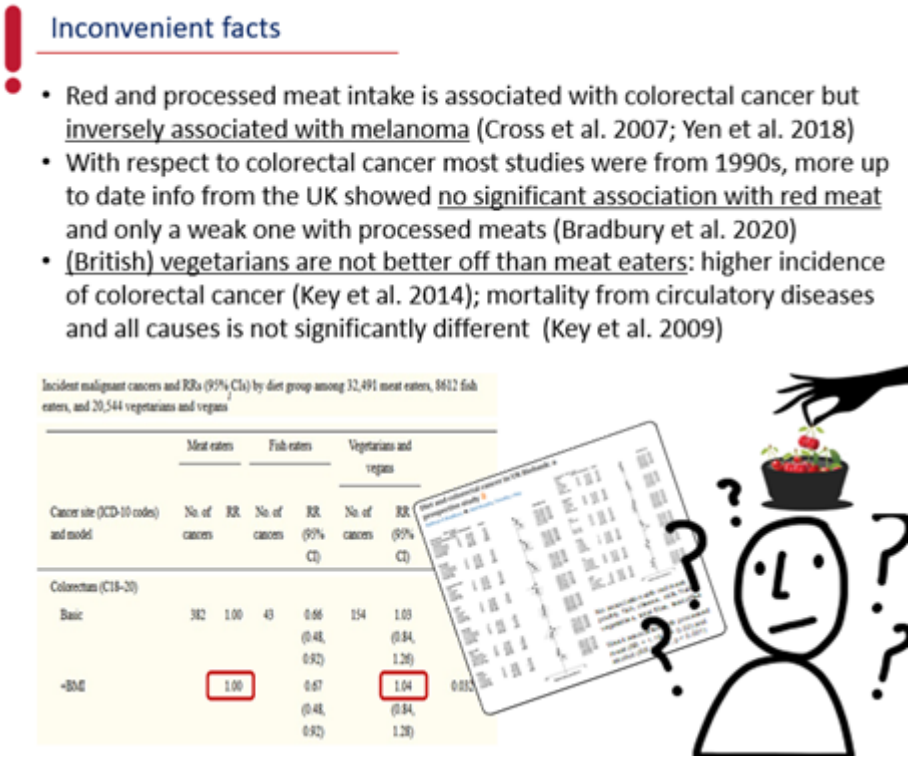
Once more: INSUFFICIENT evidence (not to mention the extrapolation concerns)



11/ Another problem: ■-PICKING.

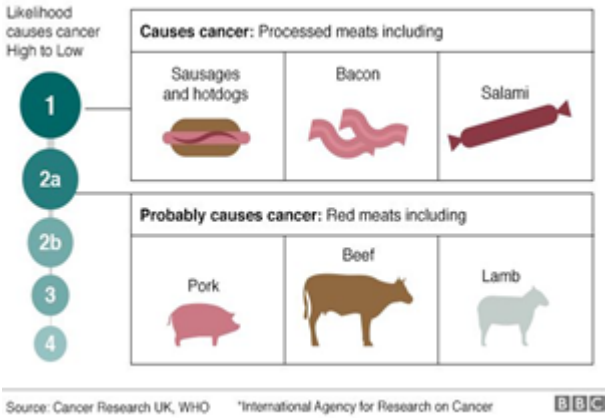
Although associated with colorectal cancer, why not mention as well that meat shows a PROTECTIVE association with melanoma? Or that vegetarians in the UK are not better off (maybe WORSE)? Or that newer studies show absence of effects?

Etc.



12/ Let's return to the WHO/IARC and its assignment of red meat to Group 2A (“probably carcinogenic to humans”).

Why did they do this and what does it mean?



13/ It's good to have in mind that this is more controversial than it seems. One of the WHO/IARC's own experts, dr. Klurfeld, has severely criticized this.

For an overview of his objections, cf: https://t.co/3BBr32pgSu

What is the role of meat in a healthy diet?

David M. Klurfeld

USDA Agricultural Research Service, Beltsville, MD 20705

14/ Furthermore, it needs to be clear that such WHO/IARC classifications indicate HAZARDS, not risks.

To go from risk to hazard, we need… a risk assessment.

15/ Risk assessment indicates that there is no solid case for concern, especially in the context of a normal diet.

Food Chem Toxicol. 2018 Apr 21. pii: S0278-6915(18)30265-5. doi: 10.1016/j.fct.2018.04.048. [Epub ahead of print]

Red meat and colon cancer: A review of mechanistic evidence for heme in the context of risk assessment methodology.

Kruger C[1], Zhou Y[2].

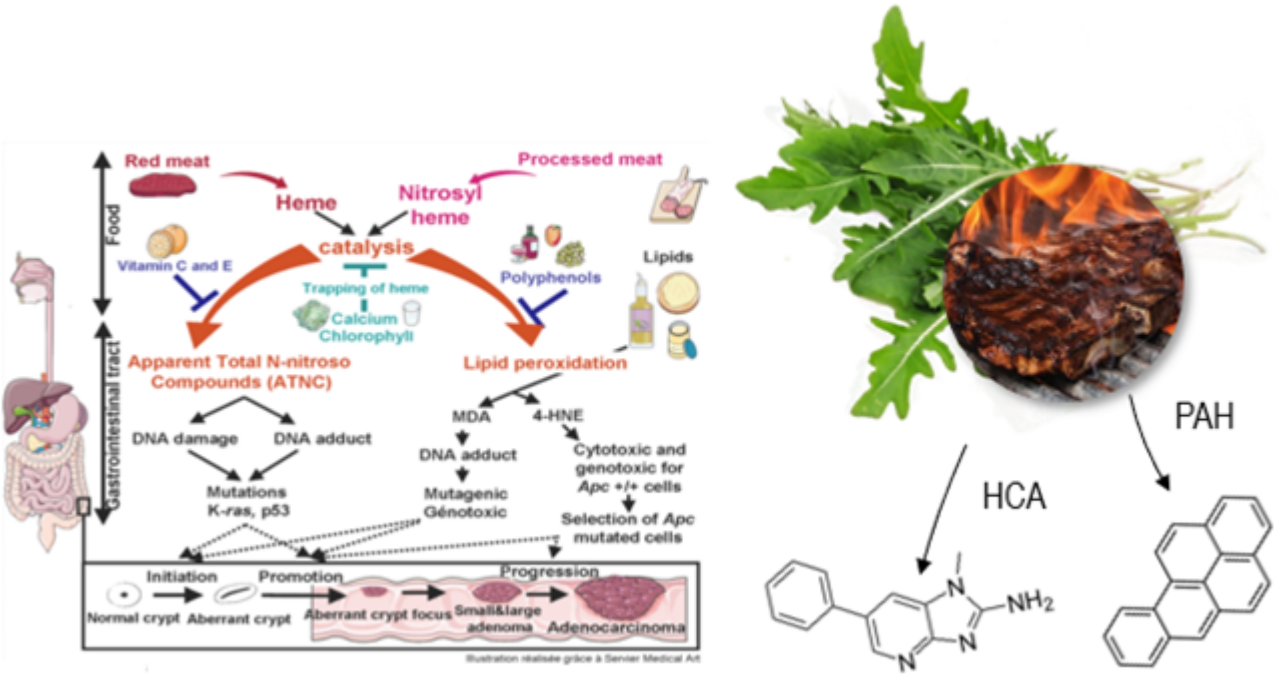
In conclusion, the methodologies employed in current studies of heme have not provided sufficient documentation that the mechanisms studied would contribute to an increased risk of promotion of preneoplasia or colon cancer at usual dietary intakes of red meat in the context of a normal diet.

16/ Because, indeed, CONTEXT is everything.

Sunlight is a #hazard ("1"), more so than red meat ("2A", which is at the level of being a hairdresser) & also a #risk under certain conditions. But it's fair to say that sunlight is mostly beneficial (vitamin D being just one reason)

17/ Obviously, one shouldn't consume all-too heavily processed meats, or overly charred steaks, all-too often.

Or blame the beef patty for the ultraprocessed bun, sauces, fries, & soda dietary background against which it is consumed.



18/ So within an overall HEALTHY DIET, whatever potential cancer risk (if any; hard to tell due to confounding & bias) can reasonably be expected to be irrelevant.

In the study below, eg., more meat either parallels higher (veg-) or lower (!) (veg+) risk. https://t.co/pqWI3u248Q

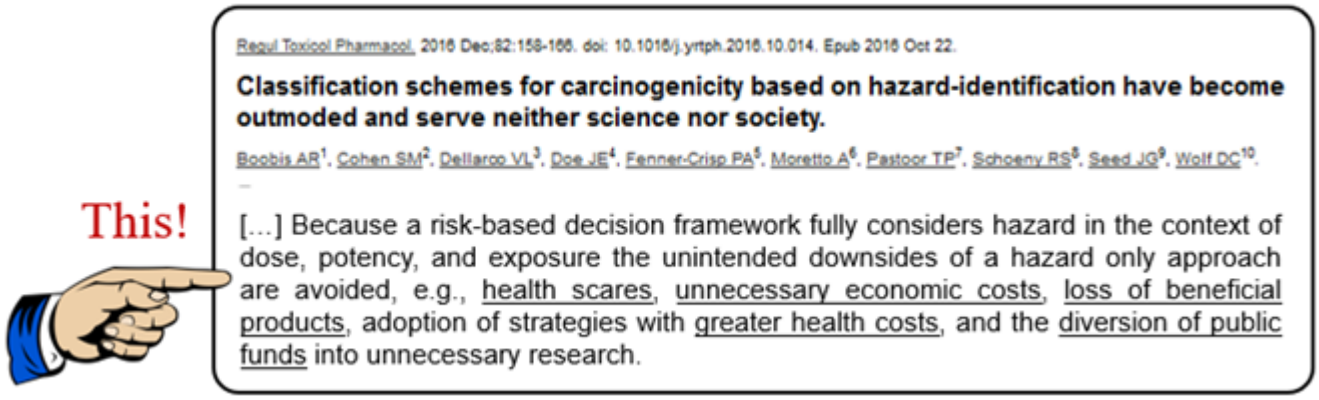
Co-consumption of Vegetables and Fruit, Whole Grains, and Fiber Reduces the Cancer Risk of Red and Processed Meat in a Large Prospective Cohort of Adults from Alberta's Tomorrow Project

by Katerina Maximova [1,*], Elham Khodayari Moez [1], Julia Dabravolskaj [1], Alexa R. Ferdinands [1], Irina Dinu [1], Geraldine Lo Siou [2], Ala Al Rajabi [3] and Paul J. Veugelers [1]

All-Cause Cancers [b]

	Vegetables and Fruit (Serving/Day) [d]		
	<55 years: <4	<55 years: 4–6	<55 years: >6
	≥55 years: <3	≥55 years: 3–5	≥55 years: >5
Red meat (gram/week) [e]			
<250	1.04 (0.79–1.36)	1.02 (0.89–1.17)	Ref.
250–500	1.17 (0.92–1.47)	1.01 (0.85–1.21)	0.88 (0.76–1.02)
>500	**1.31 (1.02–1.69)**	1.01 (0.79–1.29)	0.78 (0.57–1.05)

19/ Some authors are therefore starting to question the usefulness of IARC-type schemes to begin with. Especially because they also lead to scaremongering and loss of benefits (meat = valuable nutrition, etc.)



Regul Toxicol Pharmacol. 2016 Dec;82:158-166. doi: 10.1016/j.yrtph.2016.10.014. Epub 2016 Oct 22.

Classification schemes for carcinogenicity based on hazard-identification have become outmoded and serve neither science nor society.

Boobis AR[1], Cohen SM[2], Dellarco VL[3], Doe JE[4], Fenner-Crisp PA[5], Moretto A[6], Pastoor TP[7], Schoeny RS[8], Seed JG[9], Wolf DC[10].

[...] Because a risk-based decision framework fully considers hazard in the context of dose, potency, and exposure the unintended downsides of a hazard only approach are avoided, e.g., health scares, unnecessary economic costs, loss of beneficial products, adoption of strategies with greater health costs, and the diversion of public funds into unnecessary research.

20/ No wonder that some top-level scientists, eg. Gordon Guyatt (leading expert in the field of evidence-based medicine), have criticized the WHO/IARC after the release of its report for “doing the public a disservice”.

Mistaken advice on red meat and cancer

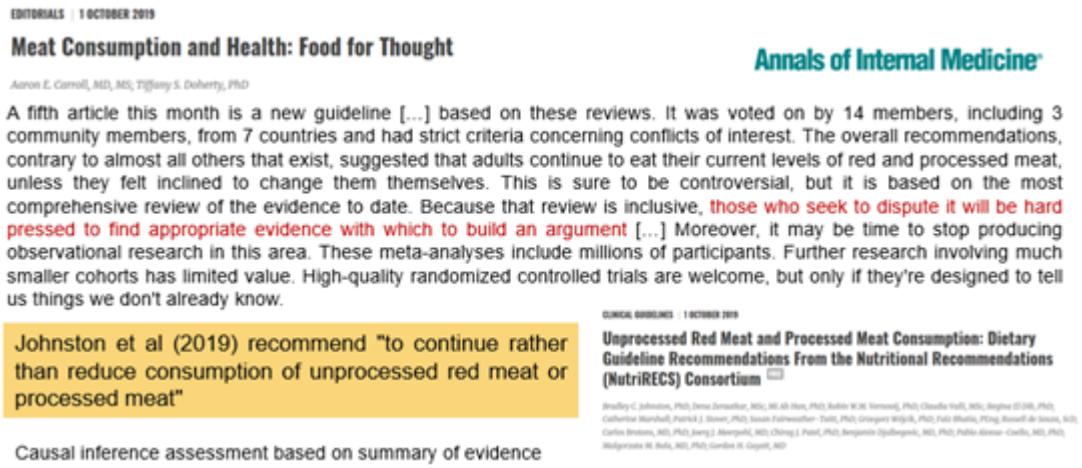
Gordon Guyatt, Distinguished Prof., Dept. of Clinical Epidemiology & Biostatistics, Joint Member, Department of Medicine, McMaster University, Ontario; Benjamin Djulbegovic, Associate Dean, College of Internal Medicine; Professor, Dept. of Oncological Sciences; Distinguished Professor, Clinical and Translational Institute, Director, Evidence-based Medicine Research Group, University of South Florida.

Epidemiology is a science that can establish associations [...] but seldom cause and effect [The] success story of epidemiological science was its ability to link smoking to cancer, with WHO designating tobacco as a “convincing” carcinogen in 1986 [...] Ever since, however, standards for these risks in policy making have been dropping. This week’s decisions on meat were based on relative risks of 1.17 to 1.18, a tiny fraction of those for smoking. To keep things in perspective: for colon cancer, which was the focus of the WHO report, the absolute risk of contracting this cancer in one’s lifetime is less than 4.5%. An increased relative risk of 1.17 raises the absolute risk to no more than 5.3%. As **two of the leaders in evidence based medicine,** we were involved in the development an evidence ranking system, called “GRADE,” adopted by over 90 groups world-wide, including the WHO. GRADE notes that **unless relative risks are greater than 5**, epidemiological studies typically provide only low-quality evidence [...] In such cases, the evidence is not convincing, and any recommendations would ordinarily be we would make a "weak", or "optional" recommendation, since the benefits do not clear outweigh the potential harms. The **WHO has done the public a disservice** in abandoning GRADE in its evaluation of the evidence, and greatly overstating confidence in a causal connection between red meat and cancer. Recent decades are littered with policies based on weak relative risks which, when properly tested in clinical trials, had to be reversed [...] We see the same story with dietary guidelines: recommendations to restrict dietary cholesterol and limit fat to fight cancer were originally based principally on epidemiological [illegible] that clinical trials failed to confirm [...] The reason that weak associations are untrustworthy is that they could very well be [illegible] associated with any number of factors in diet or lifestyle [...] Vegetarians tend to be more alert to good health: they smo[illegible]ess, exercise more, and have a higher socioeconomic status. By contrast, meat-eaters over the past 30-plus years are pe[illegible]more their doctor’s orders and are likely to be engaging in other insalubrious behaviors, all of which alone or in c[illegible]ght explain the small relative risks associated with meat-eating. Bias against red meat is another factor, easily [illegible] scientific literature and the popular press [...] **Small relative risks are therefore just as likely to reflect bias as any t[illegible]**domized clinical trials provide far more trustworthy evidence regarding cause and effect. It is therefore perplexing that this [illegible]HO document does not even mention the relevant data: two large, multi-year RCTs, both funded by the National Institute of Health [Polyp Prevention Trial and WHI] To say that red or processed meat is equivalent to smoking is **profoundly misleading**.

21/ Last year, Guyatt & others formalized their critique by COMPREHENSIVELY looking at the evidence.

When using proper standards of evidence, the case against red & processed meat looks slim (weak to very weak evidence). https://t.co/n188G7T24z

22/ In the editorial of the journal, Carroll & Doherty argued that those who seek to dispute this [assessment] will be hard pressed to find appropriate evidence with which to build an argument”



EDITORIALS | 1 OCTOBER 2019

Meat Consumption and Health: Food for Thought

Annals of Internal Medicine

Aaron E. Carroll, MD, MS; Tiffany S. Doherty, PhD

A fifth article this month is a new guideline [...] based on these reviews. It was voted on by 14 members, including 3 community members, from 7 countries and had strict criteria concerning conflicts of interest. The overall recommendations, contrary to almost all others that exist, suggested that adults continue to eat their current levels of red and processed meat, unless they felt inclined to change them themselves. This is sure to be controversial, but it is based on the most comprehensive review of the evidence to date. Because that review is inclusive, those who seek to dispute it will be hard pressed to find appropriate evidence with which to build an argument [...] Moreover, it may be time to stop producing observational research in this area. These meta-analyses include millions of participants. Further research involving much smaller cohorts has limited value. High-quality randomized controlled trials are welcome, but only if they're designed to tell us things we don't already know.

Johnston et al (2019) recommend "to continue rather than reduce consumption of unprocessed red meat or processed meat"

Causal inference assessment based on summary of evidence

CLINICAL GUIDELINES | 1 OCTOBER 2019

Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the Nutritional Recommendations (NutriRECS) Consortium

23/ What followed was indeed an incoherent rebuttal by anti-meat groups arguing that we should accept lower standards of evidence for nutrition, because... it can't do better (?!)

Plus a vitriolic smear campaign.

INTERESTING READ! ■ https://t.co/lxrXpzWUsR

Backlash Over Meat Dietary Recommendations Raises Questions About Corporate Ties to Nutrition Scientists

Rita Rubin, MA

It's almost unheard of for medical journals to get blowback for studies before the data are published. But that's what happened to the *Annals of Internal Medicine* last fall as editors were about to post several studies showing that the evidence linking red meat consumption with cardiovascular disease and cancer is too weak to recommend that adults eat less of it.

Annals Editor-in-Chief Christine Laine, MD, MPH, saw her inbox flooded with roughly 2000 emails—most bore the same message, apparently generated by a bot—in a half hour. Laine's inbox had to be shut down, she said. Not only was the volume unprecedented in her decade at the helm of the respected journal, the tone of the emails was particularly caustic.

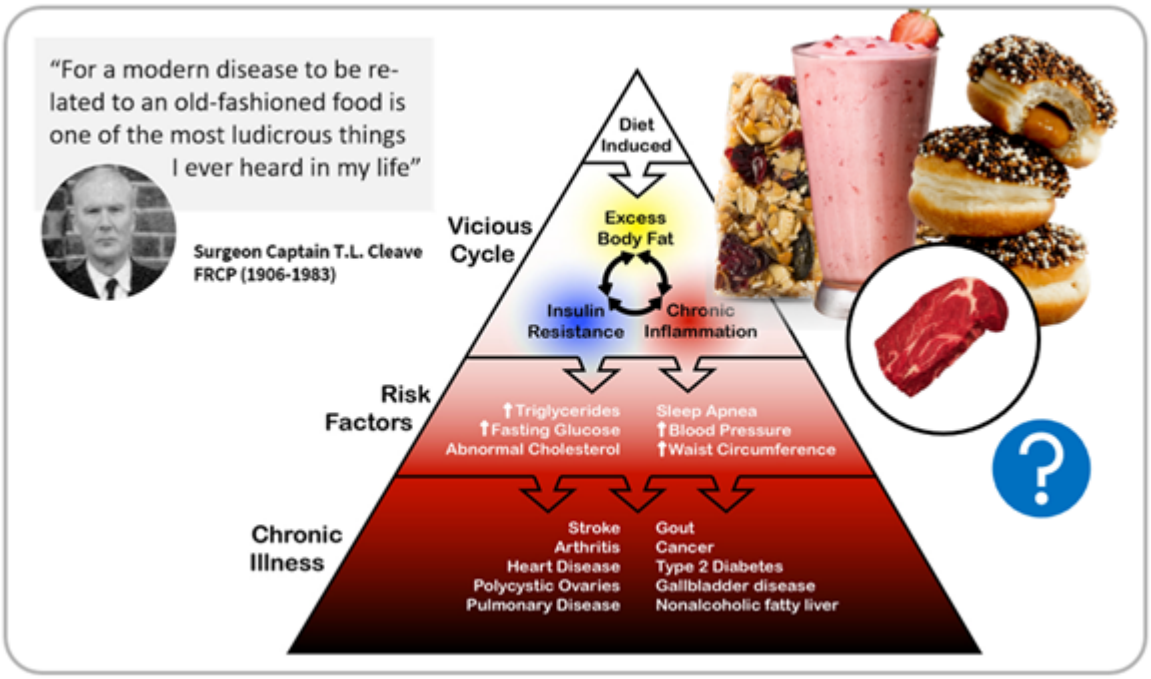
"We've published a lot on firearm injury prevention," Laine said. "The response from the NRA (National Rifle Association) was less vitriolic than the response from the True Health Initiative."

24/ In any case, various other scientists have expressed similar concerns:

- https://t.co/TdEeUIeskT
- https://t.co/YEYNup6Q6B
- https://t.co/ejVdqhqjoH
- https://t.co/O50BxmK0xJ
- Etc, etc.

25/ Rather than ideological a "priori", let's return to common sense: "for a modern disease to be related to an old-fashioned food is one of the most ludicrous things I ever heard in my life".

Let's focus on ultraprocessed junk instead, when we blame the Western diet?



26/ I'll leave it here with the following statement: "we argue that claims about the health dangers of red meat are not only improbable in the light of our evolutionary history, they are far from being supported by robust scientific evidence" https://t.co/UXiJqbW468

27/...and a link to our @aleph2020 website (brought by a consortium of 35+ scientists). I invite you to visit the Health section where we not only argue that there's no good reason to avoid meat, but also that it may lead to the loss of valuable nutrition: https://t.co/DrEcDJrfpr

28/ Meat, indeed, is an evolutionary food. It made us human. We're *adapted* to it. It would be highly improbable that it harms us to such an extent that we would have to include its restriction in a #EUCancerPlan.

https://t.co/1nGQrGqqKn

@gerardofortuna @NatashaFoote @EddyWax @zosiawanat @Parlimag @BrusselsTimes @FoodNavigator @AgraFacts @Agri_InsiderIRL @AgrilandIreland @ClaireMc_C @FarmersOfTheUK @farmersjournal @IFAmedia @joostvkasteren @terugindepolder @ArthurNeslen @tomdoorley @angelodimambro @carlomartu