## 1a. **Masks are not necessary and should not be worn.**

*Response written and edited by editor 4, with additional review by other editors of this document.*

Computing Forever interview 11 May 2020:

> *"I would definitively say, for coronavirus, there is no need for masks and also there is no need for social distancing."*

COVID-19 spreads mainly from person to person through respiratory droplets **[1,2]**. Source control measures to contain respiratory secretions and prevent droplet and fomite transmission of respiratory pathogens, includes respiratory hygiene/cough etiquette, performing hand hygiene after contact with respiratory secretions, and covering mouths or noise **[3]** A March 2020 report measuring environmental contamination of patient rooms at the dedicated SARS-CoV-2 outbreak center in Singapore, found virus particles in the ventilation systems in hospital rooms of patients with COVID-19 **[4]**. The presence of contamination in air exhaust outlets is consistent with the turbulent gas cloud hypothesis of disease transmission **[4, 5]**. Sneezing, coughing, and forced exhalation releases turbulent gas clouds containing clusters of droplets along a continuum of droplet size. The forward momentum of the cloud propels pathogen-bearing droplets which settle and evaporate at varying rates. The known route of transmission of SARS-CoV-2 is droplets resulting in aerosol and fomite transmission, the virus can remain viable and infectious in aerosols as well as on contaminated surfaces **[6, 7]**. The decay of virus particles on contaminated surfaces is dependent on material and environmental conditions **[7]**. Aerosol transmission may occur during medical procedures such as nebulization, mechanical ventilation, endotracheal intubation, etc. Ong *et al* found no viral load in air samples taken from patient rooms with COVID-19 environmental contamination **[4]**. At this time there is not sufficient high-quality scientific evidence of airborne transmission of SARS-CoV-2 in the community.

**<u>While Professor Cahill is correct in her statements that COVID-19 has not had sufficient scientific evidence to demonstrate airborne transmission (with the exception of possibly during aerosolizing procedures), her assertion that this negates the need for masks is unfounded</u>**.

Computing Forever interview 11 May 2020:

> *“There is no need for social distancing. There are only three organisms that are transmitted in that way... this one is not. This one is transmitted if a droplet is on a door handle.”*

The Highwire with Del Bigtree interview 14 May 2020:

> *“Coronavirus it's not transmitted through the air, it's transmitted through droplets that then would drop on surfaces like a door handle. So in coronavirus there is absolutely no need to wear a mask.”*

James Delingpole Channel interview 6 June, 2020:

> *“We know how COVID-19 is transmitted because it belongs to the family of coronaviruses. It is not transmitted through the air. This has been proven because groups of people in enclosed spaces, for example, plane-loads of fruit-pickers, did not all come down with the sickness.”*

Wearing of disposable masks or improvised facial covers during pathogen outbreak is an altruistic act that not only serves as a form of extra cough or sneeze etiquette, but also reduces aerosols emitted from normal breathing or when talking **[8]**. Community-wide wearing of face masks and enhanced sneeze/cough etiquette contributes to the control of COVID-19 by reducing the emission of infected saliva and respiratory droplets **[8, 9, 10]**. A June study from Germany found that face masks reduced the cumulative number of COVID-19 cases almost 25% after 20 days **[11]**.

During the 2003 SARS outbreak community hygiene measures including universal masking, hand hygiene, social distancing, and school closures resulted in a reduction of positive specimens for all circulating respiratory viruses compared to those from 1998 to 2002 **[12]**. Though the relative contribution of these measures could not be estimated, this reduction in positive specimens suggests an association between population-based hygienic measures and the reduced incidence of influenza and other viral respiratory infections **[12]**. Universal mask wearing, frequent hand washing, and home disinfection were effective public health measures used in Hong Kong during the 2003 SARS outbreak to limit the spread of the virus in the community **[13]**. The use of masks has valid scientific rationale for reducing the transmission of exhaled aerosols into the immediate environment **[8, 9]**. Model simulations suggest that universal masking, even of relatively ineffective masks, may meaningfully reduce community transmission of COVID-19 **[10]**. The benefits of face masks are greatest when used in conjunction with other public health practices such as social distancing and frequent hand hygiene **[10]**.

**<u>Prof. Cahill has repeatedly stated that wearing a mask will reduce oxygen supply resulting in stress on the immune system and emergence of latent viruses.</u>**

Computing Forever interview 11 May 2020:

> *"What a mask does, it's entirely the wrong thing. It actually reduces the oxygen supply to you, so actually everybody has latent viruses within their body, and because you're under oxygen stress, it allows viruses that were latent—because you're under stress it decreases your immune system."*

The Highwire with Del Bigtree interview 14 May 2020:

> *"Because the mask is covering you, you have less oxygen and that puts your immune system under stress and then the latent viruses that are in your body, because you are under immune stress will reappear. And not only will you have more coronavirus but if you had other latent viruses it would allow them to reemerge."*

This claim that wearing face masks can cause hypoxia or hypercapnia and weaken the immune system circulated on social media in late April 2020. These posts suggested that wearing a mask will lead to excessive carbon dioxide levels due to "rebreathing your own $CO_2$" and that the resulting hypercapnia "weakens the immune system." These posts city Judy Mikovits, a former research director at the Whittemore Peterson Institute (WPI), at the University of Nevada **[14]**. Mikovits has spread multiple unsubstantiated claims about SARS-CoV-2 and is interviewed in the "Plandemic" video **[15]** (see claim 5b for slightly more about this video and Mikovits). Mikovits claims that masks hamper oxygen intake and reduce immunity. While it is true that hypoxia and hypercapnia would alter metabolic and biochemical function thus affecting immunity, the claim that it can be caused by wearing face masks is unsupported. The materials used in face masks are still porous enough to allow gas molecules, which are much smaller than viruses, to pass through **[8, 9, 16]**. A small 2010

study where healthcare workers wore a surgical mask over a N95 filtering respirator during 1 hour of two different work rates found no significant physiological variables between those who used surgical masks as an additional outer barrier and controls with no additional barrier **[17]**. The claim that mask wearing causes symptoms of hypercapnia is additionally contradicted by empirical evidence. As put by Dr. Victoria Forster, a cancer researcher at the Hospital for Sick Children in Toronto, "take surgeons, for example during long-procedures, they wear surgical masks for hours with no ill-effects on their carbon dioxide levels" **[18]**. Dr. Forster wrote for Forbes drinking this claim that wearing a mask will result in hypercapnia or lower the immune system **[18, 19]**. This claim was also debunked by the WHO, Snopes, HealthFeedback.org, and Africa Check **[20, 21, 22, 23]**.

On 5 June 2020 the World Health Organization updated their Advice on the use of masks in the context of COVID-19 **[23]**. This document continues to remind the public that " use of a mask alone is insufficient to provide an adequate level of protection or source control, and other personal and community level measures should also be adopted to suppress transmission of respiratory viruses." Compliance with public health measures such as hand hygiene and physical distancing are critical to preventing human-to-human transmission of COVID-19. The WHO continues to recommend that medical masks and respirators are reserved for use in providing care to suspected or confirmed COVID-19 patients **[24]**. At this time the universal wearing of masks by healthy people in community settings is not supported by high quality or direct scientific evidence **[24]**. However, taking into consideration the ongoing studies evaluation pre- and asymptomatic transmission, WHO has updated its guidelines to advise governments to encourage mask wearing by the general public *if* the intention is source control, there are concerns regarding risk of exposure, the vulnerability of the individual, and in settings with high population density **[24]**. The Association of Schools of Public Health in the European Region's 24 April report recommends the use of face masks by the general public as an element on non-pharmaceutical measures with clear caveats, limits, and priorities **[25]**.

Source control with social distancing and hand hygiene are critical to limit COVID-19 outbreaks. The additional measure of mask wearing is a symbol of social solidarity in the global response to the pandemic and an act of altruism **[26]**. Ethical dilemmas in following government and medical authority recommendations on public health measures is something that the University College Dublin Centre for Ethics in Public Life, has been writing about throughout the spring **[27, 28]**. Rowland Stout, Professor of Philosophy and Director of the Centre for Ethics in Public Life, concludes that community spirit and loyalty are ethical motivations for doing what you're told in this crisis **[29]**.

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## 1b. **Social distancing and lockdown are not necessary and were never needed.**

*Response written and edited by editor 4, with additional review by other editors of this document.*

**Prof Cahill repeatedly speaks against social distancing and states that the lockdowns were never necessary and never needed.**

Computing Forever interview 11 May 2020:

*[In regards to Ireland] "There is no need for the lockdown [...] the lockdown is unnecessary"*
*[In regards to the USA] "There is absolutely no need for lockdown."*

The Irish Inquiry live-debate 19 May, 2020:

*"End the lockdown and no phasing."*
*[In reference to the Lockdown] "this is one of the biggest mistakes of the century"*

The Highwire with Del Bigtree interview 14 May 2020:

*"Any closure in Ireland after the 25th of May is unnecessary [...] the same in America."*
*"There is no need for social distancing, no need for masks once people know nutrition, vitamins and hydroxychloroquine can prevent and treat."*

London Real interview 4 June, 2020:

*"We don't need the lockdown, we don't need masks, we don't need social distancing… There is no need for the lockdown, no need for any of these new societal changes, businesses, tourist industry, schools can open and we can go back to work."*

James Delingpole Channel interview 6 June, 2020:

*"We should end the lockdown in Europe and worldwide by May 25, 2020, and it was a huge mistake and it should never happen again."*
*"Clearly enough data. We can stop the lockdown now."*
*"The two meter rule is unnecessary."*

It is well known from previous studies that travel restrictions demonstrate a positive effect in past SARS, Ebola, and bubonic plague outbreaks **[1, 2, 3]**. While controversial, these are some of the oldest approaches to epidemic control, written about in the Bible with restrictions in association of people with leprosy and in 13th century Venice maritime quarantines **[1, 3]**. Stringent containment measures in Wuhan City and major cities in Hubei, China were put into effect on the 23rd and 24th of January. Before lockdown the doubling time of COVID-19 cases was ~2 days, shortly after the lockdown period it was ~4 days, and by February 27th it was ~19 days **[4]**. It is important to note, with testing development the diagnostic criteria changed on 7th February and due to political and economic consideration the transparency in reporting and detecting varies country to country **[4]**. The increase in doubling time of COVID-19 cases within China can be positively attributed to the rigorous lockdown measures **[4]**. In a May 2020 study that reviewed infection and death rates over a 4 week period in 12 countries with declared lockdowns, there was a significant reduction in infection rate in the overall cohort **[5]**. In India, there was a 45% exponential reduction in rates of SARS-CoV-2 infection at week 1 post lockdown **[5]**. Mathematical modeling demonstrates a clear reduction in number of deaths under three different lockdown scenarios, these researchers recommended an extended initial lockdown with gradual return to activities and extended period of contact restriction to 40% of before the quarantine **[6]**.

Modelling of SARS-CoV-2 spread has been used to determine approaches of cities to lifting lockdown **[7, 8, 9]**. The continued use of shielding older populations, universal testing, and face mask use contribute to a reduction of infections and death but are most effective when applied under continued lockdown **[7]**. Projections in multiple models suggest that premature or sudden lifting of public health measures could lead to a peak which could be flattened by relaxing interventions gradually **[6, 7,8]**. The harm in premature ending of lockdown was seen in Hokkaido prefecture in Japan, where its 3 week state of emergency was lifted on 19th March but then reintroduced in early April, less than a month later, due to a resurgence in numbers of cases **[10]**. A model of London indicated that the current lockdown led to a reduction in cumulative cases and cumulative deaths of 69% and 63% respectively **[7]**. The same model showed that ending lockdown before the epidemic dies out will cause a resurgence of infection with more than 6 times increase in deaths in the general public **[7]**. While extended lockdown is effective at reducing infections and deaths, it is also unsustainable from an economic and societal point of view. It is also important to acknowledge that structural factors limit the implementation of lockdown in low- and middle-income countries that have densely populated communities with limited access to food, water, and sanitation **[11]**.

**<u>Cahill attempts to justify her statements against lockdown by naming countries that did not have a lockdown. However she fails to mention the stringent public health measures in place within these countries</u>.**

Computing Forever interview 11 May 2020:

> *"People in Immunology knew that there was actually no need for the original lockdown because it was well known... There were countries that didn't lockdown like Taiwan & South Korea. This was already in February and March."*

Taiwan has an established public health response learning from its experience during the 2003 SARS outbreak. As early as Dec 31, 2019, when the World Health Organization was notified of pneumonia of unknown cause in Wuhan, China, Taiwanese officials began to board planes and assess passengers on direct flights from Wuhan **[13]**. Suspected cases were screened for 26 viruses including SARS and MERS **[13]**. On January 20, with sporadic cases reported from China, the Taiwan Centers for Disease Control activated a unified central command system with the National Health Command Center (NHCC). By January 27th high risk individuals were tracked and placed under 14-day home quarantine where they were monitored electronically through their mobile phones **[13]**. Violators of home isolation or quarantine regulations were fined, with the first couple being fined on Feb 7 for NT$300,000 (USD $10,000) **[13]**. Those who falsified health declarations were also subject to fines up to NT$150,000 (USD $5000). Between Jan 20 and Feb 24, the Central Epidemic Command Center produced and implemented a list of 124+ action items that included border control, case identification, quarantine, proactive case finding, and guidelines regarding resource allocation **[13, 14]**. They also actively fought against misinformation, on Jan 22 the government announced the spread of fake news on epidemics can be fined up to NT$3 million (USD $100,000) **[13]**. The first investigations into citizens for sharing misinformation occurred on Jan 31 and on February 9 the first citizen was prosecuted for the spread of misinformation **[13]**.

Proactive measures by the Taiwanese government directly contributed to a low incidence rate of COVID-19. Taiwan has a population of 23.81 million people, as of June 12 2020 they have had 443 confirmed cases and 7 deaths **[15]**. While a national lockdown was not put into effect, private citizens were intensively monitored by tracking mobile phones **[14]**. Those at risk or identified in contact tracing were placed on strict home isolation or quarantine, their mobile phones continued to be tracked to enforce this **[13, 14]**. This included self-quarantine of citizens who had been to one of 50 locations where *Diamond Princess* cruise ship travelers may have visited **[13]**. Those in home isolation and quarantine that developed respiratory symptoms had health units dispatched to evaluate.

South Korea has also proactively responded to COVID-19, the country demonstrated a remarkable capacity in its laboratory response by conducting COVID-19 testing with innovative drive-thru and walk-through samplings **[16, 17]**. These new and efficient testing centers have empowered South Korea to test 1,094,704 individuals between Jan 20 and June 13 **[18]**. South Korea has deployed rapid and aggressive screening tests using public health lessons from SARS and MERS outbreaks **[17]**. In response to an increase in cases in March 2020, South Korea implemented various forms of social distancing, including cancellation of social events, restriction of public transportation, and suspension of school activities **[18]**. South Korea also has a culture of wearing surgical masks, a lesson learned during the MERS outbreak **[18]**. In 2015 in response to the MERS outbreak legislation

was put in place that enabled the Korean Centers for Disease Control and Prevention (KCDC) to use private data from companies, including credit card data and GPS information from smartphones, to trace the movement of people infected with Covid-19 **[19]**. This monitoring of citizens enabled efficient and effective contact tracing during this current pandemic, though is a level of government control and privacy invasion that Cahill would likely disagree with.

**Cahill also postulates that coronavirus is seasonal with peaks in the winter.**

The Highwire with Del Bigtree interview 14 May 2020:

*"It would be better to open up now as the virus is circulating in the wintertime ... we need to end the lockdown & never again."*

While some respiratory viruses are indeed seasonal, the monthly prevalence of seasonal coronaviruses (sCoV) detected varies **[20]**. The detection among patient populations varies between sCoV types and years **[20]**. It is promising to know that sCoVs circulating in Ireland typically peaks during winter months, but at this point it is nothing more than speculative to say that COVID-19 will also be seasonal in this manner. There is optimism that increasing temperature and humidity will decrease environmental endurance of SARS-CoV-2 but, at this time and the time of her statement, no high-quality scientific data to support this **[21]**. Furthermore, countries with hot weather have reported cases of COVID-19 **[22]**.

**Cahill states that the lockdowns are causing more harm**

The Irish Inquiry live-debate 19 May, 2020:

*[Judy Mikovits mentions fewer than 40 thousand people have died and that the lockdown is killing people & compromising those most susceptible] "Exactly, I would say it is probably multiples, 2 to 3, 4, 5 over the next two years or so, the damage of the lockdown in comparison to what would have happened without the lockdown."*

Nine Til Noon interview 22 May, 2020

*"There will be more deaths due to poverty & malnourishment."*

*"We as a society trust doctors, we trust the medical profession and they have a duty and if you're in public office, you cannot do more harm than good. The weight of evidence [...] that the lockdown is causing multiple times more harm than good."*

James Delingpole Channel interview 6 June, 2020:

*"A lot of the lockdown we have, there's no real basis for it anymore. And also the economic harm and the health harm due to poverty of people could be... five times more deaths due to the lockdown "*

*"There are more harms than benefits of the lockdown now."*

James Delingpole Channel interview 6 June, 2020:

*"The lockdown was a total mistake, it's actually made matters worse… it actually boosts your immune system to interact with people, and to shake hands, and to not social distances, and to obviously not wear a mask."*

Lockdown is an effective measure at preventing the spread of infection, there is no scientific evidence that there will be more deaths due to lockdown. Modeling in various studies and reviews of early infection and death rates in countries has demonstrated less death and infection with lockdown measures **[5, 6, 7]**. Friedson *et* all (2020) in a review of California state level coronavirus data and a synthetic control research design estimate that California's shelter-in-place-order (SIPO) led to 1,661 *fewer* COVID-19 deaths **[23]**. We acknowledge lockdown is unsustainable long term and there are significant associated economic and social downsides, but there are no scientific models or studies reporting a higher risk of death.

Nine Til Noon interview 22 May, 2020

> *[...] In France Professor Raoul is launching a public inquiry into the way this has been handled because there are more deaths now because of the lockdown."*

Professor Raoul is a person of much debate and controversy among the scientific and global community over the past few months. A self described medical "maverick" Raoul was part of a group of French physicians who published a study where they urgently called for the use of hydroxychloroquine in treating COVID-19 **[24, 25]**. Raoult achieved international fame when his proposed treatment for COVID-19 was advocated for by US President, Donald Trump **[26]**. Gautret *et al* study was not peer-reviewed before publishing, has methodological inconsistencies, and did not include control groups to compare treated patients with untreated patients **[25]**. The study also has a small sample size and excluded patients who died or were transferred to the ICU **[25]**. Further discussions about the use of hydroxychloroquine as a treatment protocol can be found in claim 2a.

The Irish Inquiry live-debate 19 May, 2020:

> *"The CDC has clearly shown that without the lockdown the virus would have cleared."*

While this claim is credited to the CDC this editor was unable to find reports that substantiate it. There does not appear to be any statements or reports from the CDC that demonstrate coronavirus would clear without a lockdown. In early January CDC officials reported that it was unclear how easily or sustainable coronavirus spreads between people **[27]**. Our understanding of COVID-19 has greatly improved since January and the CDC as such has updated statements. Nevertheless, this editor could not find any past CDC reports that indicated pandemic coronavirus would resolve on its own or without public health measures. The actions and recommendations of the CDC directly contradict Prof Cahill's statement **[28]**.

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## 1c. **The government policies and actions by health officials are causing more death.**

*Response written and edited by editor 4, with additional review by other editors of this document.*

The Highwire with Del Bigtree interview 14 May 2020:

*"The government scientists and our Taoiseach is a doctor and our minister for health, they are making policy decisions that actually will make people sicker [...] there will be more deaths."*
*"I think it's an experiment and that we should say no."*

Nine Til Noon interview 22 May, 2020

*"The political people want to have now more deaths so they can continue with the lockdown [...] there will be maybe 5 to 6 times more deaths now everyday because of the lockdown.."*

James Delingpole Channel interview 6 June, 2020:

*"It is almost as if the current advice is geared to making sure people get sick in order to support more lockdowns."*

As discussed in claim 3b, lockdown is an effective measure at preventing the spread of infection, there is no scientific evidence that there will be more deaths due to lockdown. Modeling in various studies and reviews of early infection and death rates in countries has demonstrated less death and infection with lockdown measures **[1, 2, 3, 4]**. We acknowledge lockdown is unsustainable long term and there are significant associated economic and social downsides, but there are no scientific models or studies reporting a higher risk of death.

These have been challenging times, there was no roadmap or precedent for dealing with a global pandemic such as this. Since 29 February 2020, the first case of coronavirus in Ireland, there have been 1,705 lives lost in Ireland **[5]**. This loss of life is grieved by people throughout the entire country as we continue to navigate uncertainty and a global pandemic.

Over the past six months the National Public Health Emergency Team (NPHET) and HSE National Crisis Management Teams for COVID-19 have met regularly, at times daily, to advise on Ireland's government and health service co-ordinated approach. The NPHET responds to significant health-based emergencies and is a forum for the development of strategic approach to such emergencies **[6]**. Minutes from these meetings and their letters to the Minister of Health have been available online since they first convened to discuss coronavirus on 27 January 2020 **[7, 8]**.

Review of these documents outlines approaches to decision making and recommendations. The NPHET recommendation on 11 March that Ireland move to the Delay Phase from Containment Phase was made in alignment with advice of the European Centre for Disease Prevention and Control **[9]**. This advice stated that:

1. the detection of COVID-19 cases and/or deaths outside of known chains of transmission is a strong signal that social distancing measures should be considered and
2. the early, decisive, rapid, coordinated and comprehensive implementation of closures and quarantines is likely to be more effective in slowing the spread of the virus than a delayed implementation.

In following this advice, the recommendation by the NPHET to move to the delay phase was due to:

1. a significant increase in recent days in the number of cases detected,
2. a number of ICU hospitalisations
3. a death
4. a number of clusters of infection, including in two hospital settings, and
5. reports of community transmission in a number of individual cases.

The meeting minutes during which this recommendation was discussed and the letter sent to Simon Harris, TD by Dr Tony Holohan, CMO and Chair of NPHET, are publicly available on the COVID-19 updates **[7]**. The NPHET recommendation to extend the public health measures, including closure of non-essential businesses, places of worship, and encourage individuals to stay at home, was shared with the Minister of Health on 24 March **[10]**. This decision informed by guidance from the European Centre for Disease Prevention and Control (ECDC), and at this time Ireland's situation was:

1. Number of confirmed cases exceeding 1000,
2. Day to day increase in the number of admissions to ICU
3. Six recorded deaths,
4. Community transmission accounting for 45% of cases,
5. 25% of cases associated with healthcare workers,
6. A number of clusters in healthcare and residential settings.

Over the next three days the number of ICU admissions doubled, the number of total deaths recorded increased to 19, and there was an increasing number of clusters **[11]**. The risk assessment from the ECDC indicates that widespread national community COVID-19 transmission was moderate with effective measures and the risk of healthcare system capacity being exceeded in the coming weeks was high. These factors considered, the NPHET recommended additional measures put in place **[11]**. At this time the day-on-day increase in growth rate of confirmed cases was 33% and modelling predicted that, If Ireland did not implement mitigation measures, there would be a peak of 120,000 new cases per day **[12, 13]**. As of 13 June there have been 25, 295 confirmed cases of

COVID-19 in Ireland with a peak of less than 1, 500 cases reported per day **[5, 7, 13]**. The public health measures put in place undoubtedly prevented unnecessary hospitalisations and deaths. The NPHET utilised a public health approach to lifting COVID-19 restrictive measures, this framework and how decisions were made was shared publicly **[13]**. This framework informed the 4 phase Roadmap for Reopening Society and Business, as of 12 June Ireland is in Phase 2 of the roadmap.

The Highwire with Del Bigtree interview 14 May 2020:

*"I think it's an experiment and that we should say no."*

Over the past six months these teams have followed public health advice grounded in evidence and experience from international organisations and other countries. They have made recommendations in an effort to reduce the morbidity and mortality of COVID-19, while balancing considerations on the social and economic impacts of lockdown. Communications and the approach to decision making, as well as evidence behind recommendations by the NPHET, have been publicly available throughout this pandemic.

**Prof Cahill calls for legal investigations into policy makers such as Leo Varadkar, Simon Harris, members of the NPHET, and many others as she feels they are responsible for deaths.**

The Highwire with Del Bigtree interview 14 May 2020:

*"There has to be legal consequences for the deaths after the 25th of May."*

*"... we will be counting those deaths and holding our prime minister & minister for health personally to account as, I think, it's verging on, almost a crime against humanity."*

James Delingpole Channel interview 6 June, 2020:

*"There should be legal implications for those who advocate continued lockdown. Hundreds of unnecessary deaths should be grounds for a legal tribunal."*

*"The politicians, broadcasters, newspaper editors, ministers for health–everyone complicit in censoring and withholding information from the public about the true nature of COVID-19 needs to be held personally liable for the deaths caused."*

Cahill's assertion that decision makers acted with intention to harm the public is serious. Their approach to decision making has been clearly outlined, as well as rational behind policies put in place **[5, 7, 8, 13]**.

Public Opinion Research Tracking published on 8 June, demonstrates that a large majority of those surveyed think the current government measures on social distancing are just right **[14]**. On the 8 June survey 80% reported about right, 13% too strong, and 7% too weak **[14]**. When asked if the reaction of the government to the current coronavirus outbreak is appropriate, too extreme, or not sufficient the 8 June reports were 82%, 7%, and 11% respectively **[14]**. These survey findings demonstrate public support for the measures that were put in place in Ireland.

Over the past six months Varadkar, Harris, members of the NPHET, and other policy makers have been faced with incredibly challenging decisions. Some members of the NPHET are colleagues of Prof Cahill's at UCD. They have had multiple roles in responding to the COVID-19 pandemic as professors, researchers, directors of centres, and advisors to the HSE and Irish Government. Their dedication to

guiding Ireland through a global pandemic while continuing to teach future generations of medical students and care for patients is something that is much appreciated by this editor.

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## 2a. **Hydroxychloroquine is shown to be an efficient treatment that will prevent symptoms and death.**

*Response written and edited by editor 2, with additional review by other editors of this document.*

**Prof Cahill claims that hydroxychloroquine is a proven and efficient treatment.**

Computing Forever interview 11 May 2020:

*"Hydroxychloroquine [...] was shown [...] by doctors worldwide to be the most efficient treatment for the coronavirus."*

*"Hydroxychloroquine will work for all these types of viruses, these coronaviruses."*

*[In reference to taking hydroxychloroquine] "They would have no symptoms and there would be no deaths."*

According to the World Health Organization, no drugs have been licensed for the treatment or prevention of COVID-19 **[1]**. There are several clinical trials ongoing, but currently there is no proof that hydroxychloroquine or any other drug can cure or prevent COVID-19 **[1]**. In subsequent interviews, Prof Cahill continues to be a proponent of prophylactic dosing with hydroxychloroquine as a preventative treatment.

The Highwire with Del Bigtree interview 14 May 2020:

*"If you have a cough take hydroxychloroquine, AZT and zinc."*

*".. you could have given in underlying conditions a preventative tablet of hydroxychloroquine every 2 weeks [...] and they would not have any symptoms. We do not need anyone to die for this."*

The Irish Inquiry live-debate 19 May, 2020:

*[In reference to Coronavirus] "And [...] the prevention strategies of hydroxychloroquine and zinc [...] there need to be no unnecessary deaths."*

James Delingpole Channel interview 6 June, 2020:

*"Use a prophylactic dose of hydroxychloroquine for all of the doctors and nurses.. So that they wouldn't be taken down." [references that this is currently done in India]*

Dr. Cahill is correct that the Indian Council of Medical Research (ICMR) released advice relating to the use of hydroxychloroquine (HCQ) for front line workers. The revised advisory on the use of HCQ as prophylaxis for COVID-19 was released by the ICMR in May, and the documentation can be found here **[2]**. Additionally, the ICMR also specifies that the drug is not recommended for prophylaxis in children under 15 years of age and in pregnancy and lactation. Moreover, adverse events using HCQ have been reported, including cardiovascular side effects, visual disturbances, and as a result the drug must be given under strict medical supervision with an informed consent, and ECG monitoring is recommended **[2]**. It is also noted that the ICMR also advises that frontline workers on HCQ should be advised to use PPE (Personal Protective Equipment), in accordance with the guideline issued by their respective organization. Furthermore, the ICMR also recommends that asymptomatic contacts of laboratory confirmed cases should remain in home quarantine as per the National guidelines, even if they are on prophylactic therapy. This recommendation is contradictory to Dr. Cahill's claims under the subsection "Claim 3b. Social distancing and lockdown are not necessary and were never needed."

**Since her May 11 interview Prof Cahill has continued stating in interviews that the use of hydroxychloroquine, AZT, and zinc are established treatment protocols.**

The Highwire with Del Bigtree interview 14 May 2020:

*".. we are totally aware that the drug hydroxychloroquine with AZT & zinc can actually prevent those people ever reaching hospital."*

Nine Til Noon interview 22 May, 2020

*"... what we now know is that there has been a study with 52 clinical trials to show that hydroxychloroquine and zinc can prevent any deaths."*

James Delingpole Channel interview 6 June, 2020:

*"It is also very well established that hydroxychloroquine, which is a very safe drug, could be used off-label by the doctors to treat people who get coughs."*

*"Treatment is hydroxychloroquine for 3 or 5 days, and then you also take Zinc and AZT, which is an antibiotic.. That whole protocol has been published and is used in many clinical trials in 2020 to show that is the optimum."*

*"If you do have underlying conditions, or say you're 90 listening to this, you should be ringing your doctor and saying, I would like you to consider off-label use of hydroxychloroquine for me."*

There are clinical trials currently involved in testing the use of HCQ + AZT + Zinc, and these trials can be found in the WHO clinical trial registry **[3]**. These clinical trials are ongoing, and currently there is no proof that hydroxychloroquine or any other drug can cure or prevent COVID-19 **[1]**. As mentioned previously, no drugs have been licensed for the treatment or prevention of COVID-19 **[1]**.

The Highwire with Del Bigtree interview 14 May 2020:

*"50% of people in the world that were dying were over 80, hydroxychloroquine has a half life of 21 days you could have given in underlying conditions a preventative tablet of hydroxychloroquine every 2 weeks [...] and they would not have any symptoms. We do not need anyone to die for this."*

This claim is unsupported. As stated previously, no drugs have been licensed for the treatment or prevention of COVID-19, and there is no evidence to support that use of HCQ would have prevented COVID-19 deaths **[1]**.

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## 2b. **Vitamins, Zinc, and/or Mineral Oil with good nutrition will boost your immune system to prevent infection/death**.

*Response written and edited by editor 2, with additional review by other editors of this document.*

**Prof Cahill makes seemingly conclusive statements regarding the use of vitamins and zinc as established preventative medicine for COVID-19.**

Computing Forever interview 11 May 2020:

*"What I want to publicize is, it's well known in immunology, you can take preventive measures to boost your own immune system, so that even if you were a little bit malnourished or rundown, that if you take vitamin D, vitamin C, and zinc, your immune system will be boosted, and also if you eat—good nutrition—so that if you come across the virus […] you will have hardly any symptoms, you will clear the virus."*

*"I think the real issue is that people can take these vitamins and zinc and boost their immune system so there won't be any more deaths."*

The Highwire with Del Bigtree interview 14 May 2020:

*"Prevention with vitamins D, C and zinc"*

The Irish Inquiry live-debate 19 May, 2020:

*[In reference to Coronavirus] "you could actually prevent [...] having serious complications or side effects with vitamins and zinc."*

*".. you could prevent having these complications or side effects with vitamins and zinc and then prevention strategies of hydroxychloroquine and zinc… there need to be no unnecessary deaths.."*

Nine Til Noon interview 22 May, 2020

*".. there is a block of clinical trials showing that for this specific virus if you take vitamins D, C and zinc, [...] that the virus because of the zinc and the vitamins D & C can't get into your lung tissue, so you will help your immune system to produce an immune response and clear the virus and you won't get any symptoms."*

London Real interview 4 June, 2020:

*"Eat well for your immune system, there are preventative measures and talk to your doctors to get early and effective treatments like hydroxychloroquine & zinc, and we can re-engage in the world in a week."*

*"The common cold is caused by coronaviruses [...] there will be less deaths now due to flu [...] because you can actually boost your immune system by vitamins D, C & zinc in the flu season so we can actually have less deaths overall for other years."*

*"If you eat well, and avoid stress and you boost your immune system you actually won't be sick from a lot of viruses."*

James Delingpole Channel interview 6 June, 2020:

*"and also that for these corona-like viruses you can prevent getting symptoms by taking vitamin A, B, D, and Zinc. And there are lots of clinical trials to show the usefulness and people have won Nobel prizes."*

*"99% of them, if they take the Zinc, vitamin C and D will not have any symptoms when the lockdown is over."*

According to the World Health Organization, no drugs have been licensed for the treatment of prevention of COVID-19 **[1]**. There are several clinical trials ongoing, but currently there is no proof that any drug can cure or prevent COVID-19 **[1]**. In fact, there are several Clinical Trials registered with the WHO that are investigating the efficacy of such treatment regimens, including one (**WHO Registry: NCT04326725**) looking at Hydroxychloroquine + Vitamins C, D and Zinc as prophylaxis for Healthcare professionals, but this is an ongoing trial with no current conclusions **[2]**.

The notion that the general population can take supplements to boost one's immune system can be misleading. While there are many benefits associated with vitamins and minerals, as they play important roles in the human body, the evidence in their role in prevention and treatment of the common cold is frequently poor and with risk of biases **[3]**. Here we briefly outline the evidence from past RCTs as cited in the review by Allan and Arroll, 2014 **[3]**, that summarizes interventions for the prevention of the common cold, including zinc, vitamin C and vitamin D. Allan and Arroll, 2014, focused on RCTs and systematic review and meta-analyses for RCTs for therapy of the common cold, and they demonstrate that many findings were inconsistent and had small effects, which could be attributed to biases rather than a true effect **[3]**. For more information on any specific RCT, please see reference **[3]**. Briefly, evidence for zinc supplementation derives from 2 RCTs (zinc sulfate tablets 10 mg and 15 mg) looking at children aged 5-8 years old, although the randomization was unclear, classifying these studies as high risk for bias **[3]**. There were additional RCTs investigating different oral doses of zinc (e.g. zinc gluconate 23-mg lozenge every 2 hours), classified as moderate risk of bias. Although the dosing varied across these studies (4.5-23.7 mg), zinc was found to shorten the course of colds in adults but not in children. Notably, increased adverse events were also reported including bad taste and nausea. There have also been RCTs investigating the use of intranasal zinc, and was concluded to have an unclear, if any, benefit and possible adverse events including nasal burning, stinging and anosmia **[3]**.

Data on vitamin C supplementation (most commonly 1g/d), pooled from 29 RCTs (n = 11306), has been shown to possibly provide benefit in people under physical stress, but no meaningful benefit has been shown for the average person **[3]**. Although no benefit has been proven, there are also no harms currently reported.

In early April three optimistic reports on how vitamin D might protect against COVID-19 were published in the Irish Medical Journal **[4, 5]**. McCartney *et al.,* advised urgent supplementation of high dose vitamin D to all adults, regardless of their current vitamin D status. **[4]** This advice was shared without evidence from randomised controlled trials, without recommendations on dosing changes due to age or health status, and minimal discussion on relevance to Covid-19 **[4]**. On the same day Molloy *et al.,* published advice about vitamin D and COVID-19 in children **[5]**. They advised to avoid vitamin D deficiency in children but also counselled against high doses of vitamin D, as high dose vitamin D is not proven to be beneficial in critical illness in children **[5]**. The Recommended Dietary Allowance (RDA) of vitamin D for children 1 to 18 years, pregnant women, and non pregnant adults through the age of 70 years is 600 international units (15 micrograms) **[6]**. The RDA for those over 70 years is 800 international units (20 micrograms), in older adults who are confined indoors or have vitamin D deficiency a RDA of 800 to 1000 international units (20-25 micrograms) is

recommended **[6,7]**. Vitamin D intake occurs with skin exposure to ambient ultraviolet light, such as sunlight, and from oral intake of vitamin D from foods and supplements. RDA of vitamin D can be met with fortified foods that are readily available in Ireland, such as breakfast cereals, milks, yogurts, and fortified breads and cheeses **[8]**. If an individual does have vitamin D deficiency requiring supplementation, the dosing, preparation, and treatment time periods are dependent on the individual's baseline serum 25(OH)D, liver function, and absorptive capacity for vitamin D **[9]**. Many vitamin and mineral supplements contain vitamin D, additional supplementation may lead to vitamin D toxicity which has measurable adverse effects **[10]**. Randomised trials with high dose oral vitamin D supplementation have demonstrated the undesirable effect on increasing risk of falls and fractures in older adults **[11, 12].**

People *with* vitamin D deficiency are encouraged to discuss supplementation with their GP to promote skeletal and extraskeletal health. In early June the Department of Health advised "those who are self-isolating or unable to go outside should consider taking a daily supplement containing 10 micrograms of Vitamin D to ensure a healthy Vitamin D status" **[13]**. However, while it is well known that RDA of several nutrients, including vitamin D, support normal immune function, no claims have been authorised by the EU for a reduction in risk of infectious diseases through vitamin D intake **[1, 8]**. Studies investigating the use of high dose vitamin D or supplemental vitamin D in those who have levels of 25(OH)D within normal limits have shown no benefit **[3, 8]**. As of June 4 there are 18 medical trials registered with the WHO in relation to vitamin D and COVID-19, this is still an area of ongoing research with no definitive evidence as Prof Cahill suggests **[13]**.

James Delingpole Channel interview 6 June, 2020:

> *".. you can prevent getting symptoms by taking vitamin A, B, D, and Zinc. And there are lots of clinical trials to show the usefulness and people have won Nobel prizes."*

Nobody has won Nobel prizes as of yet for works related to supplementation of vitamins or minerals to prevent COVID-19 symptoms. Researchers within Ireland caution "You are not going to take Vitamin D and be prevented from getting Covid.. Vitamin D is no magic bullet... Diet and nutrition is never about a magic bullet" **[13]**.

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## 3. **COVID-19 only poses a risk to the elderly (those over 80).**

*Response written and edited by editor 5, with additional review by other editors of this document.*

Computing Forever interview 11 May 2020:

*"So if you were to quarantine elderly people for a few weeks then the other 90% of the population would come across the virus. About 80 or 90% of people, if they protect their immune systems, will not have any symptoms, they won't even know they had it and then the virus will not circulate anymore. So when the elderly, which could have been the end of April, come out of the quarantine, the virus is actually stopped in its tracks."*
*"Children and anyone under 80 [...] will have no issue."*
*"young people do not give it to adults, adults give it to young people."*

James Delingpole Channel interview 6 June, 2020:

*"There have been no cases of transmission from children."*

While the elderly population are generally more significantly affected by COVID-19 and are more likely to progress to severe disease [1], people of all ages can be affected by COVID-19. The HSE includes those over 60 years of age to be in the high-risk category and those over 70 years to be in the very high risk or extremely vulnerable category [2].

As of the 13th of June 2020, there have been 25,249 confirmed cases of COVID-19 within the Republic of Ireland. Of these cases, 3,276 were hospitalised with 416 cases admitted to the ICU.
The age range of these cases is from 0 to 106 years, with the **mean age** being **51**. [3]
As of midnight the 11th of June 2020, there have been 1,704 deaths from COVID-19 within the Republic of Ireland. The age range for these deaths is from just **17 years** up to 105 years. Over 20% of deaths occurred in those who were under 80 years. [3]

Another portion of the population who are at significant risk for COVID-19 are those who are immunocompromised or have pre-existing medical conditions. A significant number of these people do not fall into the over 80 years category stated by Prof. Cahill. It is estimated that around 50% of people over the age of 50 in Ireland have at least one long-term health condition. With 65% of those over 65 having two or more long-term health conditions. These conditions include diabetes, COPD, heart conditions, asthma and several others which fall under the HSE's high-risk groups. [4]

In a press release, the HSE stated that you cannot "boost" your immune system through diet, and no specific food or supplement can stop you getting COVID-19 [5]. There is no evidence that any vitamin or mineral supplements can prevent COVID-19, see claim 2b for more information.

Five studies identified by HIQA, investigated intra-familial and close contact transmission of SARS-CoV-2 to estimate age-specific transmissibility. While it was at very low rates, three of the five studies reported child-to-adult or child-to-family member transmission. [6] While children and young people may not significantly contribute to the transmission of SARS-CoV-2, it is still possible for them to do so. And so, it would be incorrect to state that there have been no incidences of transmission from children or that children do not give the virus to adults. Although the clinical manifestations have been generally less severe than that of adult patients, children of all ages appear to be susceptible to COVID-19. However, young children, particularly infants were vulnerable to the infection. [7]

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## 4a. **Vaccines are not safe and not needed for COVID-19.**

*Response written and edited by editor 3, with additional review by other editors of this document.*

Computing Forever interview 11 May 2020:

> *[Vaccines are] "not safety tested and a lot of the ingredients that are in vaccines are known themselves to actually be bad for the immune system, like aluminium or mercury, so there is absolutely no necessity for those kind of toxic ingredients to be in vaccine adjuvants at all."*

We have no doubt that the readers of this document are aware that vaccines have for decades been targeted under misinformation campaigns, and this has resulted in tangible negative effects on people's health due to their declining vaccination of themselves or their children. Any suggestion that vaccines are "not safety tested" when this has been shown time and time again to be false, should be met with opposition. This assertion not only criticises our approach in addressing the SARS-CoV-2 pandemic, but also undermines the very basis of preventative healthcare. Prof. Cahill's position as an immunologist adds apparent weight to her unsubstantiated claims, and makes these assertions more distressing. Vaccines are tested for many years in humans through multi-phase clinical trials. Before this they are tested in vitro and in in vivo mouse models. After being approved for human use, each batch of vaccine is tested before distribution **(1, 2)**.

London Real interview 4 June, 2020:

> *".. people do not have the information that vaccines are not safety tested and that they contain ingredients that in and of themselves are toxic. 70% contain aluminum and aluminium is a neurotoxin [...] it should not be injected, it shouldn't be in the vaccine and for decades mercury, which is one of the most toxic substances on earth was given to babies."*

Prof. Cahill claims that aluminium and mercury contained in vaccines are "bad for the immune system". Aluminium acts as an adjuvant in many vaccines, meaning that it induces a stronger immune response and improves efficacy of the vaccine . There is no evidence that it is bad for the immune system. Moreover, the amount of aluminium in vaccines is well below toxic levels, and is not readily absorbed by the body **(3)**. Mercury is found in certain vaccines, in a preservative named thimerosal. While methylmercury can be toxic to humans, thimerosal contains *ethylmercury,* which is much more readily cleared from the body. Thimerosal prevents vaccine contamination by inhibiting growth of bacteria **(4)**. Thimerosal does *not* produce toxic effects. It was feared that thimerosal in the MMR vaccine could cause autism but multiple studies have been undertaken to prove its safety **(5)**. It has been proven *not* to be neurotoxic in at least 9 CDC studies **(6)**.

Computing Forever interview 11 May 2020:

> *"There is no need for a vaccine"*

Prof. Cahill also claims that there is no need to vaccinate people against SARS-CoV-2. At the time of writing (13 June 2020), there have been 25, 250 confirmed cases and 1,705 confirmed deaths of SARS-CoV-2 in Ireland. There is no definitive treatment proven to be effective for SARS-CoV-2. While current social distancing measures are proving effective in keeping virus transmission low, it is accepted that an important tool to prevent resurgence of the virus in the community and prevent the vulnerable is a vaccine **(7)**.

The Highwire with Del Bigtree interview 14 May 2020:

> *"Why there is no corona vaccine after 17 years is that when they injected the vaccines containing those types of material [latent viruses in animal cell lines], all the animals would die or if it was in you know babies or in soldiers, that they would have this really adverse immune reaction which then would have to be treated. So that is why in Ireland we cannot have a mandatory vaccination as essentially we are experimenting on the world"*

James Delingpole Channel interview 6 June, 2020:

*"It has not been possible to make a safe and effective vaccine for the SARS-CoV-1 in 2003. If we have not been able to make a vaccine for this coronavirus, we should not expect a safe vaccine for COVID-19 any time soon.*

Here Prof. Cahill links SARS-CoV-1 with SARS-CoV-2, ignoring that they are very different viruses. She claims it was "not possible" to make a SARS-CoV-1 vaccine, when in reality it was not necessary; the virus was eradicated after a few months of the initial cases, through effective quarantine measures. There was little to no asymptomatic transmission of SARS-CoV-1 making it easier to trace and contain. Research for a SARS-CoV-1 vaccine did continue, in case it reemerged, but these trials did not have the level of priority and funding that the current SARS-CoV-2 trials have **(8)**.

Her claim that the SARS-CoV-1 vaccine trials showed it was unsafe (*"all the animals would die or if it was in you know babies or in soldiers, that they would have this really adverse immune reaction")* appears to unsubstantiated; no trial results pertaining to these adverse events were found at the time of writing this. On the contrary; several studies report a good safety profile for this vaccine in both monkeys and humans in phase 1 trials **(9,10)**.

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**[2]** Oxford Vaccine Group. Vaccine Knowledge Project. Available at: https://vk.ovg.ox.ac.uk/vk/vaccine-development. (Accessed: 13th June 2020)
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## 4b. **COVID-19/SARS-CoV-2 would not occur naturally and has been manufactured.**

*Response written and edited by editor 3, with additional review by other editors of this document.*

**<u>Prof. Cahill made a number of claims regarding the origin of SARS-CoV-2. One such claim is that it was manufactured;</u>**

Computing Forever interview 11 May 2020:

*"In general these [corona]viruses have 30,000 nucleotides but in this [SARS-CoV-2]—there's actually a stretch of 12 nucleotides that are not present in the other viruses, and this would not happen naturally."*

This claim is referencing *Anderson et al. Nature Medicine* (paper title and Figure 1 are shown on screen as Prof. Cahill makes this claim.) While she uses this paper to add apparent authenticity to the

claim, and that it is correct that this stretch of 12 nucleotides are novel, the paper in question gives clear evidence that SARS-CoV-2 did not arise from genetic manipulation of a different SARS-CoV-like coronavirus. The authors state in their introduction that **"Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus". (1)**

The rationale for this is:

1. SARS-CoV-2 binds to its target receptor (ACE2) in a way that is distinct from other coronaviruses and is different from those previously predicted. It is likely that its binding to ACE2 happened under natural selection in the animal host before zoonotic transfer, or in the human after zoonotic transfer. **(2)**
2. If SARS-CoV-2 was a product of intentional genetic manipulation of an existing virus, the reverse-genetic system used for this purpose **maintains the backbone of the original virus (4)**. However, the SARS-CoV-2 backbone is entirely novel.**(1)**

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**(3)** Scobey T, et al. (2013) Reverse genetics with a full-length infectious cDNA of the Middle East respiratory syndrome coronavirus. *Proc Natl Acad Sci USA* 110:16157–16162.

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**<u>Another claim made by Prof. Cahill on the origin of SARS-CoV-2 is that it originated in dogs, and contaminated influenza vaccines, specifically those in Wuhan and Italy, and this accounted for the higher rates of Covid19 cases in these areas;</u>**

James Delingpole Channel interview 6 June, 2020:

*"People in Wuhan and Bergamo were given a certain type of influenza vaccine. It became apparent around April-May that the high death rates in both cities could be due to viral interference from the administered influenza vaccine."*

Computing Forever interview 11 May 2020:

*"So it turns out in the vaccines that were given in Wuhan and in Italy, in the Lombardy region, … these vaccines have been grown on dog tissue and dog tissues are known to have coronaviruses."*

Prof. Cahill elsewhere agrees with Judy Mikovitis, who has been spreading false information online regarding the flu vaccine and dog tissue. Mikovits is a former research director at the Whittemore Peterson Institute (WPI), at the University of Nevada. She was removed from her post in 2011 after her paper in Science was retracted due to multiple omissions of information and non-reproducibility. **(1)**

She has been spreading multiple unsubstantiated claims about SARS-CoV-2. Judy Mikovitis in an interview series entitled "Plandemic" said *"Italy has a very old population… they're very sick with inflammatory disorders, they got at the beginning of 2019, an untested new form of influenza*

*vaccine that had four different strains of influenza, including the highly pathogenic H1N1. That vaccine was grown in a cell line, a dog cell line, dogs have lots of coronaviruses"* **(2)**

**Prof. Cahill referred to these comments:**

The Highwire with Del Bigtree interview 14 May 2020:

> *[In response to the question: Do you agree with Judy Mikovits that the coronavirus was in the flu vaccine] "I agree entirely with Judy."*
> *[In reference to animal cell lines used to make vaccines] "The latent viruses those animals have are then included in the flu that is then injected into people."*

James Delingpole Channel interview 6 June, 2020:

> *Interviewer states "We think this [referring to COVID-19] was probably the product of a lab, partly." To which Cahill nods in agreement.*
> *"I'm not saying entirely that it's true, but I'm postulating it.. I am saying it, and it has been published, that you are exposed to coronavirus containing in a flu vaccine."*

This rumour may have originated from a new cell-based quadrivalent vaccine approved by the European Commission **(3)**. This contains 4 strains of influenza, and uses Madin-Darby Canine Kidney cells to culture the influenza viruses. This allows more rapid manufacturing of the vaccine. **(2)**

Prof. Cahill's claim implies that this new vaccine may have caused the high rates of SARS-CoV-2 in Wuhan and Italy (*"...So it turns out in the vaccines that were given in Wuhan and in Italy, in the Lombardy region...these vaccines have been grown on dog tissue and dog tissues are known to have coronaviruses.").* However, this quadrivalent vaccine using Madin-Darby Canine Kidney cells is given elsewhere in the EU, and in the US. **(2,4)**

Moreover, the safety profile of Madin Darby Canine Kidney (MDCK) cells as vaccine substrates has been verified, being shown to have "sufficient inactivation of influenza viruses and adequate removal or inactivation of putative adventitious or endogenous viruses, mycoplasma or bacteria". **(5)**

No published evidence to suggest that MDCK cell based vaccines are unsafe or contain viruses have been found at the time of writing this (12 June, 2020).

**Prof. Cahill also asserts that the flu vaccines render people susceptible to SARS-CoV-2 infection.**

> *"There's been papers published by the U.S. Army, where they have certain flu vaccines in 2017 and 2018 given to soldiers, that when they naturally come across a coronavirus, they have a cytokine storm and are severely sick."*

This claim by Prof. Cahill is referencing a report published by a vaccination-skeptical organization "Children's Health Defence". **(6)** This report uses a 2019 study undertaken by the Armed Forces Health Surveillance Branch (AFSHB) **(7)** which examined the theory that "influenza vaccination may increase the risk of other respiratory viruses" —this is a concept known as "virus interference." which Prof. Cahill refers to. This is the theory that, in getting a flu infection, we become more resistant to other viruses. By extension therefore, flu vaccines increase our susceptibility to other

viruses. However, the AFHSB study concluded that "overall results … showed little to no evidence supporting the association of virus interference and influenza vaccination". **(7)**

The claim that influenza vaccine may increase susceptibility to SARS-CoV-2 is based on the assertion in the AFSHB study that there is a link between vaccination and coronaviruses. However, this "coronavirus" was a common cold coronavirus, not SARS-CoV. Moreover, this study did ***not*** control for age or seasonal variation. The likelihood of someone contracting the common cold coronavirus was not age-controlled or season-controlled, thus the study has multiple confounding variables. **(7,8)**

The Military Health Service (MHS) of which AFSHB is a branch, said in a statement to Factcheck.org that "The study does not show or suggest that influenza vaccination predisposes in any way, the potential for infection with the more severe forms of coronavirus, such as COVID-19" **(8)**

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**(1)** Cohen, J. In a Rare Move, Science Without Authors' Consent Retracts Paper That Tied Mouse Virus to Chronic Fatigue Syndrome. (2011). Available at: https://www.sciencemag.org/news/2011/12/updated-rare-move-science-without-authors-consent-retracts-paper-tied-mouse-virus%0D. (Accessed: 12th June 2020)

**(2)** Science Feedback. "Plandemic" vignette featuring anti-vaccination activist Judy Mikovits contains numerous false and unsupported claims about COVID-19. (2020). Available at: https://sciencefeedback.co/plandemic-vignette-featuring-anti-vaccination-activist-judy-mikovits-contains-numerous-false-and-unsupported-claims-about-covid-19/. (Accessed: 12th June 2020) ***A note on this source; the original "Plandemic" video has been removed from** https://archive.fo/iQUMP, **but this source has reviewed the video and is where the Mikivitis quotations are taken from**

**(3)** The Pharmaceutical Journal. *First cell-based quadrivalent vaccine available for 2019/2020 flu season*. (2019).

**(4)** FDA. *Flucelvax Quadrivalent Influenza Vaccine*. (2019). Available at https://www.fda.gov/media/115862/download

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**(6)** Kennedy, R. F. Pentagon Study: Flu Shot Raises Risk of Coronavirus by 36% (and Other Supporting Studies). *Childrens Health Defense* (2020). Available at: https://web.archive.org/web/20200424225130/https://childrenshealthdefense.org/news/vaccine-misinformation-flu-shots-equal-health/. (Accessed: 12th June 2020)

**(7)** Wolff, G. G. Influenza vaccination and respiratory virus interference among Department of Defense personnel during the 2017 – 2018 influenza season. *Vaccine* 38, 350–354 (2020).

**(8)** Fichera, A. No Evidence That Flu Shot Increases Risk of COVID-19. *Factcheck.org* (2020). Available at: https://www.factcheck.org/2020/04/no-evidence-that-flu-shot-increases-risk-of-covid-19/. (Accessed: 12th June 2020)


## 5a. **Patients who have recovered from COVID-19 are immune for life**

*Response written and edited by editor 2, with additional review by other editors of this document.*

**Prof Cahill has made several claims regarding the course of COVID-19 and resulting immunity including;**

Computing Forever interview 11 May, 2020:

*"Your immune system clears it after ten days, then you are immune for life"*

The Highwire with Del Bigtree interview 14 May 2020:

*"What is well recognised in this virus is that once you have recovered from this virus you are immune for life."*

*"We should never do this [lockdown] again because once you cleared the virus you will be immune for life."*

James Delingpole Channel interview 6 June, 2020:

*"80 out of 100 people would have developed antibodies within 10-11 days and then cleared the virus out of the body, had no symptoms, but they are essentially immune for life."*

While aspects to these claims are true, Prof Cahill's conclusions drawn from these facts are unsupported. People of all ages can be infected, although, most people who get COVID-19 have mild or moderate symptoms and most people who catch COVID-19 can recover and eliminate the virus from their bodies **[1]**. The development of immunity to a pathogen, such as COVID-19, typically takes place over 1-2 weeks **[2]**, as one's body utilizes their innate immune response, followed by an adaptive process that includes the synthesis of antibodies that are specific to the pathogen **[2]**. If this response is strong enough, it may prevent the progression of illness or re-infection by the same pathogen, which is the reasoning behind the so called "immunity passport." ***If this is the case for COVID-19 is currently unknown, as there is currently not enough evidence to support an immunity passport [2].*** Data regarding the antibody responses to a COVID-19 infection is constantly being collected and the WHO is continually reviewing these data [2]. This is a large, collaborative, undertaking because the tests that are used to detect these antibodies need to be validated with regards to their accuracy and reliability, as well as be specific to COVID-19 and distinguish it from the other known human coronaviruses (e.g. the viruses that cause the common cold) [2]. Without such a validation step, people may be misclassified as either being infected or not.

The Highwire with Del Bigtree interview 14 May 2020:

*"There is no latent disease and what those people are [assume referencing Covid-19 patients in hospital?] are not cases like me, we are immune for life."*

As stated previously, there is not enough data to support an immunity passport, and therefore it is not possible for Prof Cahill to know if she herself is immune for life. If you are interested in learning more about immunity in the context of COVID-19, we recommend that you start here [2].

REFERENCES:

**[1]** World Health Organization. Coronavirus disease (COVID-19) advice for the public: Myth busters. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters

**[2]** World Health Organization. "Immunity Passports" in the context of COVID-19. 24 April 2020. Available from: https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19

## 5b. **SARS-CoV-1 confers immunity to COVID-19 (SARS-CoV-2).**

*Claim under review by editors of this document, if you would like to join the team to write a response to this specific question please contact us*

Computing Forever interview 11 May 2020:

> *"SARS virus circulated [since] 2003 and essentially every three or four years since, so that people are immune—so that everybody practically in the world is immune."*
> *"Before Covid-19 came, if you tested people for antibodies, you know between 7% and 15% of the Irish population would have antibodies [...] so 400,000 people. So what they are reporting is the number of cases of like 400,000 is trying to scare people, they are actually people who developed immunity to the last SARS virus so they would have immunity now."*

James Delingpole Channel interview 6 June, 2020:

> *"COVID-19 (also known as SARS-CoV-2) is about 80% the same as SARS-CoV-1 in 2003... These types of viruses last about 6 weeks in each location before naturally 'dying off'... everyone in the world, practically, become exposed to those viruses within a few weeks and that the majority of people are immune. They actually clear the virus."*

As discussed in claim 4a and 6, Professor Cahill links SARS-CoV-1 with SARS-CoV-2, ignoring they are very different viruses. Readers of this document are likely very aware that these are not the same virus. SARS CoV-1 and 2 share some genetic sequences and use the same host cell to initiate viral infection but have different morbidities and mortalities **[1]**. Full-length genome sequences obtained from infected Chinese patients at an early stage of the outbreak (Dec 2019) showed 79.6% sequence homology to SARS-Co-V-1, but that it was more closely related to zoonotic SARS-like coronaviruses **[2]**. This novel virus shared 96% sequence identity at the whole genome level to a bat coronavirus and 99& identity with a strain from pangolins **[2]**. The closer relation to zoonotic viruses than SARS-CoV-1 suggested that SARS-CoV-2 is a new human-infecting coronavirus, not a re-emergency as Prof Cahill states **[1]**. Subsequent full-length genome sequences of 2019-nCoV were more than 99.9% identical to each other **[2]**. There is no evidence we can find to support her notion that antibodies produced previously against SARS-CoV-1 confer immunity against SARS-CoV-2.

REFERENCES:

[1] Lango M. How did we get here? A short history of COVID-19 and other coronavirus-related epidemics. *Head & Neck*. 23 May 2002. doi.org/10.1002/hed.26275

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## 6. **Coronavirus was present earlier than is being reported and no longer is circulating.**

*Response written and edited by editor 4, with additional review by other editors of this document.*

**<u>Prof Cahill states that SARS-CoV-2 has been in circulation since 2003.</u>**

The Highwire with Del Bigtree interview 14 May 2020:

*"This coronavirus has been around since 2003 and there is no licensed vaccines."*

As discussed in claim 4a and 5b, Professor Cahill links SARS-CoV-1 with SARS-CoV-2, ignoring they are very different viruses **[1,2]**. Readers of this document are likely very aware that these are not the same virus. Please reference 4a to read about the lack of vaccine for SARS-CoV-1.

**Cahill reports that she had coronavirus in January and her husband before her.**

The Highwire with Del Bigtree interview 14 May 2020:

*"This coronavirus has been around since 2003 and there is no licensed vaccines."*

*"My husband flew to america in december and january and he brought it back and I got it, I had flu like symptoms for about 2 weeks and then [...] a dry cough that went on for about 2 weeks, towards the end I was breathless."*

James Delingpole Channel interview 6 June, 2020:

*"The reason why is that my husband went to America in December, and because he has asthma he was actually very sick and he had this unusual cough that went on for some time and flu-like symptoms.. Then I got it in January and I had it for about three and a half weeks."*

In early December 2019, Li Wenliang, a physician fro mWuhan, reported a series of patients showing signs of severe acute respiratory syndrome. This was subsequently reported to the WHO Country Office in China on 31 December 2019 **[1]**. The genome of this virus was published on 12 January and a team in Berlin, under the direction of the WHO, used this information to develop a diagnostic test for active infection which was shared 16 January. This genetic sequence was used by the international community to test and report lab-confirmed 2019-nCoV **[3]**. Imported cases were confirmed in Thailand, Japan, and the Republic of Korea on 13 Jan, 15 Jan, and 20 Jan respectively **[3]**. Genomic testing was utilized by the National Virus Laboratory in Ireland, located at UCD, for early testing and the director of the laboratory is a member of the NPHET. Ireland began testing suspected cases of COVID-19 in late January with the first confirmed case on 27 February **[4]**. The first case of coronavirus with local person to person spread in the United States was just days prior **[5]**.

The Highwire with Del Bigtree interview 14 May 2020:

*"The coronavirus has circulated the world within 6 weeks, it's gone."*

James Delingpole Channel interview 6 June, 2020:

*"And then coronavirus in America came and went in about 4 weeks."*

Nine Til Noon interview 22 May, 2020

*"The virus spread around the world in February and March right before the lockdown."*

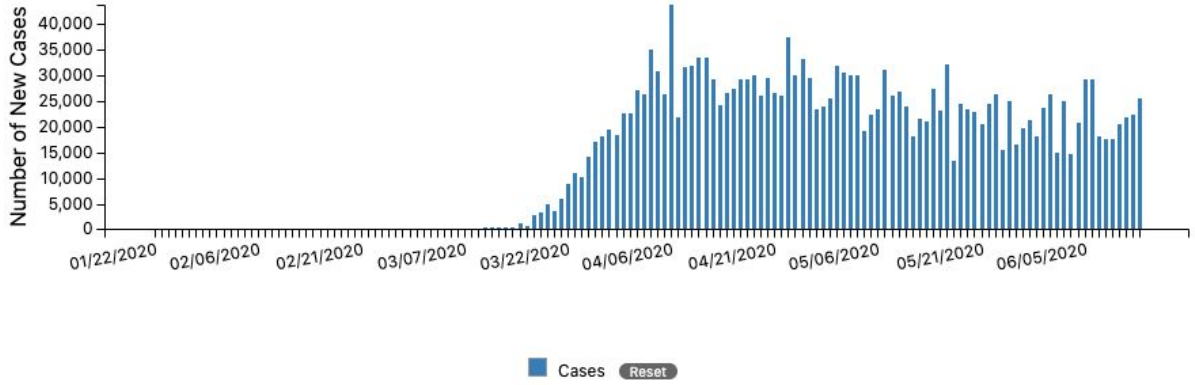
*"The CDC said [...] it was pretty much ended in April 17th, irrespective of the lockdown."*

This editor is unable to find any evidence substantiating these claims. COVID-19 still is being actively diagnosed in communities around the globe, including in Ireland **[6, 7,8]**. As of 11:52am CEST 15 June 2020 there have been 7, 805. 148 confirmed cases of COVID-19, including 431, 192 deaths reported

to WHO **[8]**. Below is a chart taken directly from the CDC website and can be accessed at reference 8.

## New Cases by Day

The following chart shows the number of new COVID-19 cases reported each day in the U.S. since the beginning of the outbreak. Hover over the bars to see the number of new cases by day.





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**ADDITIONAL STATEMENTS MADE BY PROF CAHILL THAT ARE NOT ADDRESSED BUT ARE OF CONCERN:**

### Hospitals are inflating the number of deaths to benefit financially.

The Irish Inquiry live-debate 19 May, 2020:

*"And also I suppose the different guidance in the CDC that they said to doctors that as soon as someone has Covid they could write these new codes within it and the hospitals would benefit financially and also it would increase the number of deaths."*

### Hospitals will not be overrun due to the pandemic

Nine Til Noon interview 22 May, 2020:

*"We were told that the hospitals would take 2 weeks to be up and running but the hospitals are empty [...] people die every day, the hospitals are not overrun."*

*"If there was a real pandemic the nurses would be so busy* [Interviewer states they are entitled to their breaks] *No, the nurses & doctors all over the world as we've seen in america have been let go [...] because people aren't coming into the hospitals because they are afraid, same in the UK, the hospitals are under capacity, you can see in the statistics in Ireland."*

*"The rationale for the lockdown was to give hospitals 2 to 3 weeks to build up preparation but that is now weeks ago and hospitals have huge capacity so the justification for the lockdown is no longer there, there is now more harm through poverty & undiagnosed you know."*

*"There is a prevention and a treatment so no one needs to go into hospitals and that the hospitals won't be overrun and within 3 weeks they will have their immune system come across the virus and then we can go back to work."*

James Delingpole Channel interview 6 June, 2020:

*"There was no need to ramp up the hospital care system because there were established methods for prevention and treatment."*

### Health organisations and Scientific studies are untrustworthy

London Real interview 4 June, 2020

*"A lot of the scientific papers are based on tools & research that are not true."*

*"A lot of clinical trials are failing as a lot of the tools and publications are not validated."*

*[In reference to the coronavirus] "The whole narrative is false."*

Nine Til Noon interview 22 May, 2020:

*" In science [...] science is not about a consensus."*

### Scientists are being silenced by governments/pushing government agendas.

Nine Til Noon interview 22 May, 2020:

*"Government scientists come out with the evidence to show that the lockdown is actually of benefit to people."*

London Real interview 4 June, 2020:

*"You can trace the narrative by the Rockerfeller Foundation that set up a series of medical schools and they also set up the licensing of medical doctors across america and the world, there was an awful lot of traditional healing in food [...] detoxify the body, clean water and reduce stress and so with the Rockerfeller foundation setting up medical schools and the licensing of the medical profession through those schools they have more or less taken the Pasteur germ theory of the immune system & health because you can only really be healthy if you get prescribed a drug and now it has also evolved in the last 50 years about vaccines"*
*"If you look into Agenda 21 a lot of the banks are not funding renovation of property & businesses in rural areas, they are undermining farmers [...] not so many people are making the connection, really this coronavirus is a little bit of a distraction to undermine societies & rural economies that has been going on for 10-20 years [...] we need to see there is a bigger kinda agenda going on between agenda 21 and the banking system and the healthcare system and the politicians [...] we need to make those connections to what's going on now because they're there."*
*"The politicians are now trying to destroy a generation, put them into poverty and have ill health, for no reason."*
*"They are destroying economies & lives for absolutely no health reason."*
*"As the lockdown goes on, the reasons for the lockdown become more sinister..."*
*"They are trying to push a narrative that is not based on the decades of immunology [...] the people who are interviewed in the media are not reflective of the science [...] they are going to impose a new narrative that is not true."*
*"I think it*(Refers to the lockdown) *is one of the biggest mistakes of the millenium or the century [...] it's very clear how we ended up here, the governments, you know, relied on advice from 1 or 2 voices and they were scared or intimidated by the media and also global organisations, like the WHO where there is no democratic accountability perpetuated the fear."*
*"There is this climate of fear as if we can't control our destiny and that is undermining for younger generations [...] the fear that is going on and the solution are cruel and inhumane, they are trying to reengineer society [...] there will be more loneliness."*

James Delingpole Channel interview 6 June, 2020:

*"Evidence is being cherry-picked in order to reach a predetermined goal: a money-making vaccine. The existing prevention and treatment methods don't make money for big-pharma."*
*"Dr. Rashid A. Buttar and Dr. Judy Mikovits are trying to open the debate about prevention and treatments but their voices are being censored."*

## Doctors are not taught about the immune system

London Real interview 4 June, 2020

*"It is difficult for people like me and others to engage with people who have been [...] in the medical schools for 2 or 3 generations is that they haven't been taught about the immune system [...] if we have a healthy immune system, we don't need anything else."* (In the context of vaccines and lockdown)
*"The Belchamp theory for me would be if you are well and not stressed and have good nutrients & good food, you can fight off any virus [...] viruses are not something to be afraid of but nobody makes any money out of that because you are talking about healthy food, no stress & nutrition [...] unfortunately for the last 100 years or so the Pasteur germ theory around viruses & infection where they have war like analogies and outbreak and you need to get antibiotics to defend yourself against it as if you don't have a natural immune system, that is the kind of education and*

*narrative that doctors have been taught in medical schools and that the only way to recover from these viruses is through antibiotics & vaccines."*