



# **The CRUCIBLE**

## **26 Apr 2021**

### Contents

1. COVID hospitalisations & variants.....	2
Hospital rates falling across Europe .....	2
Surges in India and variant B.1.617.....	4
2. Impact of COVID on risk perception.....	5
Our battle with probability.....	5
Estimating global risk .....	5
3. Masking the future .....	8
Relaxing in a vaccinated world .....	8
Face masks and individual behaviour.....	8

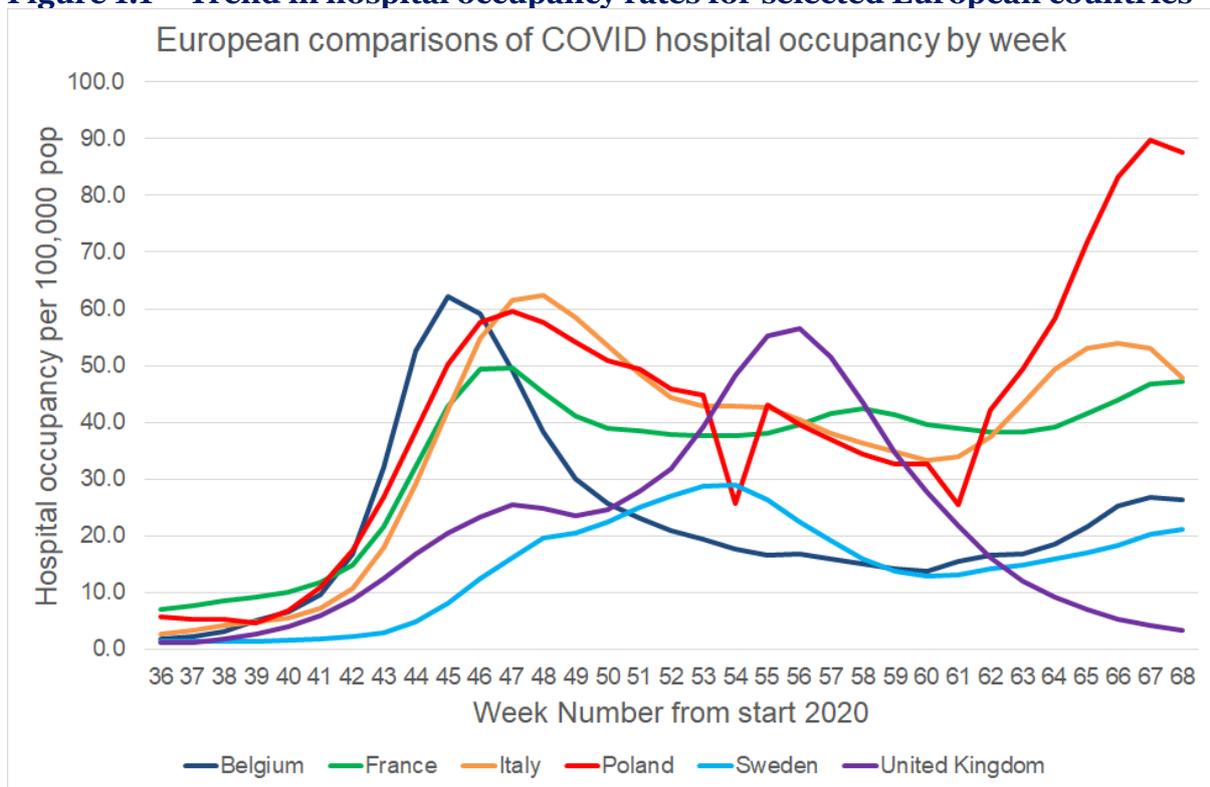


# 1. COVID hospitalisations & variants

## Hospital rates falling across Europe

Across Europe, the latest data from [ECDC \(link\)](#) and [Gov.UK \(link\)](#) shows that hospitalisation rates are falling, most likely through a combination of restrictions and increasing prevalence of vaccination. However, as **Figure 1.1** and **Table 1.1** illustrate this is not happening everywhere yet – hospital bed occupancy rates in France and Sweden saw slight increases last week, whilst those in Croatia have gone up by 14% over the past week.

**Figure 1.1 – Trend in hospital occupancy rates for selected European countries**



Source: [ECDC & Gov.UK](#), analysis by COIOS Research



**Table 1.1 – Weekly hospital occupancy rates per 100,000 pop from ECDC**

Country	Week in 2021										% Wk 1 in 2021
	1	4	7	10	11	12	13	14	15		
Austria	21.92	16.39	11.64	14.12	16.08	18.15	19.21	19.91	18.01	82%	
Belgium	17.66	15.91	13.84	16.82	18.52	21.55	25.20	26.79	26.32	149%	
Bulgaria	62.23	41.06	52.01	91.41	112.53	131.14	144.90	149.83	139.31	224%	
Croatia	55.18	33.03	20.74	19.76	22.08	26.54	33.78	42.69	48.60	88%	
Czechia	67.16	55.48	59.56	82.94	83.01	76.27	66.17	57.28	43.90	65%	
Denmark	15.35	10.73	4.74	3.85	3.36	3.54	3.72	3.83	3.30	21%	
Estonia	30.78	32.31	37.95	50.87	52.50	53.14	53.14	47.14	37.79	123%	
Finland	1.96	1.76	1.70	3.30	3.56	3.88	3.03	2.47	2.24	114%	
France	37.68	41.64	39.52	38.22	39.06	41.45	43.96	46.67	47.19	125%	
Hungary	55.99	38.30	41.85	87.62	105.46	121.44	124.15	118.96	101.48	181%	
Iceland	3.35	1.34	1.30	0.33	0.21	0.04	0.13	0.00	0.46	4%	
Ireland	21.32	33.79	16.19	7.46	7.04	6.65	5.67	4.66	3.94	18%	
Italy	42.83	38.15	33.32	43.19	49.46	53.01	53.89	53.15	47.91	112%	
Latvia	57.96	50.77	41.35	33.67	31.49	32.52	31.36	34.07	31.59	55%	
Luxembourg	16.13	10.84	11.80	19.38	19.19	20.36	22.30	21.45	18.83	117%	
Netherlands	11.78	9.52	8.07	7.91	8.45	9.21	9.60	10.03	9.96	85%	
Norway	2.42	1.99	1.44	3.06	4.24	4.86	5.39	5.36	4.57	189%	
Poland	25.71	36.94	32.58	49.37	58.22	71.63	83.14	89.81	87.53	340%	
Portugal	33.39	64.34	38.42	11.19	8.31	6.78	5.39	4.82	4.32	13%	
Slovakia	53.03	60.04	66.19	66.43	63.27	59.33	51.01	45.10	36.32	68%	
Slovenia	56.64	53.34	30.68	22.52	22.24	24.04	25.01	28.50	30.22	53%	
Spain	17.35	46.94	28.27	13.92	10.07	7.25	0.00	0.00	0.00	42%	
Sweden	28.90	19.29	12.84	14.78	15.95	16.99	18.41	20.19	21.07	73%	
UK	48.22	51.50	27.56	12.08	9.19	6.98	5.33	4.26	3.26	7%	

Source: ECDC & Gov.UK, analysis by COIOS Research

France requires further investigation. Approximately 20% of the population has received at least 1 vaccination which should be starting to exert downward force. The peak in hospital occupancy in the UK occurred on 18 January when only 6% of the population had received their vaccination, but UK had been in lockdown since Christmas.

In addition, the prevalence of the **B.1.1.7** variant in France from specimens collated by GISAID is significantly lower at 54% than other European countries (see **Figure 1.2**). It would suggest that there is significant scope for that variant to spread and to drive up cases and hospitalisation rates in France. All particularly worrying given concerns over the public appetite for the vaccine and the surprising declaration that current restrictions will be relaxed on 2 May ([more](#)) before evidence of an improving situation.

It is an indication of how quickly the variant can spread that four weeks ago in **Crucible Week 1 (29 March)** ([link](#)) we noted that the then prevalence of **B.1.1.7** in the USA over the prior 4 weeks was 12.7%; the latest prevalence rate is 51.6%.



**Figure 1.2 – Prevalence of variants in samples sequenced over last 4 weeks from GISAID**

% of samples	B.1.1.7 501Y.V1	B.1.351 501Y.V2	P1 501Y.V3	B.1.429 + B.1.427	B.1.525	B.1.617	Sum of 6 variants
first detected COUNTRY	Oct 2020	Dec 2020	Jan 2021	Sep 2020	Dec 2020	Oct 2020	
USA	51.6	0.6	3.7	8.2	0.4	0.2	64.7
United Kingdom	98.0	0.5	0.1	0.0	0.2	0.6	99.4
Spain	77.8	1.9	7.0	0.1	1.8	0.0	88.6
India	15.2	5.1	0.0		5.1	57.0	82.4
Italy	88.6	0.1	3.3	0.0	0.4	0.0	92.4
Germany	90.9	1.7	0.2	0.0	0.8	0.0	93.6
France	54.0	4.0	0.8	0.0	0.8		59.6
Brazil	4.5	0.0	91.0		0.0		95.5
Belgium	72.8	2.5	5.8	0.0	0.5	0.2	81.8

Source: [GISAID](#)

## Surges in India and variant B.1.617

On the other side of the world, India has seen record levels of infections in recent days as a new variant **B.1.617** hits the headlines. It is still too early to say what role the variant plays in the surge given reports of large gatherings, but the variant (first detected in October 2020) has been found in more than 50% of all sequenced genomes over the last 4 weeks, albeit only a very small proportion of all confirmed cases. Many countries are imposing travel restrictions to limit the spread of the variant, with the UK placing India on the “red list” of countries last Friday that requires all visitors to stay in hotel quarantine for 10 days after arrival ([more](#)).

**B.1.617** has a different **E484Q** mutation as compared to the E484K mutations that have caused great concern in the variants first detected in Brazil (**P1**) and South Africa (**B.1.351**). **B.1.617** also has mutations at positions 452 and 681 which may limit antibody effectiveness and impact spike protein processing. Multiple investigations have begun to improve our estimation of the nature of the threat posed by yet another variant.



## 2. Impact of COVID on risk perception

### Our battle with probability

We struggle with probabilities. Casinos and bookies take advantage of our weakness, while insurers protect us against it. We underestimate near certainties as easily as we overestimate the unlikely, the remote and the frankly impossible. We are estimating probabilities almost continuously in our daily lives, usually without any insight into the process. Why do we ascribe so much attention to a 1 in a million risk or opportunity. Maybe it is just a problem of framing – tell someone that the chances of winning the Euromillions this week (1 in 5 million) is the same as getting 22 heads in a row on a coin, and watch those sales tumble.

And yet, over the last year we have heard more about probability and risk than any prior year (after leaving school). From the likelihood of needing hospital treatment after COVID infection to very rare immune reactions to vaccination. A reasonable question is whether this heightened salience has changed either our perception of risk or our behaviours. In short, how has COVID affected our struggle with probability?

A study of 3.5 million Twitter users in the USA attempted to develop indicators for three aspects of risk perception using 297 million tweets over the period January-October 2020 ([more](#)). The indicators were perceived severity, perceived susceptibility and negative emotion. As the tweets were geotagged, it was also possible to look at trends in different socio-demographics.

Each indicator had a unique trajectory, with perceived severity increasing throughout the period of the study, possibly reflecting growing awareness through a multitude of news flashes. But interestingly, there was no clear correlation between any of the indicators and actual risk as denoted by epidemic indicators such as daily new cases and new deaths. Perception driven by soundbite, not reality. That said, high scores for perceived severity and susceptibility were correlated with median household income and high prevalence of health insurance.

We will return to this topic in future weeks with more studies and insights.

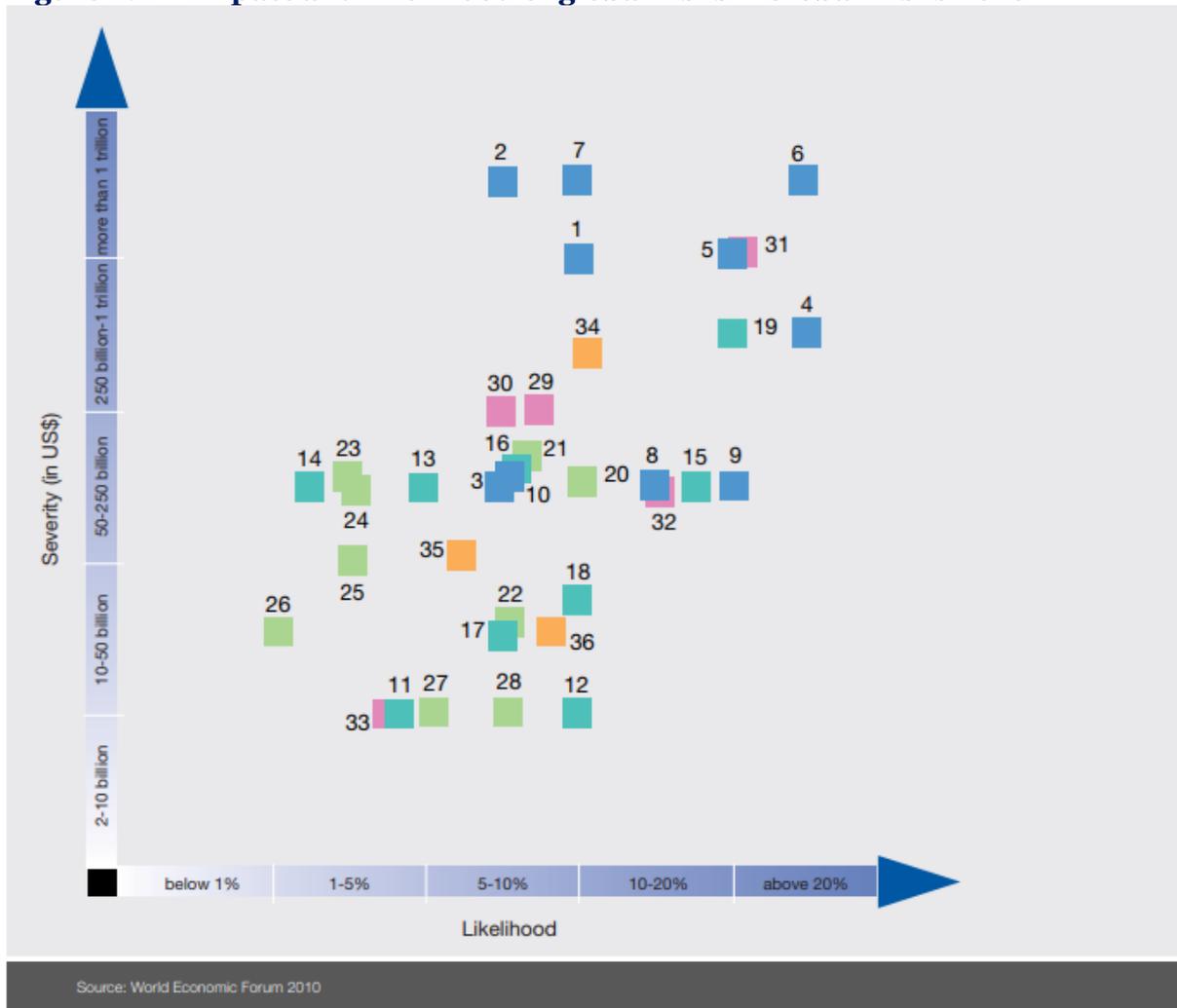
### Estimating global risk

It is difficult not to be overly influenced by the recent. Even experts struggle. The annual **Global Risks Report** from the **World Economic Forum** provides a Delphic view of the most worrying risks facing governments, industry and society in terms of likelihood and impact. It will come as no surprise that the 16<sup>th</sup> annual report ([more](#)) released earlier this year has infectious diseases and climate action failure as the two risks at the top right of the chart (see **Figure 2.1**). And yet, 11 years ago after the largely forgotten 2009 influenza pandemic ([more](#)), infectious diseases (30) and pandemics (29) were only in the middle of the pack (see **Figure 2.2**). Are we more or less right now than we were then? You might say that only time will tell, but we only ever to get to play out one scenario.





**Figure 2.2 – Impact and likelihood of global risks – Global Risks 2010**



**Economic Risks**

- 1 Food price volatility
- 2 Oil price spikes
- 3 Major Fall in the US \$
- 4 Slowing Chinese economy (<6%)
- 5 Fiscal crises
- 6 Asset price collapse
- 7 Retrenchment from globalization (developed)
- 8 Retrenchment from globalization (emerging)
- 9 Burden of regulation
- 10 Underinvestment in infrastructure

**Geopolitical Risks**

- 11 International terrorism
- 12 Nuclear proliferation

**Environmental Risks**

- 20 Extreme weather
- 21 Droughts and desertification
- 22 Water scarcity
- 23 NatCat: Cyclone
- 24 NatCat: Earthquake
- 25 NatCat: Inland flooding
- 26 NatCat: Coastal flooding
- 27 Air pollution
- 28 Biodiversity loss

**Societal Risks**

- 29 Pandemic
- 30 Infectious diseases
- 31 Chronic diseases

Source: [World Economic Forum](http://www.weforum.org)



## 3. Masking the future

### Relaxing in a vaccinated world

Last week the media was awash with reports that the success of the vaccination programme in the UK may mean that face masks will not be needed this summer, whilst government advisors continued to highlight that this could change as we move into autumn and winter. In the same week, Israel relaxed its rules on outdoor mask wearing ([more](#)), now that 81% of its citizens over age 16 have had both doses of the Pfizer/BioNTech vaccine. And back on March 8, the CDC in the USA issued revised guidelines that those that were fully vaccinated (2 doses for Moderna or Pfizer or 2 weeks after the J&J vaccine) could meet others similarly vaccinated indoors without masks ([more](#)).

But where is the evidence of how successful the vaccines are in stopping transmission of the virus? Two studies based on the experiences of 370,000 adults released by the University of Oxford, together with the ONS and the Department of Health and Social Care for England, revealed that between 57% and 70% of both asymptomatic and symptomatic infections were prevented after vaccination with Oxford/Astrazeneca or Pfizer/BioNTech vaccines ([more](#)). This is a major finding and an incredible success.

However, as highlighted by Professor Sarah Walker, the chief investigator for the COVID-19 Infection Survey, this means that there is still a risk of onward transmission in a vaccinated population. It is all about how we understand and address that much reduced risk, and what each of us will actually do when it comes to preventative measures such as masks and social distancing. What will be the new “normal”?

Interestingly, there was a study before COVID that estimated that the average person would shake 15,000 hands in a lifetime. There was a very significant gender difference with 32% of women stating that they would never shake hands versus 6% of men ([more](#)). Increasing awareness of the potential for spreading infections and lack of personal hygiene meant that fist bumps were already trending before the appearance of the somewhat awkward elbow bump. The last two years will provide valuable evidence to challenge or support the oft-stated importance of handshakes and other personal greetings to developing social circles and trust.

### Face masks and individual behaviour

In many Asian countries, face masks have become ubiquitous, particularly during flu season, ever since the first SARS outbreak in 2002/03. Face masking is the minimum expectation when you have a cold as part of being a “good, responsible citizen”, but masks also serve a range of other purposes in these countries such as combating allergies and protecting against pollution. It has not been necessary for governments to mandate the wearing of masks. By March 2020, surveys in Hong Kong suggested that 99% were wearing face masks when leaving home ([more](#)).

Indeed the history of face masks in public health dates all the way back to the 1910/11 pneumonic plague in China ([more](#)) and the 1918/19 influenza pandemic globally, but their use rapidly faded in Western countries after the end of the latter pandemic. Anti-mask sentiment is nothing new with reports of “mask slackers” across the USA in 1918 ([more](#)) in defiance of the law, reflecting confusing messages and the assertion of individual rights over collectivist good.



On 21 March, Mary Ramsay, head of immunisation at Public Health England, suggested that the UK population had got used to lower level restrictions such as face masking and social distancing and may need to continue these “certainly for a few years, at least until other parts of the world are as well vaccinated as we are” ([more](#)). Burden, protection, politeness. The balance is likely to be different for everyone, with some ripping off their masks as soon as allowed and others following the Asian model. Further divisions in an oft fractured society.

Back in February before the UK roadmap out of the pandemic was published, the New Scientist convened a poll of 52 epidemiologists and public health researchers to canvass their views on future restrictions and behaviours ([more](#)). **Figure 2.1** sets out their collated views on when they expected personally to resume “normal” activities.

**Figure 2.1 – New Scientist poll answering question “When will you personally expect to do the following?”**

Activity	Q1 2021	Q2 2021	Q3 2021	Q4 2021	▲ 2022	2023 or later	Never
Travel in the UK outside your local area	3	24	15	4	6	0	0
Eat or drink at a pub, cafe or restaurant	0	14	22	6	9	1	0
Use public transport	10	10	13	8	10	1	0
Invite relatives and friends into your home	0	9	19	12	12	0	0
Exercise at a gym, pool or similar	1	6	12	6	14	2	7
Go to cinema, theatre, or other cultural venue	0	2	15	14	15	5	0
Return to a shared office	4	3	16	9	17	1	2
Hug or shake hands with someone outside your support bubble	0	3	12	9	20	8	0
Attend a wedding or funeral	4	5	16	4	20	1	1
Travel internationally	4	4	10	5	27	2	0

Source: [New Scientist](#)

At that time, half of the survey thought that face masks would continue into 2022 or later and 60% believed that physical contact outside of support bubbles and international travel would not be seen in the UK in 2021. Two months on, the future is still uncertain – but for some it will be masked.