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# **Rumours About** the Efficacy of **Ibuprofen Vs Paracetamol in Treating COVID-19 Symptoms: The** Making of a Misinformation **'Soft Fact' With Public Health** Impact

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This report provides a high-resolution analysis of **rumours and uncertainties about the efficacy of Ibuprofen** versus Paracetamol in managing the symptoms of Covid-19. This event was significant as it **induced a direct behavioural effect, causing shortages of Paracetamol** across the UK, thus demonstrating how online misinformation can rapidly translate into real world consequences.

The empirically-led analysis is important in identifying the principal components of a **conceptual model of complex misinformation communications**, which will be vital in establishing a capacity and capability to detect similar processes in the future.

We define this as an episode of 'complex misinformation' (as opposed to 'simple misinformation') on the grounds that its transmission pathway involved: multiple authors making distinct contributions in evolving the narratives; interactions across multiple mainstream and social media platforms; contributions in different languages; a range of influencing techniques. Importantly further warrants for understanding it as 'complex' reflect how, not all of the material communicated was false, but rather there was a '**kernel of truth**' in much of what was conveyed.

The concept of 'soft fact' familiar to social science research, captures the 'plastic' quality of the base narrative, as it was repeatedly edited and reconfigured. Where 'hard facts' are viewed as stable and objective, soft facts are malleable and contingent, providing information of limited provenance where no other insights are available.<sup>1</sup>

Based upon the empirical data assessed we identify several key features of complex misinformation construction and communication:

- It is misinformation because there was no obvious intent to deceive or disinform on the part of the various multiple authors. However, each of the contributors made a distinct contribution to evolving the content of the misinforming narrative about the risks of Ibuprofen. Viewed in isolation, each misinforming message had only a modest impact, but in aggregate and sequenced together, they generated more significant distortions with direct impacts on public health. Overall, the effect is a bit like that which occurs in a game of 'Chinese Whispers'.
- A combination of **uncertainty, ambiguity and urgency** rendered audiences especially receptive to the doubts about Ibuprofen use. Uncertainty reflected how even key authoritative experts, such as Sir Patrick Vallance, publicly stated he was unsure about the risks of Ibuprofen, and so suggested, on balance, it would be safer for people to take Paracetamol; Ambiguity existed in terms of how the existing research evidence base, and some complex medical considerations should be interpreted in relation to the specifics of CV-19 virus; Urgency came from the fact that the spread of the virus was accelerating and so there was a clear perceived imperative for decisive action to be taken.

- For the purposes of this analysis, we trace 'patient zero' for concerns about Ibuprofen back to a letter published in the medical journal the Lancet on 11/03/20. Although, talking principally about non-Covid medical issues, it has subsequently been invoked by multiple social media commentators as an authoritative source for their concerns. Several of whom have over-stated its provenance, implying it was a full peer-reviewed academic paper when it was not.
- In terms of how it travelled, traces of the rumour / debate were detected across multiple platforms and channels, including: WhatsApp; Twitter; Facebook; Instagram; Reddit; mainstream media; a specialist medical journal. This accents the importance of having an all-source monitoring and analysis capacity and capability.
- In terms of the dynamics of the transmission pathway there were three key 'super-spreader' events that induced the misinforming process: uncertainty and invocation of the precautionary principle in public statements by de facto experts. In this specific episode an important role was played by the French Health Minister; the collective contributions of various 'pseudo-experts' who have surface credibility because of the use of 'Dr' in their social media accounts handles, but who turn out not to be medical doctors, but pronounce on CV-19 anyway; reporting of the accounts of the prior two groups and others by mainstream media sources.
- The fact that audience members were encountering similar messages about Ibuprofen risks, across multiple platforms, communicated by multiple messengers, seemingly enhanced the plausibility of the concerns being raised. In turn, this encouraged many people to adapt their behaviour.
- Three different sets of motives for people disseminating the information online can be identified: (1) some of the WhatsApp messages required a degree of technical sophistication and effort to conduct, suggesting an element of inorganic behaviour and malign intent; (2) others were clearly acting with prosocial motives, relaying the information because they felt people needed to know in an emergency situation; (3) other constructions of the information appeared more explicitly designed to target and play off the fears of parents. The motives here are more difficult to discern.
- That there are variants in the narrative was important in attracting the attention of multiple different thought communities in terms of cohering with their established interests and values. So different **audience segments were attending principally to specific iterations.**
- Several distinctive influencing techniques can be distilled from the interventions of different authors that they used to evolve the narrative: Add introduces new information; Omit leaves out important, often technical or complex, information; Simplify reduce the complexity of what is being conveyed;
   Misinterpret the author clearly misconstrues the underlying information; Blend two previously distinct pieces of information, or interpretations are brought together, to create a new implication.

Tracking and tracing complex misinformation episodes presents particular challenges for analysts. This is because they require considerable work and effort to **'mosaic' data from across different platforms and sources, in order to build a comprehensive and rounded view.** Moreover, it is time-consuming work which is difficult to complete when decision-makers are working to tight deadlines. As a consequence, many 'hot' analyses reported in the media and to government display a tendency to focus in upon particular high profile episodes without linking them to wider sequences and processes. Ultimately this can lead to inaccurate diagnoses of causes and consequences.

It is worth noting that at the current time, there remains considerable uncertainty about whether or not there are any risks with using Ibuprofen to manage Covid-19 symptoms. Indeed, this is a key element of the learning from this analysis, that **ambiguity and uncertainty creates a conducive environment for misinformation soft facts to reproduce via social media**, and it is difficult for authoritative sources to control the narrative under such conditions.

# Seeding Doubt About Ibuprofen and COVID-19

In mid-March 2020 multiple claims started circulating across social and mass media that **Ibuprofen** (also known as Motrin/Advil in the US), and other non-steroidal anti-inflammatory drugs (NSAIDs) are to be avoided in the management of COVID-19 symptoms (fever) in favour of paracetamol (acetaminophen). The key claims mounted being:

- Ibuprofen aggravates infection, e.g. "accelerates multiplication of the virus";
- Ibuprofen increases morality risk:
  - For young people, who end up in ICU;
  - Ibuprofen use can account for high fatality rate in Italy "Ibuprofen in their system."

In terms of how the subsequent consequences unfolded, it is significant that there may be a 'kernel of truth' to these concerns. There is pre-existing scientific debate over the use of NSAID drugs like Ibuprofen and Cortisone because their anti-inflammatory action may impact on immune system response. There is also scientific inquiry into the role of ACE2<sup>2</sup> receptors and respiratory disease, as reported for SARS.

For the purposes of this analysis, we track and trace how multiple sources of (mis)information were constructed and communicated to 'evidence' and reinforce misleading messages that Ibuprofen usage is accountable for high COVID-19 fatalities. Ultimately, this resulted in public behavioural change and a shortage of Paracetamol. The sources were:

- (1) A letter in the Lancet, 11 March:
- (2) WhatsApp text and voice messages, 13+ March: VIENNA HOSPITAL
- (3) Tweet by French Health Minister, 14 March
- (4) WhatsApp messages: CORK HOSPITAL, 15+ Mar
- (5) 'Confirming' media article in UK Press, 15 Mar

(1) Contained a scientific hypothesis in a highly reputable journal; (2) (4) and (5) conveyed a more informal, accessible and 'human interest' message via an empathetic messenger; (3) was a single tweet from a highly credible source with government and medical expertise.

The impact of the Ibuprofen message was accentuated by ambiguous, and at times contradictory, messaging by official bodies and medics. This reflects genuine scientific ambivalence towards the hypothesis of an Ibuprofen risk and the difficulty of finding a balance between social responsibility and the precautionary principle during a rapidly evolving health crisis.

2 https://www.bmj.com/content/368/bmj.m810/rr-20

# **01 LANCET CORRESPONDENCE.**

**11/03/2020 letter to the Editor in The Lancet:**<sup>3</sup> 'Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection?'. Contains the following extract:

"Human pathogenic coronaviruses (severe acute respiratory syndrome coronavirus [SARS-CoV] and SARS-CoV-2) bind to their target cells through angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels.4 The expression of ACE2 is substantially increased in patients with type 1 or type 2 diabetes, who are treated with ACE inhibitors and angiotensin II type-I receptor blockers (ARBs).4 Hypertension is also treated with ACE inhibitors and ARBs, which results in an upregulation of ACE2.5 ACE2 can also be increased by thiazolidinediones and Ibuprofen."

Whilst the Lancet correspondence and the scientific questioning is genuine, subsequent citations of it as fact have been called misleading or false because the lbuprofen question is:

- (a) a scientific hypothesis expressed in a letter,<sup>4</sup> not a peer-reviewed research paper;
- (b) discussing long term NSAID use in specific patient populations;
- (c) not evidenced in relation to the novel coronavirus.

On 17/03/2020, the Twitter account for Lancet Respiratory Medicine quoted the authors as follows:

"The authors do not claim that these drugs, including lbuprofen, increase the severity of #COVID-19".

This tweet got little engagement (10 RTs and 27 Likes).

By contrast, by 24/03/2020, the article link in the Lancet had been shared to:

- 340 Facebook pages;
- 8 Instagram pages;
- 13 subreddits;
- 499 Tweets.

# Analysis of Lancet Shares & Misinformation

Using the CrowdTangle plug-in, data was collated for all shares of the Lancet URL to social media platforms Facebook, Twitter, Reddit and Instagram from its publication date of 11/03 through to 23/03, the peak period of Ibuprofen-COVID-19 story.

4 The Lancet has a reputation as a world class medical journal

<sup>3</sup> https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext?fbclid=lwAR0ca0qW4HNM7Bbq6fLE1x3L5zP1bsOkrP4GXDZ9sO\_sm1eV-G8AvamW5fE

# How sharing of this evidence varied across social media platforms

- Figure 1 shows that the first share was onto Facebook and occurred 2 days after the letter's publication in The Lancet. This share was to a Spanish medical page Area Blanca, where the post discussed the co-morbidities outlined in the paper and did not mention Ibuprofen.
- Between 13/03 and 15/03, a steady growth in article shares was limited to Facebook before it appeared at high volumes on Twitter on 16/03 (N=149 shares), the same day that Facebook shares peaked at a lower level (N=42 shares). Shares onto Instagram were far lower in volume and over a much shorter time period (8 shares over 4 days), whilst shares onto Reddit were also low in volume, but spread over a longer time period of 9 days.
- The surge in Lancet article shares on 16/03 was two days after French Health Minister Olivier Véran's tweet. However, by way of context it is estimated that WhatsApp disinformation messages had been circulating from 13/03 onwards. In the UK, Facebook posts and UK media articles<sup>5</sup> about a young girl hospitalised after taking Ibuprofen were circulating on 15-16 March (see 3).
- The volume of shares on Twitter was highest for 2 days (16-17 March) then fell by more than a third on March 18<sup>th</sup> to a low of 18 shares on 20/03. A smaller peak in shares, limited only to Twitter was on 23/03.



These data patterns are summarised in Figure 1 below.

<sup>5</sup> Urgent warning for people with coronavirus symptoms NOT to take Ibuprofen after ill girl deteriorates rapidly https://www.manchestereveningnews.co.uk/news/greater-manchester-news/Ibuprofen-coronavirus-warning-nhs-nurofen-17933855 Also published in the Daily Mail.

Figure 1: Social Media shares of the article link in The Lancet, 13/03 to 23/03.

# How this specific scientific article became used as evidence to support the misinformation about Ibuprofen and COVID-19 fatalities, in particular its combination with false WhatsApp messages circulating at that time.

On 14/03, there were 35 shares of the Lancet URL onto social media, 33 of which were on Facebook and 2 on Reddit. The most engaged with post on this date (1.3K likes and 590 shares) was from the German language page 'Doc Fleck' where Dr Ann Fleck<sup>6</sup> referenced:

a "big fuss over a voice message haunting the network that describes the alleged connection between severe Covid19 courses and certain medications (Ibuprofen)". Dr Fleck then urged for objectivity and competence, ending the post with #StopfakeNews #nopanic #fightcorona.

A highly shared post (1K shares) also on the 14/03 was to a Portuguese page for Nursing Debate called Enfermeiro.pt.<sup>7</sup> The post cited a lengthy extract from the Lancet **but prefaced it with text attributed to WhatsApp messages** as follows:

"Ibuprofen / COVID-19 Preliminary information, they are studying why the disease pathway in Italy is more serious. One factor was that most patients took Ibuprofen at home. They joined the virus and Ibuprofen in the laboratory and came to the conclusion that the administration of Ibuprofen accelerates the multiplication of the virus and that it is related to a more serious course of the disease. They recommend to avoid Ibuprofen and to administer paracetamol, aspirin, diclofenac.

Taken together, these posts suggest that WhatsApp messages in (2) were circulating within days of The Lancet article.

# **Hybrid Messaging**

At its peak on 16/03, there were a number of examples of 'hybrid' messages, blending extracts from The Lancet article with core disinformation text from WhatsApp messaging [in bold above]. These messages gave the false impression that the Lancet letter was specifically connecting the COVID-19 fatality rate in Italy to Ibuprofen use (see Fig. 2).

<sup>6</sup> Described as an 'expert in innovative preventive and nutritional medicine' and presenter on NDR TV in docfleck.com 7 https://www.facebook.com/groups/236889186383496/permalink/

Important: Ibuprofen may be accelerating the multiplication-19 virus (Corona virus)

Preliminary information, they are studying why the disease route in Italy is more serious. One of the factors was most patients taking ibuprofen at home. They added the virus and ibuprofen in the lab and came to the conclusion that ibuprofen administration accelerates virus multiplication and that it is related to more serious disease path. They recommend avoiding ibuprofen and administration paracetamol, paracetamol, diclofenac.

Human pathogenic coronavirus (coronavirus ligament of severe acute respiratory syndrome [Vocs-Vocs] and Vocs-Vocs-2) to target cells through the enzyme of ANGIOTENSIN 2 (eca2), which is expressed by epithelial cells of the lung, Bowel, kidney and blood vessels. 4 the expression of eca2 is significantly increased in patients with type 1 OR TYPE 2 Diabetes treated with ace inhibitory and type I receptor blockers. Hypertension is also treated with ace and bra, which results in a positive regulation of ace2. 5. The can also be increased by phosphodiesterase and ibuprofen. They suggest that the expression of eca2 is increased in diabetes and treatment with ace inhibitory and bra increases the expression of ace 2. Therefore, increased expression of ace2 would facilitate infection by Covid-19. So we assume that the Treatment of diabetes and hypertension h the stimulating medicines increase the risk of developing serious and fatal covid-19 ".

Remembering that it's preliminary research yet.

Source https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext

#Curta Caso Criminal RS Reserva

#### XXXXX

Preliminary information: they are studying why the disease in Italy is more serious; one factor was that most patients took ibuprofen at home.

thelancet.com/journals/lanre ... "



Figure 2: Example of hybrid messaging conflating Lancet scientific hypothesis with disinformation claims about lbuprofen usage in Italy. The RHS post is from a new Facebook page (Feb 2020) in Brazil. The post got 47 comments and 101 shares.

# **Over-Simplification and Doctor Profiles**

On social media, the Lancet letter was repeatedly cited and/or the link shared as a 'study' or a 'paper' and the scientific argument simplified, at worst implying that people are in danger from their pre-existing medication. Significantly, this involved social media accounts prefaced with 'Dr', which may have greater source credibility with audiences, some of which adopted an alarmist tone:

### XXXXX

Are you using an #ACE2 or an #ARBinhibitor ? Are you using #Ibuprofen ?? This #Lancet paper states that these people may be at increased risk of becoming infected with #increasedrisk

of becoming infected with #COVID19.

xxxxx
#IndiaFightsCorona
Lancet (PrestigiousMedical Journal)said : 2 drugs to be avoided:
IBUPROFEN and ACE inhibitors ( BP tablet) So if you are on ACE inhibitors urgently switch to Calcium channel blockers.
Logic:COVID 19 acts through ACE2. Ibuprofen and Sartans both amplify it

Figure 3: Lancet source ("paper") and over-simplification by Doctor profiles on Twitter, ostensibly with high source credibility. Note: the first account bio reads "Doctor who speaks out about vaccines" in US (also on 5G and AFR) and it has 16.9K followers.

# **Behavioural Directives and Doctor Profiles**

There were also examples of non-specialist Doctor profiles on social media giving behavioural directives and/or incorporating rumours circulating on WhatsApp and in Véran's tweet. Note: these message types were communicated in a variety of languages (Dutch, Arabic, Portuguese).

## XXXXX

OPGEPAST. Gebruik GEEN ontstekingsremmende NSAID's (bv. lbuprofen, nurofen, diclofinac) als je je grieperig voelt. Deze middelen verhogen ACE2receptoren waardoor coronavirus makkelijker binnendringt. Veel jongeren op intensieve zorg hadden NSAIDs genomen.

#### Translated from Dutch by Google

ATTENTION. DO NOT use anti-inflammatory NSAIDs (eg, Ibuprofen, nurofen, diclofinac) if you are feeling flu. These drugs increase ACE2 receptors, making it easier for coronavirus to enter. Many youths on intensive care had taken NSAIDs.

وفق التقرير الذي نشرته lancet تم الإشارة إلى أن المرضى الذين تناولوا مضاد التهاب كالـ أيبوبروفين وأدوية الضغط الشائعة التي تحتوي AC2 inhibitor كانوا أكثر عرضة للفشل الرئوي. يُذكر إلى أن الأطباء في أوروبا اعتمدوا على هذه المُراقبة لتفسير كثرة الوفيات في إيطاليا.

#### Translated from Arabic by Google

According to the report published by Lancet, it was indicated that patients who took an anti-inflammatory such as ibuprofen and common pressure medications containing AC2 inhibitor were more likely to have pulmonary failure. It is reported that doctors in Europe relied on this observation to explain the high number of deaths in Italy.

12:14 PM · Mar 16, 2020 · Twitter for Android

## 24 Retweets 80 Likes

#### XXXXX

They combine the virus and ibuprofen in the laboratory and came to the conclusion that the administration of ibuprofen accelerates the multiplication of the virus and that it is related to a more serious course of the disease. (2)

## Quais medicações podem Potencializar o



Here is the link to the original journal article. For those who want to read the original hypothesis thelancet.com/journals/lanre...

#### Mar 16

I wasn't posting this piece of vital information because I didn't have any official confirmation or source, but here is the French government officially asking people to stay away NSAIDs, especially Ibuprofen, and stick to paracetamol. (HT @ XXXXX twitter.com/ XXXXX

2:18 PM · Mar 16, 2020 · Twitter for iPhone

#### XXXXX

Preliminary information, they are studying why the disease pathway in Italy is more serious. One of the factors was that most Italian patients took ibuprofen at home. (1)

Figure 4: 1) Account holder is a Doctor of Philosophy and has a blue tick account on Twitter (high surface credibility). RHS 2): Account holder's profile states they are an Ophthalmologist. Has 48.1K followers on Instagram and the post tells the audience to change their medication. 3) Account holder profile states occupation as a general surgeon. RHS 4) This doctor's profile states they are an Engineer; connects the Lancet article with Veran's tweet in a reply to a user who views the tweet as the official position of the French government.<sup>8</sup> 5 & 6) This Doctor profile begins with the WhatApp disinformation and then shares the Lancet URL as evidence.

# Language

A key feature of the Ibuprofen-Lancet messaging on social media is that it occurred in multiple languages. Taking the top 15 posts to Facebook on engagement,<sup>9</sup> the language breakdown is shown below (Figure 5). A total of 10 different countries were listed under page management. **None of the languages or country** of origin was English/UK.



Figure 5: Language and page origin of most engaged with Facebook posts sharing Lancet URL (n=15)

Facebook page **Русскоговорящие Portimão** caters for Russian speakers in this area of Portugal. A poster to this page used the WhatsApp disinformation text and added the Lancet article as a source. The same poster, whose profile is judged inauthentic, wrote a reply directly underneath citing the National Security and Defence Council of Ukraine as saying that the virus originated from a secret lab in Wuhan, going on to claim that the virus has selective effects on the population. This links to a wider digital ecosystem of disinformation and conspiracy narratives that has arisen in respect of Covid-19's causes and consequences.

#### XXXXX

#### Ibuprofen???

" According to preliminary information, they study why the path of disease in Italy is more serious. One of the factors was that most patients were taking the ibuprofen at home. They have joined the virus and the ibuprofen in the lab and came to the conclusion that the implementation of the ibuprofen is speed up the virus and that it is due to a more serious disease. They recommend you to avoid ibuprofen and appointment paracetamol, aspirin, diclofenac."

Here is the source:

https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30116-8/fulltext

### XXXXX

Quote: " The secretary of the nsdc of Ukraine believes that the secret lab F-4 in the Chinese city of Wuhan may be the source of the virus-19. virus

virus This is the development of high technology against a certain category of people.

The virus is almost harmful to children and healthy people and very dangerous for older people. So it has an election effect. Therefore, it is possible to argue that it is against those who are no longer involved in creating a weight product and is based on society. And this population is a burden to the economy and budget in all countries, whether it is gis geven or third world.

To date, the number of people in retirement age and, therefore, the reduced social spending has been carried out in a very unpopular way - increase in retirement age.

This is why I suspect this virus was designed only to reduce the social costs of holding pensioners by reducing their number. This sounds wild! Only he jumped out of the lab early, and China lit up as a designer."

Like · See original (Russian) · 1w

Figure 6: Russian-language disinformation on Facebook page Русскоговорящие Portimão (audience size 2,098) posted by an inauthentic profile: 15 comments, 20 shares.

# **Chains of Misinformation and Disinformation**

The circulation of several forms of communication, each advocating against the use of Ibuprofen, appeared persuasive to audiences who were able to draw on any one of them for credibility. For example, when the University of Vienna formally debunked the WhatsApp message it was cited in, social media users were able to rebut it by providing a link to Véran's tweet or the Lancet article (Fig 7).

#### Figure 7: The chain effect of multiple confirming sources

Universität Wi Achtung - Fake verbreitet, runc COVID19-Symp derartigen Stuc	en 🤣 @univienna News: Derzeit werc I um Ibuprofen und otomen. Dabei hand Iien der Universität	· 14 Mar Jen Nachrichten in S einer angeblichen ' elt es sich um Fake Wien.	Social Media-Kanä Verstärkung von News! Es gibt kein	∨ len ie
Q 26	<b>1</b> ↓ 473	♡ 845		
XXXXX 14 Mar French study. The French health minister advised against taking the drug. Because of very severe coronavirus cases in young patients in France and a possible connection to it https://t.co/Jn12BtTFkl_twitter.com/lemondefr/stat				
Le Monde Contre le # Co prendre d'ibu lemonde.fr/s	e 🔮 @lemondefr · ovid19 , le ministre profène. "En cas de ociete/articl	14 Mar de la santé recomm fièvre, prenez du p	ande de ne pas aracétamol. »	
$\bigcirc$ 7	1 1	♡ 8th	$\wedge$	

The fact that people had come across different, multiple sources of information conveying the same message meant that it rapidly became familiar to them in a time of crisis. One tweeter reasoned:

"That's right, but I've seen this in several articles myself. Otherwise I would. don't tweet it. Mind you, there is a chance. So not with certainty. But then you can just to be sure to take acetaminophen".

## XXXXX

Based on two different sources, preliminary research shows to AVOID ibuprofen. Please use acetaminophen instead if you develop symptoms. There is some link that shows ibuprofen worsens the severity of #covid-19. google.com/amp/s/amp.cnn....

# thelancet.com/journals/lanre...

On Ibuprofen and Blood Pressure meds:

Folks, if you get ill and start to run a fever (and you really feel you need to bring the temp down) please use paracetamol not lbuprofen. Ibuprofen interferes with the body's inflammatory cascade and increases your levels of ACE2 enzyme which the virus actually uses to proliferate. So you could get a much worse infection and symptoms. Some blood pressure treatments (ACE inhibitors and Angiotensin-II type I receptor blockers 'ARBs') also increase your levels of ACE2 so if you are on these meds and start to get covid symptons call your doctor. Don't wait until you are really I'll. You can show them this article.

The above examples, along with several other similar messages, demonstrates how one effect of the global health crisis may be the shelving of the precautionary principle (pausing and reviewing) in favour of social responsibility to protect the public from harm, even when those harms are unproven. This is fertile ground for the spread of misinformation and disinformation.

# **02 VÉRAN TWEET**

The French Health Minister, Olivier Véran, tweeted the following message on Sat 14 March.

Olivier Véran 🤣 @olivierveran

#COVID—19 | La prise d'anti-inflammatoires (ibuprofène, cortisone, ...) pourrait être un facteur d'aggravation de l'infection. En cas de fièvre, prenez du paracétamol. Si vous êtes déjà sous anti-inflammatoires ou en cas de doute, demandez conseil à votre médecin.

10:38 am · 14 Mar 2020 · Twitter for iPhone

#### 43.4K Retweets 40.4K Likes

Translation: #COVID-19 | Taking anti-inflammatory drugs (Ibuprofen, cortisone, ...) could be a factor in worsening the infection. If you have a fever, take paracetamol. If you are already on anti-inflammatory drugs or in doubt, ask your doctor for advice.

As a French Minister and a qualified doctor and neurologist, Véran has high source credibility. His tweet got more than 43K RTs and 40K Likes.

Significantly, Véran's tweet did not give an evidential source for his claims and there have been no further tweets from him on the subject. The following day, Bulgarian news agency Novinite wrote that his account was hacked in an article titled "Fake News: Ibuprofen and Cortisone may Worsen your Condition if you are Infected with COVID-19". However, the day after this headline was changed to "Not Fake News: Ibuprofen and Cortisone may Worsen your Condition if you are Infected with COVID-19". Both versions continued to contain the following statement:

"It turned out that the minister's profile had been hacked and the information disseminated was incorrect. False information was reported by Figaro newspaper and quickly circulated through the media."<sup>10</sup>

In seeking to establish provenance for Véran's claims, a number of social media users interpreted the source as being The Lancet article, whilst other rumours concern French clinical cases, as illustrated on the following page (Fig. 8).



49 Comments sorted by Best 🗸

I'll make an important tweet. Because the Japanese government is unlikely to say. With regard to corona, all young people who were hospitalized severely in France were taking drugs containing ibuprofen as a cold medicine. The French Ministry of Health has announced the dangers of that and has warned them against using it.

Figure 8: Unevidenced rumours on social media platforms Reddit and Facebook following Véran's tweet about Ibuprofen use.



Figure 9: The Lancet URL was shared as evidential basis for Véran's tweet. In this example, the account profile is for an ear-piercing clinic. [250 Likes and 34 comments] on 16/03.

In the UK, Véran's tweet was amplified by an article in The Guardian published later that day. This article was shared more than 500 times to Facebook pages, 55 times to Twitter, 45 times on Reddit and twice on Instagram.



Figure 10: The Guardian article amplifying Véran's tweet.

# **03 TWO WHATSAPP VOICE MESSAGE CAMPAIGNS**

## VIENNA EXAMPLE – German and English

The German newspaper Die Welt reported on 14 March about the circulation on WhatsApp of a voice message 1 minute and 41 seconds long, featuring a woman claiming she spoke on the phone to a friend who works at the Vienna University Hospital where they did "some research" about why the corona virus often has such severe consequences in Italy. "They found," says the woman, "that the **people who were brought to the clinic with these severe symptoms had more or less all taken Ibuprofen at home beforehand**." that **Ibuprofen accelerates the multiplication of the virus**. Therefore, **doctors at the university clinic would advise against taking Ibuprofen**; instead, you should take other pain-relieving medication". The message ends with a plea to spread the message.

Another German source<sup>11</sup> said that the woman speaks "in a soft voice", as if sharing a confidence and that she introduces herself by saying: "Hello here is Elisabeth, the mother of Poldi" ...

The WhatsApp voice message also justified its mode of communication, "because it is not a large-scale study and one does not want to get involved in a lawsuit with the pharmaceutical companies"<sup>12</sup>. It also said that after the high number of cases in Italy, a little research was done and "the coronavirus and **Ibuprofen were brought together**" – which has been described as "scientifically perfect nonsense".

Two transcripts translated from German and one in English are below<sup>13</sup>:

"A friend of mine is at the university clinic in Vienna and she called me today and they just did a bit of research, why there were so many violent corona cases in Italy and found that the people who were there These serious symptoms were brought to the clinic, more or less all of them had previously taken ibuprofen at home, and have now brought the virus and ibuprofen together in the laboratory, and there is very good evidence that ibuprofen accelerates the multiplication of the virus."

"Eine Freundin von mir ist an der Uniklinik in Wien und die hat mich heute angerufen und die haben halt mal so'n bisschen Forschung betrieben, warum in Italien so viele, so heftige Coronafälle aufgetreten sind und haben festgestellt, dass die Leute, die mit diesen schweren Symptomen in die Klinik eingeliefert wurden, mehr oder weniger alle daheim Ibuprofen vorher genommen hatten, und haben dann jetzt mal im Labor den Virus und Ibuprofen zusammengebracht, und da gibt's sehr stichhaltige Hinweise, dass Ibuprofen die Vermehrung des Virus beschleunigt"

"A European university link has instructed its doctors to advise patients from using ibuprofen at the moment. This is the findings of a study they themselves carried out on the cause research into the Corona cases in Italy. They took a look at the peculiarity there that many cases with some very severe courses have occurred there. In doing so, they discovered that the affected people had taken Ibuprofen at home. The university clinic investigated this clue and tested the interaction of the virus and ibuprofen in the laboratory. There was evidence that ibuprofen greatly accelerates the propagation of the virus.

That's why they give oral advice to take other painkillers such as paracetamol, aspirin, voltares (in case of bone pain).

The recommendation is not yet available in writing because the long-term studies required by law are not yet available."

<sup>11</sup> https://www.nordbayern.de/panorama/lbuprofen-und-corona-falschmeldungen-auf-whatsapp-1.9940013

<sup>12</sup> https://www.fnp.de/digital/whatsapp-sti91212/coronavirus-sars-cov-2-fake-news-virus-whatsapp-kettenbrief-zr-13568532.html

<sup>13</sup> Source: https://www.mimikama.at/allgemein/coronavirus-falschmeldung-lbuprofen-verschlimmert-covid-19/

"The University Clinic in Vienna has carried out research on why so many violent 'Corona cases' occurred in Italy. They found that patients who were admitted with particularly severe symptoms had taken ibuprofen at home. In the lab they brought together the virus and ibuprofen and found very good evidence that ibuprofen accelerates the propagation of the virus. Therefore, the university clinic (oral) advises to avoid ibuprofen because there are guite clear evidence that ibuprofen is strengthening the problem. Nothing is done in writing because this is not a large-scale study that would withstand lawsuits by the pharmaceutical industry. "It is advised not to take the following medicines at the moment, in consultation with the supervising doctor. Pause or change them: ACE inhibitors and AT receptor inhibitors (blood pressure lowering), glitazone (blood sugar) and IBUPROFEN. These drugs regulate the socalled. ACE2 receptors high, an entrance gate for coronaviruses. Many fatalities in Italy had these medication as permanent or acute medication!"

## FYI:

Information from Vienna's laboratory studying COVID-19 say vast majority of people who died had ibuprofen/Advil in their system so do not take it!! Those who recovered did not take ibuprofen so if you have symptoms, take Paracetamol only!!! Looks like this virus thrives on ibuprofen so don't do it and tell everyone you can!!!

Please pass this information on to everyone in each family. I don't want to miss anyone so share as much as you can. Or copy and paste!

I just spoke with my friend who is a nurse at VGH (Vancouver) and they just learnt that Advil makes the virus 10x worse. Tylenol ONLY for the time being. She said Advil kickstarts the virus into pneumonia.

# **CORK EXAMPLE - ENGLISH**

A second, similar WhatsApp message in circulation following Véran's tweet cited Cork Hospital and was signed off as "Dr. Tim" (see Fig 11). The fake message cites a "specialist" at Cork University Hospital, and claims that using non-steroidal anti-inflammatory drugs, like Ibuprofen and Difene, exacerbates Covid-19. The fake message also suggested that people use physiotherapy as an alternative to treat the virus<sup>14</sup>.

The head of infectious disease in Cork University hospital has released a statement to doctors. They have 4 young people in serious condition from COVID19. None have underlying conditions. All were taking non/steroidal anti inflammatory drugs. France has issued a similar advisory. They include difene, neurofen (ibuprofen) and vimovo. There are many others. All players should stop taking these drugs immediately and not take them for the duration of the COVID19 crisis. There is significant evidence that they exacerbate COVID19.

Infectious Diseases Society of Ireland @IDSIreland

It has come to our attention that there is a WhatsApp message being circulated purporting to be from the ID consultants in Cork, all of whom are members of @IDSIreland. It's signed Dr Tim. This is a fake message, please ignore and delete. Thanks.

♥ 254 8:38 PM - Mar 15, 2020

Figure 11: Cork Hospital message circulating on WhatsApp the day after Véran's tweet and the rebuttal from Irish authorities.

In an additional twist, the day after Véran's tweet, parents of a child in Manchester posted to Facebook an account of how their young daughter's health deteriorated after taking Ibuprofen. In the Facebook posts, accompanying pictures were of a media article written by the Manchester Evening News with the headline: "Urgent warning for people with coronavirus symptoms NOT to take Ibuprofen after ill girl deteriorates rapidly' (later covered by the Daily Mail) as well as a screenshot combining the rumour about young people and ICU and a reference to the French minister's tweet (Fig. 12). This confirms the technique of blending multiple sources together to convey the message.

14 https://www.breakingnews.ie/ireland/hse-warns-of-fake-message-on-coronavirus-988137.html also Source: https://www.facebook.com/

(i)



15

Fig. 12: Posts to Facebook by a parent of the ill child combining different messages

# Debunking

Several attempts were made to debunk and correct these misinformation and

disinformation narratives:

**14/03:** In Germany, Ibuprofen claims using The Lancet + Véran were being refuted on the same date as Véran's tweet<sup>15</sup>.

14/03: The Medical University of Vienna refute WhatsApp text and voice message claims about their research on social media, with 4K shares on Facebook and 303 RTs on Twitter (Fig.13).

**15/03:** The Spanish Agency for Medicines and Health Products (AEMPS) report that there is currently no data to confirm an aggravation of infection by COVID-19 with Ibuprofen<sup>16</sup>

**15/03:** The National Authority for Medicines and Health Products (Infarmed) confirms: "there are currently no scientific data to confirm a possible worsening of covid-19 infection with the administration of Ibuprofen or other non-inflammatory anti-inflammatory drugs<sup>17</sup>"

**16/03:** Public Health England: "Currently there is no published scientific evidence that Ibuprofen increases the risk of catching Covid-19 or makes the illness worse. There is also no conclusive evidence that taking Ibuprofen is harmful for other respiratory infections."

17/03 Lancet authors refute Ibuprofen claims deduced from their letter (Fig. 14).

**17/03** Giving evidence to the House of Commons the Government's chief scientific adviser health and social care committee, Sir Patrick Vallance said 'it may or not be right, I don't know, but the sensible thing to do at the moment would be to say "well, don't take them, take something else, paracetamol or something'.

**18/03** WHO tweets "WHO does not recommend against the use of Ibuprofen". This message was widely criticised for its use of a double negative and its contradiction from a statement made by WHO spokesman Christian Lindmeier who told reporters the day before "we recommend using rather paracetamol, and do not use Ibuprofen as a self-medication. That's important."<sup>18</sup> (Fig. 15).

**18/03** Department of Health message 'until we have more information... take paracetamol'. It took down existing advice online recommending Paracetamol and Ibuprofen (Fig. 16).

- 15 https://www.welt.de/wissenschaft/article206555049/lbuprofen-und-Corona-Ist-das-Schmerzmittel-gefaehrlich-fuer-Infizierte.html?fbclid=lwAR2UkGdwgMKyLj\_UgSq6W4LXh1u7oa0nyeSOCzdNilN\_Vo5u8hMM13WZIYw 16 https://www.aemps.gob.es/informa/notasinformativas/medicamentosusohumano-3/2020-medicamentosusohumano-3/la-aemps-informa-que-ningun-dato-indica-que-el-lbuprofeno-agrave-las-infecciones-por-covid-19/ 17 https://www.aublico.pt/2020/03/15/sociedade/noticia/brufen-medicamentos-potenciam-accao-coronavirus-oraca-freitas-1907870
- nttps://www.publico.pt/2020/03/15/sociedade/noticia/bruren-medicamentos-potenciam-acca
   https://russian.rt.com/world/news/729243-voz-paracetamol-koronavirus





Attention! Currently circulating WhatsApp text and voice messages about alleged research results of the "Wiener Uniklinik" about a connection between Ibuprofen and Covid19 are #FakeNews, which have nothing to do with #MedUniWien.

Tweet übersetzen 13:10 · 14 März 20 · Swat.io

303 Retweets 294 "Gefällt mir"-Angaben

Figure 13: Debunking of Vienna Hospital WhatsApp disinformation on Twitter and Facebook.



Figure 14: Tweet via the Lancet debunking claims attributed to the authors about Ibuprofen and the severity of COVID-19.

#### sciencealert.com

**Original (18 March 2020):** The World Health Organization recommended Tuesday that people suffering COVID-19 symptoms avoid taking ibuprofen, after French officials warned that anti-inflammatory drugs could worsen effects of the virus.

The warning by French Health Minister Olivier Veran followed a recent study in *The Lancet* medical journal that hypothesised that an enzyme boosted by anti-inflammatory drugs such as ibuprofen could facilitate and worsen COVID-19 infections.

Asked about the study, WHO spokesman Christian Lindmeier told reporters in Geneva the UN health agency's experts were "looking into this to give further guidance."

"In the meantime, we recommend using rather paracetamol, and do not use ibuprofen as a self-medication. That's important," he said.

He added that if ibuprofen had been "prescribed by the healthcare professionals, then, of course, that's up to them."



i 1.2K ■ 518 → 4K





Fig 16. Advice online attributable to the NHS

# CONCLUSION

This high resolution empirically led analysis has dissected the causes and consequences of how a series of linked rumours and uncertainties about the efficacy of Ibuprofen versus Paracetamol in managing the symptoms of Covid-19 were constructed and communicated. This event was significant as it induced a direct behavioural effect, causing shortages of Paracetamol across the UK, thus demonstrating how online misinformation can rapidly translate into real world consequences. The intent underpinning the analysis is to draw out the principal components of a conceptual model of 'complex misinformation communications', that can be used to detect similar patterns of collective behaviour going forward.

We define this as an episode of 'complex misinformation' (as opposed to 'simple misinformation') on the grounds that its transmission pathway involved: multiple authors making distinct contributions in evolving the narratives; multiple mainstream and social media platforms; contributions in different languages; a range of techniques. Importantly further warrants for understanding it as 'complex' reflect how, not all of the material communicated was false, but rather there was a 'kernel of truth' in what was conveyed.

A combination of uncertainty, ambiguity and urgency rendered audiences especially receptive to the doubts about Ibuprofen use. In terms of the dynamics of the transmission pathway there were three key 'super-spreader' events associated with the misinforming process: an important role was played by the French Health Minister; there were also important contributions made by various 'pseudo-experts' who have surface credibility because of the use of 'Dr' in their social media accounts handles, but who turn out not to be medical doctors, but pronounce on CV-19 anyway; and, finally when the story was picked up and reported by mainstream media sources.