



Guideline

CRISIS RESPONSE PLANNING MANUAL (CRPM) - Part 4 / Volume **1** Airline (Aircraft Operator) - *Pandemic Response Planning*



Relevance:

PASSENGER AIRLINE - PANDEMIC RESPONSE PLAN

Essential Background Information re:

The COVID-19 (SARS-CoV-2 Coronavirus) PANDEMIC (March 2020 - TBA 2023)

+

* **IMPACTS** OF LATTER ON THE PASSENGER AIRLINE INDUSTRY

* **Up to 31 July 2021** (See also any relevant / updating 'notes' on page **11** and then return to page 2 below)



This document (*CRPM Part 4* [airline *PANDEMIC Response Planning* etc.]) is just one of many guideline and guideline / template documents we have authored - all designed to provide a strong and well researched information framework upon which aircraft operators (predominately the larger, *passenger* airline for the purposes of this guideline) can build reliable and high quality emergency / crisis / incident / contingency response plans, designed to 'deliver', as required

The latter is, of course, provisional on said airlines 'doing their part' in the entire building process of such plans + everything else which follows on e.g. the associated provision of resources (including personnel and finance / budget), training, exercising, maintaining, reviewing, continually improving etc.

Airlines wishing to use our / these guidelines etc. to assist in the production (original, rewrite / update etc.) of their own equivalent plans, have the complete flexibility of using as much or little of the provided information as is desired. A significant advantage of using our 'guidance' is standardisation - i.e. alleviating the potential and undesirable difficulties of having as many different crisis plans as there are airlines - making mutual emergency support ops between airlines (+ airlines and airports, ground handlers etc.) much more problematic than they ought to be today

Ground Handlers might wish to consider adapting <u>this</u> '**airline** targeted guideline to suit their own, specific circumstances, requirements etc.

Airports might wish to do likewise, although associated (but limited scope information) can also be found in sub-section 4B of (our <u>separate</u> document) 'Guideline - AEP Volume 1'. The latter can be found at:

https://www.aviationemergencyresponseplan.com/airport-emergency-plan-aep/

For ease of use and (hopefully) a better 'learning' experience - this CRPM Part 4 has been split into 2 <u>separate</u> volumes (Volumes 1 and 2). YOU ARE READING Volume 1 RIGHT NOW

The intention is that **this Volume 1** provides general background information for a **** pandemic** etc. type situation, set (in appropriate places only) in a passenger airline context i.e. it 'sets the scene'

In contrast, the *separate Volume 2* endeavours to provide a limited number (i.e. within our own predecided scope) of related topics / examples which might be of actual, *practical* use in such airline ops, when preparing for and actually responding to a (real; exercised etc.) ****** *pandemic* type situation

****** NOTE: We have used the real / actual COVID-19 pandemic of 2020-2023 as the context of both 'Volumes 1 and 2'

This has been based on the 'reasonable' assumption that this particular pandemic might be used (again, in context) as a 'worst case' scenario upon which future, airline (pandemic) response plans might be based. As such, the results could also be used (with adaptation) to plan for / prepare and respond to 'lesser' public health type crises such as epidemic, PHEIC (Public Health Emergency of International Concern) etc.



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Orientation Notes

It is strongly suggested that you read the following notes before proceeding further

www.aviationemergencyresponseplan.com (Parent Website)

Note 1 - This document is intended for use as a *guideline* - designed to assist 'whoever' - in producing a 'fit for purpose' aircraft operator (passenger airline specifically) 'Contingency (emergency / crisis / incident etc.) Response Plan' - dealing with '*public health*' type ops - as typically related to a *projected pandemic* or broadly equivalent public health type scenario (*e.g. as in the actual 2020 - 2023 [SARS-CoV-2 virus -{coronavirus}] COVID-19* pandemic; as in the actual *influenza* virus pandemic [*Swine-flu* {H5N1 virus} pandemic 2009 - 2010]; as in a major public health outbreak / epidemic [*e.g. Ebola* epidemic 2015] etc.)

Note 2 -There are two types of document in our CRPM (Crisis Response Planning Manual) series - *you are reading one type right now i.e. a 'guideline'*. The other type is a 'guideline / template'

Both 'volumes' (i.e. Volumes 1 and 2) of CRPM Part 4 exist in the guideline version only

Note: A '*guideline*' provides comprehensive information & guidance on its specific subject area - but should not be pedantically regarded as a true template for actual production of an emergency response plan (**BUT**, nonetheless, guidelines remain *a very useful aid in such task* - and should be used as such accordingly). *Guidelines* are typically used when the specific subject matter area(s) of concern are <u>relatively complex</u> - *i.e.* due the associated difficulties (because of such complexity) faced in producing an 'adequate' guideline / template version

Conversely, a 'guideline / template', if implemented as intended, should lead to the successful production of an associated airline contingency (emergency / incident etc.) response plan, in the area of interest covered by the relevant 'subject specific' matter concerned i.e. it is a template, in the more commonly accepted sense of the word. Guideline / Templates are typically used when the specific subject matter areas of concern are relatively non-complex - i.e. due the associated, comparative 'easiness' (because of such non-complexity) of producing same

Both types of document are produced (in their different ways) as '<u>works of reference</u>'. It is hoped that the reader appreciates that any work of reference needs to be comprehensive enough to deliver what is required - hence (in our case) the comparatively large size (and thus amount of information provided) of most of the guideline and guideline / template documentation which we produce

'Larger / more complex' airlines etc. will need to account for most of the subject matter contained in the two CRPM *Part 4* guideline documents which we produce i.e. Volumes 1 and 2 (you are reading Volume 1 right now - Volume 2 is a *separate* document in the same series) when preparing their own, associated pandemic etc. response planswhilst smaller / simpler operators etc. may be able to 'mix, match and adapt' to a degree, as appropriate to their own (specific) circumstances





Note 3 - Fictitious (scheduled) *passenger* airline (air carrier) 'ABCX Airways' has been used (in places) to provide the required 'context' for this guideline - and is broadly based on a *medium to large sized operator*

This airline can be assumed to be a (short, medium and long-haul) domestic and international carrier (including USA destinations [but *not* being USA main-based]) - and to be reasonably well resourced / supported from contingency (emergency / crisis / incident etc.) response planning viewpoints, including e.g.

- Top management approval and ongoing support
- Adequate budget, facilities and equipment etc.
- Generally 'fit for purpose' and 'current' contingency (emergency / crisis / incident etc.) response plans in place including a 'reasonably useful' *PUBLIC HEALTH* incident response plan (for its route network in general but more particularly for XIA / XXX and the relatively nearby area e.g. within a 50 km radius of XIA. [NB: See Notes 4 and 5 a little further below as to the 'adequacy / efficacy' of XXX's {*country*} and XIA's {*airport*} public health incident response plans])
- An adequately 'expert/ experienced' contingency / emergency planning manager + his / her team
- A trained, exercised and adequately sized / supported / resourced (emergency / crisis response etc.) 'command, control, co-ordination and communication' (C4) capability
- Trained and exercised supporting manpower including i): a humanitarian (family) assistance team
 - and ii): an adequate contingency (emergency / crisis / incident etc.) call / contact centre and iii):
 a fully functional team (GO Team) capable of being deployed (as required) away from airline HQ
 general location
- An adequate 'Crisis Communications' capability
- etc.

Note: There are <u>not</u> many airlines which have *all* (or even most) of the above capabilities. We have included the latter as being available for 'ABCX Airways' - to serve as a 'benchmark' as to what every airline might want to <u>try</u> to achieve in providing a 'fit for purpose' 'contingency' response (including 'pandemic' etc.) type capability

ABCX Airways in the 'national air carrier' of fictitious country 'XXX'

Note 4 - 'XXX' (country in which ABCX Airways is main based, has its head office and is registered) is a 'well developed' *country* (including availability of a *reasonably adequate* public health system) - **BUT** is (generally speaking) '*lacking to a degree in the basics*' regarding the ability to adequately plan for and respond (in the most effective, efficient and expedient manner required / desired) to a directly impacting *pandemic* (or broadly equivalent impact) 'public health emergency' type crisis

The reader can assume that all XXX *Airports* and *Ground Handling Operators / Agents* etc. (as based / operating at XXX airports for latter) are in a similar situation (i.e. also lacking to that same degree in the basics of 'pandemic etc. planning & response operations')



Note 5 - (Fictitious) 'XYZ International *Airport'* (3 letter IATA code = 'XIA' - and located in XXX [close to the main / capital city]) is the main operating base and hub airport used by ABCX Airways. It is also the main commercial airport of XXX (there are 4 *other* commercial airports in XXX - all within a 300km radius of XIA)

Note: Assume herein that ABCX Airways world HQ is physically located <u>very</u> close to XIA airport

Whilst XIA's 'day to day' operations, facilities, services etc. can be considered to be 'reasonably good' in general, it is assumed herein that it (XIA) does <u>not</u> yet have the fully developed capabilities (human and material etc.) necessary to adequately plan for and respond to a major pandemic etc. related incident - directly impacting on / at that airport

Note 6 - XXX (country) can be assumed to be a major international commerce / tourism destination

Accordingly (and within around a 50km radius of XIA [which is, itself, a very busy international transit hub for the 'world']) there are hundreds of hotels offering thousands of rooms. The 'occupancy rate' of the latter is typically high BUT - due to the pandemic scenario which we are using for CRPM Part 4 (assumption is that pandemic has not yet reached XXX but is very quickly spreading throughout other parts of the world and its eventual 'arrival' in XXX is inevitable, and also imminent in the shorter term) - room availability is 'good' for the purposes of *this* guideline document

Note 7 - With regards to Notes 3 to 6 above, ABCX Airways can be assumed to be operating around 50% of its normal route network - including to / from some countries which, whilst not yet formally reporting any pandemic infections, are located in close proximity to some (countries) which are

Note 8 - The situation as described in notes 3 to 7 above is not fictional - in that it applied * *in reality* (to a certain airline, at a certain airport, in a certain country, at some past time - during what looked like becoming an incipient pandemic type situation. The author / owner of this guideline document [the one you are reading right now] was the real 'contingency response planning manager' of the 'real' equivalent of 'ABCX Airways' at that time)

* NB: We are NOT referring here to the COVID-19 Pandemic of 2020-2023 (See also 'Note 10' further below)

It (the above situation) has been referred to herein as *an example of where a real, capable and wellresourced airline acted as 'primary mover / facilitator' amongst other real* (non-airline) *stakeholders* (e.g. the local airport, other appropriate government departments / agencies [including Public Health - amongst others] etc.) - having major, vested interests in pandemic etc. preparation, planning and response ops

Note 9 - Such a situation as referred to in Note 8 above still exists generically today - regarding many airlines, countries and their airports - particularly (BUT FAR FROM EXCLUSIVELY) in those countries termed (by the United Nations) as 'developing' and 'least developed'

There *may* be some home-based airlines in such countries that already have (or might reasonably expect to acquire) sufficient expertise, support and resources - similar to those mentioned in Note 3 further above - *and this guideline is particularly* (but *not* exclusively) *aimed at assisting same*



For airlines where *insufficient* expertise, support, resources etc. apply (both internal and external) - this guideline document might nonetheless be a useful starting point in at least 'doing something' (rather than 'doing nothing')

Note that it is more than likely that airlines (particularly those main-based / operating in more developed countries) will need to follow the requirements of associated national / regional / local government's etc. public health incident response plans to a greater or lesser degree. *However, it is important to note that such plans can vary hugely in terms of quality, potential effectiveness and efficiency, standardisation / interoperability* etc.

Furthermore, it is probable that a significant number of such airlines (no matter how big; no matter how well known) still do *not* today possess *viable* public health incident response plans. In such circumstances, this guideline *may* also be of use (to such airlines)

The reason for choosing such a background scenario / context for this guideline (as per Notes 3 to 7 above) is because it is a *'REASONABLY REALISTIC worst-case situation'* against which ALL airlines might wish to benchmark their actual or potential 'pandemic / public health incident response plans'

Note 10 - a word of caution is appropriate here:

It originally came from the chairperson's (of an international 'expert' committee) report - set up in 2011 by the World Health Organisation (WHO) to review the functioning / efficacy of its (the World Health Organisation's) International Health Regulations (2005) - in relation to the A (H1N1) *Swine Flu* pandemic of 2009 / 10. The most fundamental conclusion of this committee was:

"The world is ill-prepared to respond to a global, sustained and threatening Public Health Emergency"

This was reiterated in April 2014 (as subsequently written in a medical journal article by the chairperson of that same '2011' review committee)

There is no reason (written originally in 2019 by the author / owner of this guideline document - i.e. the one you are reading right now) to assume that this situation will change anytime soon

And now, writing again (by the same author / owner) *in mid-June of 2021*, we are 15 months into by far the worst pandemic (Severe Acute Respiratory Syndrome Coronavirus 2 [SARS-CoV-2] - COVID 19) that the world has seen since the Spanish Flu of 1918 - 1921

During this period the impacts of the pandemic on the *aviation, travel and tourism industries worldwide* had been *ABSOLUTELY CATASTROPHIC* - significantly attributable to the 'knock-on' consequences of the 'ill-preparedness' referred to further above



Note 11 - Whatever applies to ABCX Airways in this guideline may be regarded as also being typically applicable, to a greater or lesser degree, to other (medium to large sized) scheduled passenger airlines (and most other passenger carrying airlines e.g. charter and lease operations) in similar circumstances. However, there will always be differences - and it is for users to adequately account for them, when producing their own, associated plans

This guideline may be adapted for use by *other aircraft operator types* (e.g. cargo / executive / VVIP / rotary etc.) and Ground Handling Operators (Agents). Appropriate differences should be accounted for

Note 12 - Many terms and abbreviations used in this document are generic i.e. not specific to any particular country, airline, airport etc. Whilst many such terms etc. will be the same / very similar to those in actual (real) use world-wide, the 'generic' use and nature of same should be accounted for accordingly i.e. when preparing real incident plans based on using *this* guideline as a reference - ensure that all generic terms are replaced with specific (real / in-use) *local* terms - as appropriate

However, if 'you' are able to adopt the terminology, acronyms etc. (+ associated concepts, practicalities) used herein in your own, equivalent plan(s), this will assist in achieving a highly desirable degree of world-wide pandemic / public health incident planning / response *standardisation* (in an aviation related context)

Note 13

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Note 14

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Note 15 - ABCX Airways can be assumed (BUT for the purposes of this specific guideline document only) to be capable of deploying an adequately trained, exercised and sized Humanitarian Assistance Team (HAT [provided by itself and / or outsourced]) in support of a major crisis - including a public health incident. (Many airlines have such teams - known by various names e.g. Family Assistance Team; Special Assistance Team; Care Team etc.)

ABCX Airways can also be assumed to have an adequate 'emergency call / contact / information' centre capability - (again, provided by itself and / or outsourced)

Note 16 - This guideline is predicated on ABCX Airways being able to deploy significant and adequate (associated) resources (e.g. manpower, budget, facilities, equipment, PPE etc.) and use appropriate (trained and exercised) procedures, during a public health incident response. *This* (availability of such resources etc.) *will obviously not be possible for some airlines, for all sorts of valid reasons*



For the latter airlines, the requirements / resources / procedures etc. referred to herein should be *adapted* accordingly, in the appropriate areas, to the best ability of the 'operator' involved. Appropriate 'outsourcing' options might also be considered, budget etc. permitting

'DOING NOTHING' should *never* be an option

Note 17 - Further to 'Note 10' further above and *re the COVID-19 pandemic* aspects specifically (typically but not exclusively looked at here from an aviation [particularly *airline*] related context) - this guideline reflects selected / relevant aspects for the period from around January 2020 up to around mid-July 2021

For subsequent developments (*and the pandemic was nowhere near 'over' as at July 2021*) it is suggested that the 'interested reader' conducts his / her own, further research

COVID-19 was the first '*modern*' pandemic to infect hundreds of millions of people, *almost certainly* resulting in more than 10-15 million + associated deaths as at * 1 July 2021 (despite what the '*official*' estimates 'said' [at that time] re the latter [see articles pages 72 and 74 for further details])

* Note well that this pandemic was nowhere near 'over / finished' on this date (1 July 2021). On the contrary, hundreds of thousands of infections continued daily at that same time, combined with thousands of deaths

(Update April 2023: COVID-19 was still a pandemic at this latter time. However, due the associated vaccine programme, immunity / partial immunity etc. from already having had the illness etc. - its adverse impacts were (at that same time) something typically similar to 'normal / seasonal' influenza)

It was also the first pandemic to have had hugely adverse impacts (particularly financial and human resources related) on many forms of modern transport - but being particularly devastating on *commercial aviation passenger carrying ops* and most other 'industries', organisations etc. associated with same. For example, commercial airports; tour operators / travel and vacation industries; ground handling operators; hotels; aircraft maintenance organisations; aircraft airframe & engine manufacturers etc. Accordingly (and not surprisingly), 'case study' cross- references (in one way, shape or form) to the COVID-19 pandemic will be found throughout *this* mainly '*airline* targeted' guideline document (i.e. the one you are reading now)

AIRLINE PASSENGER OPS, WITHOUT DOUBT, CONTRIBUTED VERY SIGNIFICANTLY TO THE RAPID WORLDWIDE SPREAD AND THUS ONGOING CONSEQUENCES OF THE COVID-19 PANDEMIC

...... Unfortunately, the human propensity for typically **NOT** learning lessons from the past means that similar could happen all over again - at some (not too distant) future time!



Note 18 - The COVID-19 pandemic (2020-2023 approx) was the first (pandemic etc.) in more than 100 years to have had utterly, devastating impacts on humans. *It was also the first ever to have had similar impacts on all matters connected with commercial aviation, the travel / tourism industry in general etc.*

Accordingly, a very significant part of this guideline document (CRPM Part 4 / Volume 1 - you are reading it right now) is devoted to fully understanding the 'human' and other relevant impacts of that pandemic

Only after this 'understanding' has been accomplished do we suggest that the 'interested' reader' then starts looking at the aviation (and, more specifically, passenger airline) aspects of what is contained herein, starting (with an associated 'case study') on page 78 and then continuing in the remainder of <u>this</u> document and also, with different emphasis, in (*separate* but related document in this Pandemic / Public Health Incident series......) CRPM Part 4 / *Volume 2*

Note 19A

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We state categorically here that the purpose of this (2 separate volumes) guideline document is strictly for:

- Non-commercial research and private study
- Review and Reporting Current Events
- Fair-use / Dealing / Practice / Research etc.and broadly, equivalent matters

Note 20 - Despite every care being taken in the preparation of our series of 'guideline' and 'guideline / template' documents, they will inevitably contain errors, omissions and oversights, incorrect assumptions, broken links etc.

Users identifying same in this particular document (the one you are reading now) are respectfully requested to please notify the author accordingly at - <u>info@aviation-erp.com</u>

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End of 'Orientation Notes' Section



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* PHFIC

'Public Health Emergency of International Concern'

** At time (late July 2021) of finalising *this* guideline (i.e. the document you are reading now) it was *'guesstimated*' (by this guideline's author / owner) that the COVID-19 'pandemic' would 'exit' world pandemic status sometime in the first half of 2023. When the latter *actually* occurs, *appropriate parts of this guideline will be updated accordingly*

List of Effective Pages - Pages 1 through 245 - effective *** 31 July 2021 - Revision (Original)

*** Additional *reviews* have been added herein (starts page 183) *after* 31 July 2021 where, in the opinion of the author / owner of this guideline, interested readers *might* be desirous of becoming aware of same

<u>Revision List and Procedure</u> - TBA after first revision made. You are currently reading the 'original' version (31 Jul 21) + *additional* reviews made up to and including May 2024

Distribution - To be advised

Acronyms / Abbreviations used herein

Full meanings are typically 'embedded' in the associated text itself e.g. 'ETA' (estimated time of arrival)



SOME FURTHER BACKGROUND / CONTEXTUAL INFORMATION

Pages 14 to 74 document the major pandemics, epidemics etc. of *relatively modern* times - starting with the 'Spanish Flu' (*influenza* virus) pandemic of 1918- 1921 and finishing with the * 'COVID-19' (*coronavirus* / SARS-CoV-2) pandemic which, at time of updating this ** CRPM Part 4 guideline document (covering period January 2020 to end June 2021), had been - *and still was* - devastating many of the world's countries (and thus, consequently, their travel [particularly aviation], tourism etc. related industries also)

* The 'interested' reader will hopefully understand why we have devoted so much of CRPM Part 4 to the 'COVID-19 pandemic' of 2020-2023 (pages 25 - 75)

CRPM Part 4 is known by us as the (Name of Airline [Aircraft Operator etc.]) - 'Pandemic Response Planning'. You are reading Volume 1 of the generic guideline document (used to guide the former's preparation) right now!
Realistically speaking such a plan is envisaged by us as referring to a pandemic type situation / scenario. If an airline can effectively plan for a response to the latter (given / including all anticipated external limitations, factors etc. that it might possibly be subject to) - then it is not unreasonable to assume that it (said airline) will also be able to adequately plan for any 'lesser' public health type scenarios / situations e.g. epidemic; PHEIC etc.

We then include a 'case study' (pages 78 - 99) adapted from our own (but *separate* reference document from this CRPM Part 4) i.e. our '*CRPM Part 3* - *Aviation Business Continuity Plan (BCP)*'. We have done this as, whether to continue to operate or not (as an aviation related organisation e.g. airline, airport, ground handling agent etc.) during a *developing* (major) *public health type crisis* situation will probably be, <u>in the</u> <u>first instance at least</u>, a *BUSINESS CONTINUITY* type decision - taken by any such concerned organisation itself - actual circumstances 'on the day' so requiring / permitting etc.

Further to the above, it is possible that such impacted organisations might be able to continue operations (at least for some time) - albeit with certain restrictions imposed, which would almost certainly reduce associated income streams - with consequent, adverse impacts. Such restrictions could be made e.g. by the organisation itself and / or by an appropriate 'authority', typically at (and / or on behalf of) an associated government-level body (e.g. Civil Aviation Authority; Dept of Health; Foreign Affairs Dept etc.)

Note: Prior to 2020 the aviation industry had, in general, managed to survive (reasonably well) all public health type crises which had impacted upon them - the most recent (*prior to the Covid-19 pandemic*) being the '*Swine-flu*' *pandemic* of 2009-2010 (see page 20) and the Ebola *epidemic* of 2014-2016 (see page 22)

The ultimate restriction is *mandatory* / *legal* cessation of some / all such aviation related ops for an appropriate (possibly considerable) period(s) of time. *This latter was the actual* / *real situation* throughout much of the COVID-19 pandemic. Consequently, a significant number of such organisations went out of business, leaving many tens of thousands (probably significantly more!) of associated staff / workers / employees etc. jobless - and the 'travelling world' (and everything it depended upon) in utter turmoil

For those aviation related organisations which *did* survive, most were *not* expected (at that time) to return to anything like 'normal ops' (and the chances again of making a viable profit) for at least several years after the time when the pandemic might have eventually ceased having such major, adverse impacts on same (For some associated context see the information provided on pages 102 - 134)

At end of June 2021 the COVID-19 pandemic was ******* still ravaging a significant part of the planet - with most aviation related activities continuing to be (*extremely in many cases*) adversely affected. Again, same applied to those industries 'dependent' on aviation (in the widest sense of the word) etc.

*** See info pages 67 to 70 for a little more detail of the last para - and then return here



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However, a (**** what was to be) very effective (COVID-19) vaccination programme had commenced in early December of 2020. (The first vaccines had taken around 10 months to develop and reliably test / trial - from a start point of around February 2020 - i.e. effectively the time when COVID-19 first started spreading around the world. [COVID-19 was classified by the WHO as a *Pandemic* on 11 March 2020])

**** Almost all such (differing) vaccines eventually produced *proved to be extremely effective* at what they had been 'designed' to do i.e. very significantly mitigate the adverse impacts of the COVID-19 coronavirus on humans. See info pages 39 and 40 for an indication of vaccination progress as at mid-April 2021 - and likewise pages 147 and 148 for an update as at end of June 2021

Note well that whilst the above vaccination programmes were 'reasonably expected' to *eventually* bring the COVID-19 pandemic under control, the first 2 charts referred to just above (pages 39 and 40) indicated that (very approximately) <u>only 6</u>% of the world's population had received a partial vaccine dose - with <u>only</u> about 2.5% (of the world's population) having received a full dose *up to that point in time* - i.e. by mid-April 2021. (All of such vaccines *at that time* specifically required *2 separate doses* in order to take *full* effect. Some subsequent vaccines [e.g. Janssen] only required one dose. However, also see the highlighted [by a *red* arrow] statistic on page 147 re '*low-income*' [least / lesser developed] countries)

To put the above into some context, around 140 million people worldwide were 'estimated' to have contracted COVID-19 by mid-April 2021, resulting in around 3+ million deaths

For various (valid - but not expanded upon herein) reasons, <u>the numbers</u> in the last sentence above were definitely VERY <u>significant underestimates</u> - particularly the 'estimation' of the number of infections (and, to a lesser [but still very significant degree] that for deaths). See articles pages 72 and 74 for more details regarding the 'real number of deaths' - caused by COVID-19

The table shown on page 56 (valid mid-May 2021 and showing the top 20 countries only [there were many more]) clearly demonstrates that, despite the vaccination roll-out effort *up to that point in time*, COVID-19 was still active and deadly on a very significant scale - and thus continued to present (for the purposes of this guideline document) significant challenges to the aviation and related commerce sectors

On a *slightly* more positive note:

- On-going vaccination roll-outs / similar future programmes
- Increasingly more reliable, rapid and cheaper production / use of COVID-19 testing and tracing etc.
- Continuation (where required) of 'social distancing' / wearing of masks / disinfection etc.

were expected (hoped) to *gradually* improve the above situation worldwide e.g. as at mid-May 2021 'educated guess' scenarios (from various sources, including airlines themselves and their 'associated' organisations [e.g. ICAO; IATA to name just some]) were variously predicting a return to relatively 'normal business' (passenger) airline ops by anywhere from the end of 2021 up to about 2023 - with some 'wildcard' predictions giving as late as 2026!

Similar had been predicted for airports, ground handlers, aircraft and aero engine manufacturers, tourism and hotels industries etc. - and everything that they depend upon, in turn, in order to operate



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'SPANISH FLU' (H1N1 INFLUENZA virus) - 1918 to 1921 (est. to have killed AT LEAST 50 million persons)



Emergency hospital used during the 1918-1920 'Spanish Flu' influenza pandemic. Camp Funston, Kansas, USA - Image credit: Otis Historical Archives, National Museum of Health and Medicine



H1N1 <u>Influenza</u> Virus





ASIAN FLU (H2N2 INFLUENZA virus) - 1957 to 1958

Members of the International Ladies Garment Workers Union receive the flu shot in 1957 (Image source = ILGWU Photographs - P. Kheel Center for Labour-Management Documentation and Archives, Cornell University Library)

The 'Asian Flu' pandemic was another global showing for an influenza virus. With its roots in *China*, the disease claimed more than 1 million lives. The virus that caused the pandemic was thought to be a blend of avian (bird) flu viruses which had mutated (reassorted) to become a variant infectious to and between humans

The disease spread rapidly and was reported in Singapore in February 1957, Hong Kong in April 1957 and the coastal cities of the United States in the summer of 1957. The total death toll was estimated as 1.1 million+ world-wide, with 116,000 deaths occurring in the United States alone (All figures definitely very significant underestimates)



H2N2 Influenza Virus



'HONG KONG' Pandemic (H3N2 INFLUENZA virus) - 1968 to 1969



Image: CDC USA (H3N2 Virus - Pandemic Influenza)

The 1968 - 69 'Hong Kong Flu' was a pandemic which killed an estimated one million (probably many more) people globally

It was caused by an H3N2 strain of the influenza A virus, which had 'descended' from H2N2 (see 'Asian Flu' 1957 - 1958 on previous page) through 'antigenic shift' (a genetic process in which genes from multiple subtypes are *reassorted* [mutate] to form a new [novel] virus)



H3N2 Influenza Virus



AIDS Pandemic / Epidemic - (HUMAN IMMUNODEFICIENCY virus [HIV]) - 1981 to present day

Summary of the global HIV epidemic (2018)



AIDS (Acquired Immune Deficiency Syndrome) had claimed (as at 2018) an estimated **35** million lives since it was first identified

HIV, which is the name of the virus which causes AIDS, likely developed from a chimpanzee virus which 'transferred' to humans (in West Africa) in the 1920s. The virus eventually 'made its way' around the world, and AIDS became a pandemic by the late 20th century. In 2018, about 64% of the estimated *40 million* people having HIV / AIDS lived in sub-Saharan Africa

For decades, the disease had no known cure, but regular treatment medication developed in the 1990s now allows people with the disease to experience a relatively normal life span. Even more encouraging, a <u>very</u> small number of people had been 'cured' of HIV as of early 2020 - with hopefully many more to follow

A Little More Info

Scientists identified a type of chimpanzee in West Africa as the source of HIV infection in humans. They believe that the chimpanzee version of the immunodeficiency virus (simian immunodeficiency virus or SIV) was most likely transmitted to humans and mutated into HIV when humans hunted these chimpanzees for meat and came into contact with their infected blood. Over decades, the virus slowly spread across Africa - and later into most other parts of the world

The earliest known case of infection with HIV-1 in a human was detected in a blood sample collected in 1959 from a man in Kinshasa, Democratic Republic of the Congo. (How he became infected is not known). Genetic analysis of this blood sample suggested that HIV-1 may have stemmed from a single virus in the late 1940s or early 1950s. We also know that the virus has existed in the United States since at least the mid-to late 1970s



Between 1979 to 1981 rare types of pneumonia, cancer and other illnesses were being reported by doctors in Los Angeles and New York etc. - among a number of male patients who had had sex with other men. These were conditions not usually found in people with healthy immune systems

In 1982 public health officials began to use the term "acquired immune deficiency syndrome (AIDS) to describe the occurrences of these 'opportunistic' infections. Formal tracking (surveillance) of AIDS cases began that year in the United States

In 1983 scientists discovered the virus that causes AIDS. The virus was at first named HTLV-III/LAV (human T-cell lymphotropic virus-type III / lymphadenopathy-associated virus) by an international scientific committee. This name was later changed to HIV (human immunodeficiency virus)



Scanning electron micrograph of an HIV-infected H9 T-cell

Credit: NIAID





SARS CORONAVIRUS (SARS-CoV-1) Epidemic - 2002 to 2004

Severe acute respiratory syndrome (SARS) was a viral respiratory disease of zoonotic (i.e. typically originating in a non-human animal) nature caused by a severe acute respiratory syndrome *CORONAVIRUS* (SARS-CoV).

The <u>SARS *epidemic* of 2002-2004</u> was caused by the first ever identified strain of SARS-CoV with the 'identification' *SARS-CoV-1*



Coronaviruses are a group of related <u>RNA</u> [Ribonucleic acid] viruses causing diseases in mammals and birds. If they mutate [re-assort / change] 'enough' they can become capable of infecting humans, typically causing respiratory tract infections - ranging from mild to lethal in outcome. Associated mild human illnesses include the common cold [also caused by other viruses e.g. rhinoviruses] - whilst more serious varieties have caused the SARS-CoV-1 epidemic, the potentially very dangerous MERS [MERS CoV / Camel Flu] outbreaks and the devastating COVID-19 [*SARS-CoV-2*] pandemic of 2020-2023

At the end of the 2002-2004 SARS (SARS-CoV-1) epidemic the word-wide incidence was 8,422 cases with a case fatality ratio (CFR) of about 10%. SARS-CoV₇1 was (2021) considered eradicated in humans but, as it also infects animals, a mutated / re-assorted version (infectious to humans) might re-emerge in the future

(A 'CFR' of 'about 10%' is high - bad news should an associated pandemic ever arise with that same CFR)

In late 2017, Chinese scientists traced the associated SARS-CoV-1 virus (via the intermediary of Asian palm civets [member of the cat family]) to cave-dwelling horseshoe bats in Yunnan, China

Note 1: What was to become the 2002-2004 SARS (SARS-CoV-1) **epidemic** was first identified in Guangdong, China on 16 November 2002. Over **8,000** people around the world were eventually **infected** and around **800 died** (hence the 10% CFR). The major part of the outbreak lasted about 8 months, with the WHO declaring 'SARS' contained on 5 July 2003. A small number of SARS cases continued to be reported up to May 2004

Note 2: In late 2019, the related coronavirus strain 'SARS 2' (SARS-CoV-2) was discovered. It caused 'COVID-19', a disease which eventually resulted in the associated (devastating) *pandemic* of 2020-2023





H1N1 Swine Flu pandemic (new strain of H1N1 INFLUENZA virus) - January 2009 to August 2010

Mexican military giving out 'swine flu' masks.jpg- 2009 (Image - CC BY-SA 2.0)

The 2009 swine-flu pandemic was caused by a new / novel strain of (influenza virus) H1N1. It probably originated in *Mexico* in early 2009 before spreading to the rest of the world

(It was the second of two pandemics involving the H1N1 influenza virus [the first being the 1918 to 1921 'Spanish Flu' pandemic - see page 14]. It [swine-flu] resulted from a *previous* '*triple reassortment*' of bird, swine and human flu viruses, further combined with a Eurasian pig-flu virus, leading to the term "swine-flu")

Some studies estimated that the actual number of swine-flu cases (including asymptomatic and mild cases) could have been between 700 million to 1.4 billion - or about 11 to 21 % of the then global population. Even the lower value of 700 million is more than the 500 million people 'estimated' to have been infected by the Spanish flu pandemic of 1918 - 1921

The number of lab-confirmed deaths reported to the WHO was about 18,500. However, it has been estimated that the 'real' figure was very approximately 284,000 (some 15 x higher)

A follow-up study of September 2010 seemed to indicate that the risk of serious illness resulting from the 2009 H1N1 flu was probably no higher than that of yearly / seasonal 'normal' flu



This pandemic primarily affected children and younger adults. 80% of the deaths were reportedly in people younger than 65

<u>THAT WAS MOST UNUSUAL</u>, considering that most strains of flu viruses (and coronaviruses also), including those that cause seasonal flu, result in the highest percentage of deaths and / or serious illness being in persons aged 65 +

However, for swine-flu, older people seemed to have already pre-built up enough immunity to H1N1 type viruses, so weren't affected as much as they might have otherwise been

A vaccine for the H1N1 swine-flu virus is now typically included in the 'consolidated *annual* flu vaccine' programme delivered 'routinely' by many countries around the world



Swine-Flu (Novel Strain – <u>Influenza</u> -H1N1 Virus)





West African Ebola Outbreak (EBOLA Virus) - 2014 to 2016

Image Credit: Athalia Christie

Ebola virus disease (EVD) is a deadly infection which (at time of updating this guideline [mid-2021]) had been associated in the main with occasional outbreaks (up to epidemic level) occurring primarily (but not exclusively) in certain areas of the African continent. The first known cases probably occurred in Sudan and the Democratic Republic of Congo, in about 1976

The virus may have originated in bats and today most commonly affects people and non-human primates (e.g. monkeys, gorillas and chimpanzees)

It is caused by an infection from a group of 6 viruses within the genus 'Ebolavirus'. Of these, only four (Ebola, Sudan, Taï Forest, and Bundibugyo viruses) are known (at time of writing) to cause disease in humans

Ebola (in the form of an epidemic) ravaged parts of West Africa from 2014 to 2016 with 28,600 reported cases and 11,325 deaths (Note the extremely high death rate [case fatality ratio around 40%]. In reality the actual rate would have almost certainly been significantly higher)

The first case (of this soon to be epidemic) reported was in Guinea in December 2013 - quickly spreading to Liberia and Sierra Leone. The bulk of the cases and deaths occurred in those three countries. A smaller number of cases occurred in Nigeria, Mali, Senegal, the United States and Europe

As at 2021 there was no cure for Ebola, although efforts at finding a vaccine are ongoing

Note from author of this guideline document (CRPM Part 4):

As mentioned, the above Ebola outbreak was an epidemic and not a pandemic (both terms are defined on page 28 of this guideline document). However, it has been included herein as an example of a highly infectious and deadly disease that might well reach pandemic status as a result of an (Ebola) outbreak, somewhere, at some future time



Ebola Virus Ecology and Transmission Ebola virus disease is a zoonotic disease. Zoonotic diseases involve animals and humans.

Spillover Event

Animal-to-Animal Transmission Evidence suggests that bats are the reservoir hosts for the Ebola virus. Bats carrying the virus can transmit it to other animals, like apes, monkeys, and duikers (antelopes), as well as to humans.

Spillover Event A "spillover event" occurs when an animal (bat, ape, monkey, duiker) or human becomes infected with Ebola virus through contact with the reservoir host. This contact could occur through hunting or preparing the anima's meat for eating

Human-to-Human Transmission Once the Ebola virus has infected the first human, transmission of the virus from one human to another can occur through contact with the blood and body fluids of sick people or with the bodies of those who

Survivor Ebola survivors face new challenges after recovery. Some survivors report effects such as tiredness and muscle aches, and can face stigma as they re-enter their communities.





Ebola virus particles (red) on a larger cell - Credit: National Institute of Allergy and Infectious Diseases, NIH





MERS / Camel Flu (Middle East Respiratory Syndrome) CORONAVIRUS Disease - Ongoing

MERS (MERS-CoV) is a viral, respiratory infection caused by the MERS-coronavirus. It is believed to have originated with bats. Humans are typically infected from camels, via direct and / or indirect contact

The first identified case occurred in 2012 in Saudi Arabia and most cases since have occurred in the Arabian Peninsula. About 2,500 cases had been reported as at January 2020. <u>Around 35% of those who are</u> <u>diagnosed with the disease die from it</u>. Other outbreaks have since occurred in South Korea (2015) and again in Saudi Arabia (2018) - with small numbers also occurring elsewhere

Symptoms range from none, to mild, to severe / lethal - and include fever, cough, diarrhoea and shortness of breath. The disease is typically more severe in those with certain other (pre-existing) health problems

Spread *between humans* typically requires *close* contact with an infected person and is uncommon outside of hospital / household settings. Its 'risk' to the global population is currently deemed to be quite low.

As of mid-2021 there was no specific vaccine or treatment for MERS

Those who come into contact with camels should subsequently wash their hands and never touch sick camels. Camel-based food products should be appropriately cooked / treated (e.g. meat and milk)

Transmission between People

There is evidence of *limited, but not sustained* spread of MERS-CoV from person to person, both in households as well as in health care settings e.g. hospitals. Most transmission has historically occurred in circumstances of close contact with severely ill persons. There is no evidence of transmission from asymptomatic (infected but with no symptoms) cases

At time of writing (June 2021) it appears unlikely that MERS (in its current form) could lead to an epidemic, yet alone a pandemic. However, do note the historic (extremely) high 'case fatality rate / ratio - CFR' for those that do become infected. Also (as already discussed) any mutation / reassortment / variant of the MERS virus could change the latter situation significantly



MERS Virus Particles - Credit: NIAID-RML



Severe Acute Respiratory Syndrome (SARS) Coronavirus 2 (SARS-CoV-2) - COVID 19 Pandemic

Pandemic declared mid-March 2020 - 'Very Much Ongoing' (as at July 2021)



A colourized scanning electron micrograph of a cell (green) heavily infected with particles (orange) from the virus (SARS-CoV-2) which caused COVID-19, as isolated from a patient sample / NIAID (National Institute of Allergy & Infectious Diseases - USA)



Origins of Coronaviruses???

If necessary, also see again pages 19 and 24 of the guideline document you are reading right now



COVID-19 Pandemic 2020 to 2023 - a Basic Glossary



What are Coronaviruses

Coronavirus

A virus family (7 of which were known to infect humans as at 2021). They are named from the crown-like spikes (coronas) as seen on such viruses under a microscope - and can cause the common cold (also caused by other viruses, such as rhinoviruses) - but also dangerous illnesses such as 'severe acute respiratory syndrome' (SARS and 'Middle East Respiratory Syndrome' (MERS ['Camel Flu']). SARS-CoV-2, the coronavirus virus discovered in China in December 2019, eventually caused the *SARS* disease which became known as *COVID-19* - transitioning into a devastating, world-wide pandemic - starting mid- March 2020

SARS-CoV-1

A coronavirus which first infected humans (in China) in late 2002 and which reached epidemic (i.e. not 'pandemic') proportions before it gradually 'disappeared' in 2003 - 2004

SARS-CoV-1 caused *SARS* (fever, headache, body aches, dry cough, hypoxia [oxygen deficiency] and often pneumonia). The epidemic resulted in around 800 deaths worldwide. It (SARS-CoV -1) is now regarded as 'extinct'. However, mutated / re-assorted versions (typically originating in animals [particularly birds], capable of infecting humans and potentially very dangerous) could possibly emerge at some future time

SARS-CoV-2

SARS-CoV-2 was the 'new' (novel) coronavirus which caused *COVID-19*. It was believed to have started in animals and then spread to humans. Animal-to-person spread was suspected after the initial outbreak in December 2019 amongst people who had a close link to a large seafood / live animal market in Wuhan, China. No one knows for sure how SARS-CoV-2 spread from an animal (and what type of animal) to a human, but as SARS-CoV-2 is a beta-coronavirus, it must have originated 'somewhere along the line' in bats

COVID-19 (Coronavirus Disease 2019)

Just as the 'human immunodeficiency virus' (HIV) caused 'acquired immunodeficiency syndrome' (AIDS), the coronavirus SARS-CoV-2 caused COVID-19. Symptoms included those already described a little further above for SARS, and considerably more



Whilst COVID-19 (very generally speaking) caused mild to moderate illness in most * young and many younger people, in others (particularly the elderly and those with certain, other illnesses [co-morbidities] which severely exacerbated matters) it had caused life-threatening pneumonia, related complications and eventually (typically quite quickly) death, in a hugely significant number of cases

A very dangerous 'spin-off' of COVID-19 was that it was typically (but not always) asymptomatic (no serious signs / symptoms / illness) in most infected young / younger persons. However, they (such young etc. persons) were still as capable (as any other infected person) of passing on the disease to others - with no loss of its 'effectiveness' in causing associated serious illness and deaths. Another 'spin-off' was that a significant number of those 'recovering' after infection then experienced (associated) further, adverse (some very serious and long lasting) complications, known at the time as 'long-COVID'

Variants

All viruses, including SARS-CoV-2 (caused COVID-19) change over time. Most changes have little to no impact on a virus' properties. However, some changes may e.g. affect how easily it spreads, the associated disease severity, the 'performance' (good, bad or otherwise) of associated vaccines, therapeutic medicines, diagnostic tools or other public health and social measures etc.

As at end of June 2021 there had already been around 4 significant variants of the SARS-CoV-2 virus - all having negative implications (to one degree or another) with regards to adverse impacts of the associated COVID-19 pandemic. For example, the 'Indian / Delta' variant, emerged around April 2021 (possibly sooner), was around 40-60% more transmissible than other variants - and was thus able to spread rapidly around the world (eventually becoming the world's 'dominant' variant at that particular time)

Spread of Disease

Infectious Disease and Communicable Disease

An *infectious disease* is an illness caused by pathogenic, micro-organisms (agents) e.g. bacteria, viruses, parasites, fungi etc.

A *communicable disease* is an illness occurring due the *direct* and / or *indirect transmission* of an infectious disease from an infected person (and / or via an *animal, vector* [e.g. mosquitos, ticks and fleas] or * *fomite* - to a susceptible human and / or animal host

A fomite is an object which becomes contaminated with infected organisms, subsequently having the potential of transmitting said infectious organisms to any person touching etc. them. Examples of potential fomites include surfaces / worktops, toys, mobile phones, hair, nails, dead skin, bedding, clothing, door handles, taps / faucets and, indeed, any other inanimate object. Fomite related infected organisms can potentially live anywhere from several hours to several days (possibly longer) - depending on the particular organism and fomite 'host' material



Communicable diseases typically 'communicate / transmit' via (list is not exhaustive and is not specific):

- The air (*airborne transmission* via liquid droplets and / or *aerosols* [latter are tiny respiratory particles that float in the air, remain there *far longer* and can *travel over considerably longer distances* than droplets] expelled [sneezing / coughing / spitting / singing / shouting etc.] from the mouth / nose of infected sources. They typically 'enter' the body via the respiratory system and possibly / probably via the eyes)
- Touch via appropriate 'contact' with humans, animals and fomites
- Infected blood products and other bodily fluids (including sexually transmitted diseases; including other forms of physical contact with an infected person)
- The faecal-oral system
- Insect bites (certain mosquitos [Malaria; Zika]; ticks [e.g. Lyme disease]; flies [yellow fever] etc.)

When a disease begins to spread, epidemiologists ('epidemiology' is the study of how often diseases occur in different groups of people - and why) take notice, looking for the frequency, patterns, causes etc. associated with such spread. Some epidemiological terms of relevance follow, starting just below:

Endemic

The baseline or expected level of a disease in a community - i.e. such diseases always exist e.g. the common cold, 'annual' influenza etc.

Epidemic

Refers to a relatively quick increase in the number of cases of a specified disease, above what is typically expected *in any particular area / region* of the world. COVID-19 is thought to have reached *epidemic* proportions in China by about mid-January 2020. (Two months later it had become a deadly, world-wide pandemic)

Outbreak

As for 'epidemic', but contained to a more limited geographic area. COVID-19 probably started out as an outbreak in Wuhan sometime in December 2019, when the Chinese government confirmed that it was treating dozens of cases of pneumonia of unknown cause. As mentioned above, it was re-classified as an epidemic the following month and a pandemic in March 2020

Pandemic

An epidemic which eventually spreads over several countries / continents / the world, impacting (typically [but not always] very adversely in terms of illness and associated deaths) on *very* large numbers of people. With the advent of modern forms of transport (particularly *passenger air transport*) a pandemic is today capable of becoming established *very* quickly (COVID-19 transitioned from a local 'outbreak / epidemic' in China - to a worldwide 'pandemic' - in only around 3 months)

Passenger air transport was a major factor in facilitating this spread!



A pandemic typically occurs when a new (novel) virus etc. is able to spread easily and quickly amongst populations who, because the virus is 'new' (novel) to their immune systems, have little or no pre-existing immunity to it

COVID-19, declared as a pandemic by the WHO in mid-March 2020, was the first *pandemic* known to have been caused by the emergence of a new *coronavirus* (in contrast e.g. to an *influenza* virus such as the one which caused the devastating Spanish-flu' pandemic - started in 1918 and eventually thought to have killed more than 50 million persons)

There are typically six stages to a pandemic, starting with an *investigation* phase, followed by *recognition*, *initiation* and *acceleration* phases, the latter typically leading up to the point when the pandemic 'peaks'.

Then, comes a *deceleration* phase, when the rate of infection decreases. Finally, there is a *monitoring / preparation* phase, where the pandemic has abated and public health officials etc. monitor (the concerned) virus activity (for mutations / re-assortments etc.) and prepare for possible additional waves of infection

Different countries and even various sections / parts etc. of the same country can be in different stages of a pandemic at the same time. At time of writing this paragraph (mid-May 2021) *COVID-19* is 'on average' *still in the acceleration phase worldwide* - although a relatively small number of countries (thanks to very effective vaccination programmes) *seemed* to have been on the verge of entering the deceleration phase

Cluster

A collection of infectious cases occurring in the same place at the same time e.g. in the USA in February and March 2020, early clusters of COVID-19 developed concurrently in California, New York & Washington State

Community Spread

Circulation of a disease amongst people in a certain area - with no clear explanation of how they became Infected e.g. they had not travelled from an affected area and had had no previous, close link to any other confirmed cases of such disease

Transmission

Incubation Period

The time between when a person becomes infected by a virus, bacteria etc. and when he / she first notices associated symptoms. Estimates of the incubation period for COVID-19 ranged from 2-14 days, with most of those infected presenting (displaying symptoms) after about 6 days, on average

Droplet / Aerosol Transmission (IMPORTANT: See also associated information page 245)

When humans talk, cough, sneeze, spit, breathe etc. they expel small (quite small - very small) **DROPLETS** from their mouths / noses. The greater the 'force' of the 'expelling' (e.g. coughing and sneezing, shouting / singing etc.) - the greater the distance the droplets etc. will 'travel' from the 'source' person



Should expelled COVID-19 droplets contact the mouth / nose / eyes (of another person) directly, it is highly possible that 'transmission' of the virus will have occurred. Furthermore, such droplets can 'settle' on some form of surface / object (latter known as '*fomites*' in this context) eventually and, if the droplets carry e.g. a virus, that virus can be transmitted by some other person touching that surface / object and then touching their own (or anyone else's) mouth, nose and possibly (probably) even eyes

Re fomites, the COVID-19 virus was capable of existing (and thus infecting) from a few seconds to many days (e.g. possibly up to a month) depending on the fomite and associated, environmental conditions but, *considering the COVID-19 virus specifically*, the risk of fomite transmission was thought (by experts at the time) to be *relatively* low

During the COVID-19 pandemic most countries etc. accordingly mandated the public wearing of *face masks* and implementation of *physical / social distancing* (latter recommended by 'most' experts as being at least 2 metres / 6 feet - *although the World Health Organisation [WHO] typically continued to persevere* (*throughout the pandemic*) *with an <u>inadequate</u> recommendation of '1 metre or more'!*)

Interestingly, the WHO had <u>also long been hesitant</u> as to the efficacy of mask wearing as an aid to preventing certain infections - particularly those spread by droplets and aerosols. It was only some time into the COVID-19 pandemic that they 'changed their minds' on this vital, 'preventive' measure!

As it looked increasingly likely (mid-2021) that such virus could also enter a person's respiratory tract via the eyes, some form of eye protection should also have been a consideration (as it was, at least for staff in some hospitals, laboratories etc.)

AEROSOLS are essentially the same as droplets but <u>very</u> much smaller - and thus capable of carrying infection very considerably further than expelled droplets. They can also 'linger' in the air for very considerably longer periods than droplets

For example, during the COVID-19 pandemic, one infected chorister passed on the COVID-19 virus to the rest of the choir, simply by singing i.e. *crowding and inadequate ventilation* contribute significantly to transmission. In another example, one person in a restaurant infected many other diners as his / her expelled virus was carried around the *poorly ventilated room* by the *air conditioning system*

Before COVID-19 the WHO <u>had virtually disregarded the aerosol infection transmission route</u> - as they also continued to do during at least the earlier phases of the COVID-19 pandemic!

As at mid-2021 it was unclear if COVID-19 could be transmitted via other body sources e.g. sexual transmission, contaminated faeces etc.

Asymptomatic

'Asymptomatic' refers to someone who is a 'carrier' of a disease / illness but who does not display any signs and / or symptoms of such disease / illness. This is particularly dangerous (with regards to the risk of infecting others) during an associated outbreak / epidemic / pandemic, where an asymptomatic carrier is capable of transmitting the disease - as was the case with COVID-19

Super-spreader

One person infected with COVID-19 might typically infect up to around 3 other people. A super-spreader is someone who infects more (typically considerably more) persons than this



Super-spreaders may be highly infectious (carrying a very high viral load) and most are unaware that they are infected (i.e. they are asymptomatic) and thus pass on the virus unknowingly. The following extract from an associated article in 'nature' (nature.com) - dated 23 Feb 2021 - provides a little more info re this subject:

'.....On 5 December 2020 - the eve of traditional Christmas gift-giving in Belgium - residents of the Hemelrijck care home near Antwerp were treated to a visit by 'Santa'. But the festive event, intended to spread cheer, turned tragic

Super-spreading events like this, in which many people are infected at once, typically by a single individual (or otherwise a relatively low number of persons), are a now-familiar feature of the COVID-19 pandemic. Choir practices, funerals, family gatherings, restaurant dining and gym classes (to name just some) have all spawned dangerous outbreaks - as have mass gatherings, such as those which occurred in India in the first 4 - 5 months of 2021

Preventing <mark>/</mark> Mitigating COVID-19 Impacts

As COVID-19 spread across the globe, there had been an increasing urgency for people to follow "best practice" prevention guidelines in an effort to stop or, at least, delay the spread of the disease. Following below are some commonly used terms describing this effort

Flattening the Curve

Trying to slow the spread of the virus

If you map the number of COVID-19 cases over time, the expectation is that it will peak at some point. On a graph this peak typically coincides with a COVID-19 surge peak in hospital patients. 'Flattening the curve' involves 'strategies' (actions) designed to decrease transmission of the disease, hopefully resulting in fewer hospital patients during that peak period. This, in turn, would mean hospitals were better capable of managing the demands of patients who *are* sick with COVID-19 and other illnesses

During the COVID-19 pandemic surge in India (April to June 2021) hospitals were full, oxygen had run out in many locations (combined with a severe lack of mechanical respirators) and critically ill persons were being turned away from medical help - most of who subsequently died. Infections at this time (in India) were reportedly running at 300 - 400,000 per day with deaths at 3 - 4,000. Both sets of figures were certainly *significant* and highly likely to be *VERY GROSS* underestimates

Hand Hygiene

Washing hands with soap and water for at least 20 seconds (also by use of appropriately disinfecting gels etc.) is one of the most important steps to take to protect against COVID-19 and many other diseases

Physical / Social Distancing

Maintaining physical distance between yourself and others - typically meaning avoiding groups of people (parties, crowds on sidewalks, lines in a store / shop etc.) and maintaining distance / separation (at least approximately 2 metres / 6.5 feet) from others, when possible. This was a key strategy for avoiding COVID-19 infection and thus 'flattening the curve'



Wearing of Adequate / Recommended Types of Face-mask

More info re the above can be found in (separate but accompanying document) in this CRPM Part 4 series i.e. in CRPM Part 4 / *Volume 2*. The latter can be found on the author / owner's website at:

https://aviationemergencyresponseplan.com/guideline-template/

Shelter-in-Place Order / Instruction (Lockdown)

Typically a (*mandatory*) decree, usually from an authorised government etc. type source, for people to stay in their homes, sometimes with brief and specific exceptions including e.g. going out for essential needs as well as limited and socially distanced *outdoor* activities such as local area walking and biking

People who work in critical services, such as health care, law enforcement and 'essential business' are typically excluded from these requirements - but should nevertheless still wear the appropriate PPE and practice social distancing, hand washing etc. - circumstances permitting

Self-isolation

Typically (but not always) a *voluntary* agreement 'requesting' that a person(s) should remain (typically for 14 days in the case of the COVID-19 pandemic) at home / wherever and not go out for work, school, social events, exercise etc.

Persons so isolating would be expected (required [mandatory] in certain circumstances) to limit (or cease entirely) their movements outside of home / wherever the self-isolation is taking place (e.g. they might be able to go for a walk and engage in essential shopping etc. - depending on what the 'agreement' requires) - and to monitor their health (see 'self-monitoring' further below)

Self-isolation is commonly applicable to persons 'returning from travel' to a place known to have / have had high numbers of COVID-19 infections - and also in other circumstances 'as required' e.g. when geographical clusters form and / or where community spread is significantly high

Where available and reliable, associated testing for COVID-19 should be carried out at specified intervals throughout any self-isolation period

Self-monitoring

Frequent self-checks for COVID-19 symptoms. If symptoms present, one should self-isolate and seek advice by telephone from an appropriate health care provider - to determine if medical evaluation is required

Isolation

On a larger scale (than 'self-isolation'), isolation involves keeping people *with confirmed cases* of a contagious disease separated from people who are not so infected. If a person had a confirmed case of COVID-19, for example, he / she may have been put into isolation for public health purposes. Such isolation may be voluntary and / or compelled by federal, state, local etc. public health orders





Quarantine

In contrast with 'isolation', guarantine involves separating and restricting the movements of people who had been exposed to a contagious disease - to see if they eventually become sick (with that disease). The objective is to avoid potential spread of such disease to others

Contact Tracing

Contact tracing assists in slowing the spread of COVID-19. It helps protect you, your family and your community by:

- Identifying and letting people know they may have been exposed to COVID-19 and should monitor their health for signs and symptoms of COVID-19
- Helping people who may have been exposed to COVID-19 to get tested
- Asking people to self-isolate if they have COVID-19 or self-quarantine if they are a close contact of Ξ. such a person

Surge Testing (as an example we refer below to how 'surge testing' was being used in locations in England in circumstances where* new coronavirus (COVID-19) variants had been identified)

What does surge testing mean?

- Increased testing (including door-to-door testing in some areas) for COVID-19 and enhanced contact tracing in specific locations in England
- Involves testing of people who do not have any COVID-19 symptoms

* Note: 'Genomic sequencing' is the process of testing a sample of the virus to map its genetic sequence - and was used to identify new COVID-19 variants

Why the government is using surge testing?

----Extensive surveillance of COVID-19 has identified a number of cases of COVID-19 variants of concern in England. Accordingly, the government is using surge testing and genomic sequencing to:

- Monitor and suppress the spread of COVID-19
- Better understand the risks, dangers etc. of new variants ÷

Who should be tested?

You should get a test for COVID-19 if you:

- Live in targeted locations within an area listed on xxxxxxx or are contacted by your local council
- Are in the targeted age group for that area

You should get a test even if:

- You have no symptoms of COVID-19
- You've had a vaccination for COVID-19
- You've tested positive for COVID-19 (but not within 90 days of taking an associated 'PCR' test)

If you've recently spent time within a surge testing area, but do not live there, you should continue to follow any national restrictions and check with your local authority whether you should get tested



How to get a test

Local authorities in published post-code areas are providing PCR testing to people without symptoms through extra:

- Home testing kits
- Mobile testing sites

What happens afterwards?

If you test positive with a PCR test, you must isolate together *with your household* and follow the 'guidance for households with possible or confirmed COVID-19 infections'. Public Health England will carry out enhanced tracing of close contacts of confirmed cases of the variant

Drive-through Testing

A drive-through testing site is a pre-nominated and prepared location where those being tested (in this case for COVID-19) stay in their vehicle whilst a health care provider takes a 'swab test' through a partially opened window. The purpose is to reduce further spreading of the disease by allowing those being tested to remain in their vehicles. Appropriate personal protective equipment (PPE) should be worn by all involved

Medicines, Vaccines and PPE

<u>Medicines</u> (Treatments) - Below written from info available as at May 2021. List is not exhaustive i.e. it is representative only

Remdesivir was one of the first drugs 'officially' approved for treatment of hospitalised COVID-19 patients over the age of 12. Research showed that <u>some</u> patients recovered faster after taking it. Remdesivir was created initially to combat Ebola

Certain Blood-thinning and clot-preventing (anti-coagulant) medicines - as appropriate

Anti-body 'Cocktails' (the following 3 paras were taken from an 'article' [Harvard Health Publishing / Harvard Medical School] - dated 22 April 2021)

The USA's FDA (Food and Drug Administration) continues to grant emergency use authorisation to two monoclonal antibody treatments - for non-hospitalized adults and children over age 12 with mild to moderate COVID-19 symptoms - who are at risk of developing severe COVID-19 and / or being hospitalised for it

The treatments are a combination of casirivimab and imdevimab (made by Regeneron) and a combination of bamlanivimab and etesevimab (made by Eli Lilly). (In April 2021, prior approval for sole use of bamlanivimab was withdrawn because of new data showing limited effectiveness)

The above treatments may reduce the risk of hospitalisation and emergency room visits. As they must be given intravenously, however, the procedure itself must be conducted (soon after developing symptoms) in a hospital, appropriate clinic etc.





Tocilizumab

Coronavirus (including COVID-19 coronavirus [SARS-CoV-2]) pneumonia is often associated with severe inflammation caused by the body's immune system. Tocilizumab is an immune-suppressing medication, often used to treat rheumatoid arthritis. Clinical trials have shown that one dose of tocilizumab can reduce inflammation in patients who are severely unwell with coronavirus

It (tocilizumab) is mainly given to patients who are in intensive care, but can also be given to patients on regular wards. Clinical trials show that tocilizumab can reduce the time spent in hospital and improve outcomes for patients who have been critically unwell with severe coronavirus

Corticosteroids including Dexamethasone and Hydrocortisone

(Source: UK's National Health Service - November 2020)

In accordance with World Health Organization (WHO) recommendations, systemic corticosteroids should be used in patients with severe and critical COVID-19 disease, but *not* in patients with non-severe COVID-19

Convalescent Plasma

When people recover from COVID-19, their blood contains antibodies produced to fight the coronavirus and help them get well. Antibodies are found in plasma, a component of blood

Convalescent plasma (literally plasma from recovered patients) has been used for more than 100 years to treat a variety of illnesses from measles to polio, chickenpox and SARS. It is widely believed to be safe

In August 2020, the USA's FDA issued an emergency use authorisation for convalescent plasma treatment in patients hospitalised with COVID-19. As at mid-May 2021 uncertainty still existed as to the effectiveness of this treatment

Hydroxychloroquine

Hydroxychloroquine is primarily used to treat malaria and several inflammatory diseases, including lupus and rheumatoid arthritis. It is inexpensive and readily available. Early reports from China and France were promising, suggesting that patients with severe symptoms of COVID-19 improved more quickly when given hydroxychloroquine.

However, in an article published in December 2020 in 'JAMA', researchers reported that hydroxychloroquine did not result in any clinical benefits for adults hospitalised with respiratory illness from COVID-19 - compared with placebo. The USA's National Institute of Health treatment guidelines thus recommend against the use of hydroxychloroquine for COVID-19, in both hospitalised and non-hospitalised patients

Other

If a COVID-19 infected person is already taking drugs such as angiotensin-converting enzyme (*ACE*) inhibitors, angiotensin receptor blockers (*ARBs*) and *statins* for other health problems, such person might be told by their doctor to continue using them



Vaccines

The body's immune system itself has the capacity to react to certain diseases by producing antibodies - which remain in the body (at least for some time) to fight such diseases (in the future) after initial infection

By using an appropriate vaccine, however, a person doesn't need to get / catch the actual, associated disease in order to develop immunity / relative immunity i.e. a vaccine triggers the same immune process by delivering to the body a 'tiny' amount of a selected disease's 'makeup' - which has been weakened / killed / manipulated etc. to the extent that it won't make you sick (or at least, not *very* sick). The body is then 'induced' by the vaccine to produce the associated antibodies. If the vaccinated person subsequently gets infected by the disease in question - the body is typically (but not always) able to 'fight it off' - generally with no or at least relatively minor symptoms of the disease concerned

Vaccines are typically introduced to the body via injection and / or mouth or nasal spray

Before the COVID-19 pandemic it was thought that producing e.g. an effective *coronavirus* vaccine to the point where it might start to be made available to the general public (in the wider sense) might be measured in terms of several years from the time the disease / associated virus was first detected / identified

However, scientific advances by the start of the COVID-19 pandemic were becoming advanced enough that e.g. the first member of the general public in the world to have a viable COVID-19 vaccine was vaccinated only some 9 months (8 December 2020 in UK using the USA's Pfizer version of the COVID-19 vaccine) after the pandemic was first declared by the WHO (March 2021)

The vast majority of said 9 months was actually spent in practical (human) and other trials of the vaccine to ensure that it worked (to a pre-specified degree) and that it was 'safe' to administer (which it did [and, for most of such vaccines, by a significant degree] and was!) i.e. the vaccine itself was generated extremely quickly using 'state of art' genomic techniques / equipment / computers etc. and some very clever people!

Some other countries (e.g. the UK) were concurrently doing likewise with their own versions of COVID-19 vaccinations (the first Astra Zeneca version was delivered to a patient in UK on 4 January 2021)

By June 2021 very approximately 6 + different vaccines were publicly available. However the sheer number of people in the world (almost 8 billion persons as at June 2021) meant that it was going to take some considerable time (possibly 18 months or more) to fully vaccinate all such persons

Furthermore, at least one of the vaccines in wide worldwide use as at mid-2021 was 'suspected' of 'not being effective' enough to 'achieve what was required' See https://www.bmj.com/content/373/bmj.n969 (written in April 2021) for further details. (If you can't find it at the latter link, try an internet search using the following key words):

'......Covid-19: Chinese vaccines may need changes to improve efficacy, admits official.......'

Although the associated data was *VERY* approximate indeed (for many different reasons) at that same time, it had been estimated that *only about 5%* of the world's population had been fully vaccinated (i.e. as at *third week of May 2021*)


Assuming (for the sake of argument only - and until actual and / or relatively accurate figures might have eventually become available with time?) that a *further 10% of the world's population are additionally fully vaccinated per month* as we move forward from the latter date (late May 2021), it would have taken until around *March 2022* before full world vaccination was achieved. In contrast, if the world managed e.g. only 5% per month we would be talking around *December 2022* instead etc.

Whatever the eventual reality with regards to the last 2 paras above (only time will tell - and even then only very approximately) many more persons would certainly die from COVID-19, before the pandemic (but not continuing [associated] illnesses and probably a relatively small number of deaths) was eventually considered to be effectively 'contained'

See table (re COVID-19 vaccinations) on *next* page produced by 'Our World in Data' - valid approx for 3rd week of May 2021. See also 'world' vaccination diagrams on *next 2 pages* following on after that. This glossary then finishes on page 41:





(Further to the above table re *vaccinations*, the consolidated estimate of world *deaths* as at that same time (third week of May 2021 [from several different organisations calculating such data including the WHO, CDC, Wikipedia etc.]) was estimated as 3.46 million persons

For all sorts of valid reasons [not expanded upon further here] the actual number of deaths would certainly have been <u>at the very least</u> several multiples more than this [see articles on pages 72 - 74 for more details])





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Personal Protective Equipment (PPE)

'Specialised clothing and / or equipment, worn for protection against defined infectious materials'

In health care settings, PPE may typically include gloves, gowns, aprons, masks, respirators, goggles and face shields (list is not exhaustive)

Government type 'health authorities' etc. typically provide recommendations for when and what PPE should be used (and thus pre-procured in adequate quantities and stored safely / securely etc. for any such situation when it might be needed)

Outside of health care settings minimum PPE requirements for COVID-19 was typically to at least wear a suitable face mask / covering where risk of exposure and / or transmission might be expected

Due to poor government (worldwide) *pre*-preparation for a pandemic type risk in general, many health care settings etc. found themselves **EXTREMELY** short of the required PPE during the earlier stages of the 2020-2023 COVID-19 pandemic. Same applied (even more) to the 'general public' of course

Unfortunately, 'lessons had not been learned' as per the last para, as the same thing happened in some parts of the world (India was a notable but far from the only example) during yet another worldwide COVID-19 pandemic surge, which had started around March / April of 2021

End of Glossary

Note: For more on *testing* during the COVID-19 pandemic - see Appendix A - page <mark>150</mark>



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COVID-19 - Timeline - Late 2019 to end of June 2021

In late 2019 (November to December approx) a 'novel' (new) strain of animal (possibly derived from pangolins via bats?) originated coronavirus (similar to SARS-CoV-1 and MERS coronaviruses) appeared in central China (Wuhan area). Human to human transmission (virus probably mutated / re-assorted and then spread to humans via 'animal sources' in Wuhan's 'live food' markets) became quickly evident - and rapid international 'spread' began to increasingly take effect from about late January 2020 onwards

By <u>end of January 2020</u> there had been around 130 deaths (all in China) and 6,000 confirmed infections (China + 17 other countries). Fatality rate was initially estimated to be around 2-3%. Just a few days later the figures had risen to around 305 deaths (including the first death outside China - being a Wuhan resident who had travelled to the Philippines) and 14,500 cases in 25 countries. By <u>5 February</u> the figures were around 25,000 infections, 500 deaths and a second death outside China (in Hong Kong)

* For various reasons (not documented herein) the actual death rate was probably somewhat less than .5 to 1%

In various parts of China, tens of millions of people had been put under lockdown (isolation) - most in or bordering central China's Hubei province. Also by early February, several international airlines had already ceased operations to China with significantly more expected to follow. An increasing number of countries were also starting to impose total travel bans on Chinese residents travelling from China to such countries

By <u>early March</u> the 'new' coronavirus (now designated 'SARS-CoV-2' / 'COVID-19') was rapidly approaching pandemic stage due its remorseless world-wide spread. Specialist scientists were predicting a period of up to around 12 months before an effective vaccine might become publicly available. Most deaths impacted in particular on the elderly and / or those with certain, underlying medical conditions e.g. heart / lung problems, diabetes, compromised immune system etc. The travel industry (including airlines) was also increasingly beginning to suffer from the associated adverse financial, operational etc. impacts

On <u>11 March</u> COVID-19 was **CATEGORISED** as a **PANDEMIC** by the World Health Organisation (WHO)

<u>22 March</u> - From the aviation viewpoint, massive cut-backs, staff retrenchments and even total cessation of operations had started to be declared worldwide by many airlines, airports, GHAs, tour operators etc. (i.e. the entire aviation, tourism etc. industries were now being very adversely impacted)

<u>23 May</u> - The pandemic continued unabated (5.5 million cases / infections and 350,000 deaths worldwide at a very rough estimate [there were certainly **MANY**, **MANY** more than these numbers {shown above and which follow on just below} - but the true figures will never be known as **some** {probably many} **countries were either INCAPABLE of** and / or **UNWILLING to provide true** and / or **correct** and / or **adequate data**])

Further update for *end of June 2020* = around 10 million cases and half a million deaths. No signs of slowdown when considering the entire world e.g. equivalent figures for *end of July* were 18 million and 700,000; for *end of August* were 26 million and 870,000; for *end of September* were 34 million and 1 million; for *end of October* were 45 million and 1.2 million; for *end of November* were 65 million (3 countries alone - USA, India and Brazil counted for 27 million of these) and 1.5 million; for *end of December 2020* were 85 million and 1.85 million; for *end of January 2021* were 103 million and 2.3 million; for *end of April* were 152 million and 2.5 million; for *end of March* were 129 million and 2.8 million; for *end of January 2021* were 172 million and 3.6 million; for *end of Janue* 2021 were 183 million and 3.96 million

November 2020 - 3 separate COVID-19 vaccines which had been under development since early April 2020 (2 in USA and 1 in UK) finished their trials and commenced undergoing the 'approval' process (by 'regulators' in the countries intending to use them) which, when completed, would permit their use in general populations

<u>2 December</u> 2020 - UK regulator approved one of the US vaccines (Pfizer) mentioned above and vaccinations due to commence in UK within around seven days of that date (first public vaccine to be *actually* administered anywhere in the world [other than during trials] *took place on 8 Dec 2020 in UK*)

Approval of one of the other 2 vaccines mentioned just above (the UK version - AstraZeneca) took place on 30 December 2020 - with the third expected to follow by around March 2021

<u>30 Jan</u> **2021** - Taking just one country as an example, the UK had vaccinated almost 10 million of its most vulnerable people - 3rd highest in the world at that time in terms of vaccinations given per 100 persons of population. Also during January 2021 three new vaccines (over and above the 3 already mentioned just above) were submitted for regulatory approval (all expected to come on line sometime during second to third quarters of 2021)

<u>31 Mar</u> - UK vaccinations delivered had risen to around 35 million by end of March 2021 i.e. almost 55 per 100 persons in UK. (In stark contrast, the vast majority of European Union countries had managed less than a third [on average as at end of March 2021] of the UK achievement i.e. only around 15 per 100 persons)

Throughout all of the above, aviation continued to be hit extremely hard in all sectors, with many businesses (including airlines, aircraft manufacturers, aero engine manufacturers, airports, ground handling operators, aviation training organisations etc. [+ all other types of business which used aviation related services and / or provided services, goods etc. to same]) unlikely to make a comeback to anywhere like previous operational levels, if at all for some!

Same applied to holiday / vacation / tourism and associated leisure industries etc. worldwide

The situation in the last 2 paras just above had not changed significantly 'for the better' as at end of *June* **2021** and was not expected to so do (as at that same time) for at least a significant period of months, if not a year or two

Note 1: The 'world' diagrams shown on the next 6 pages (45 to 50) provide a 'visualisation' as to where, how quickly and how much the COVID-19 pandemic had spread around the world between January 2020 and April 2021

Note 2: The information shown on pages 51 and 52 relates to our intention that we typically only use externally sourced data herein for the purposes of:

- Non-commercial research and private study
- Review and Reporting Current Events
- Fair Use / Dealing / Practice / Research and broadly, equivalent matters educational / learning purposes only (see also page 55)

Note 3: The tables and bar-graphs shown on pages 56 to 64 are similarly used as per 'Note 2' above (see also page 65)





Guideline - (Airline etc.) 'Pandemic Plan' / CRPM Part 4 - Volume ${f 1}$ / Reviewed May 2024

















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Bing 'sources' (continued from previous page)

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Japan Ministry of Health, Labour and Welfare				
Johns Hopkins University CSSE COVID-19 Data				
Ministry of Commerce of the People's Republic of China				
Ministry of Culture and Tourism of the People's Republic of China				
 Ministry of Education of the People's Republic of China 				
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Ministry of Health and Welfare (South Korea)				
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National Health Commission of the People's Republic of China	Source list continued from previous page			
National Immigration Administration (China)				
National Health Service (UK)				
The New York Times				
Norwegian Institute of Public Health				
Our World in Data				
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 Robert Koch Institute (RKI), dl-en/by-2-0 (Germany) 				
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All of our charts can be embedded in any site.

Citation

Our articles and data visualizations rely on work from many different people and organizations. When citing this entry, please also cite the underlying data sources. This entry can be cited as:

Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina, Joe Hasell (2020) - "Coronavirus Pandemic (COVID-19)". *Published online at OurWorldInData.org* - Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]

Author = {Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina and Joe Hasell}, Title = {Coronavirus Pandemic (COVID-19)}, Journal = {Our World in Data}, Year = {2020}, Note = {https://ourworldindata.org/coronavirus}

The above statement from 'Our World in Data' applies to content in this guideline document (the one you are reading right now) - such content being found on pages 53 to 54 above and 147 to 148 further below

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NB: See also equivalent	11	Argentina	3,290,935	+21,469	70,253	+400	2,933,946	286,736	5,517	72,239	1,542	12,331,859	270,696	45,556,116		
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	18	Indonesia	1,736,670	+2,385	47,967	+144	1,597,067	91,636		6,291	174	15,481,111	56,084	276,035,532		
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		216	<u>Western</u> <u>Sahara</u>	10		1		8	1		16	2			610,031	
		217	MS Zaandam	9		2		7	0							
		218	<u>Vanuatu</u>	4		1		3	0		13	3	23,000	73,400	313,351	_
		219	<u>Marshall</u> <u>Islands</u>	4				4	0		67				59,537	E
		220	<u>Samoa</u>	3				2	1		15				199,560	
		221	<u>Saint Helena</u>	2				2	0		328				6,093	
		222	Micronesia	1				1	0		9				116,070	
			Total:	163,168,987	+634,075	3,383,326	+12,143	142,567,753	17,217,908	102,944	20,933.1	434.0				
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1India2,37,162,74,263(-1,16)(-1,16)(-2,16)(-4,16)(-3,17,03,02)2Razil439,88424,68(-4,16)(-2,16)(-1,16)(-1,16)(-1,16)(-1,16)(-1,16)2SAA231,600(-3,16,00)(-1,16) <t< th=""><th></th><th></th><th>1</th><th>Country, # Other 1</th><th>Cases in the last 7 days ↓≣</th><th>Cases in the preceding 7 days</th><th>Weekly Case % Change</th><th>Cases in the last 7 days/1M pop Lt</th><th>Deaths in the last 7 days 11</th><th>Deaths in the preceding 7 days</th><th>Weekly Death % Change</th><th>Deaths in the last 7 days/1M pop</th><th>Population 11</th><th></th><th></th><th>Оре</th><th>an Applic</th><th>ation N</th><th>1enu</th></t<>			1	Country, # Other 1	Cases in the last 7 days ↓≣	Cases in the preceding 7 days	Weekly Case % Change	Cases in the last 7 days/1M pop Lt	Deaths in the last 7 days 11	Deaths in the preceding 7 days	Weekly Death % Change	Deaths in the last 7 days/1M pop	Population 11			Оре	an Applic	ation N	1enu
12BR2II439,89424,863444,640.20713,36814,91-1.01066213,373,0811USA231,00303,030-2.446.684.2934.717-0.45-10-32,50,08514Argenina154,7714.228-0.493.3283.2112.248-0.49-0.45-51,53,08815Colombia117,77107,790.49-0.49-2.48-0.41-0.40-6651,35,08816Inan99,2012,610-0.4911,1682.1092.434-0.41-0.4063,99,2711Fance95,8012,680-0.441.1681.1651.1711.202-0.1015,51,18816Samany78,822106,877-0.441.1681.2651.167-0.412.59,07811Banan78,82106,877-0.481.1681.248-0.412.59,0781-0.49-0.412.59,07811Banan61,81456,997-0.481.4161.4181.4181.182.48-0.412.59,0781-0.41-0.59,07811Banan61,81456,997-0.48-0.481.4161.418-0.48-0.412.59,0781-0.41-0.59,07811Banan61,81456,997-0.48-0.481.4181.4181.4181.4181.4182.69,0781-0.41-0.59,07811Banan <td< td=""><td></td><th></th><td>_</td><td>1 India</td><td>2,387,154</td><td>2,746,255</td><td>-13%</td><td>1,715</td><td>27,921</td><td>26,875</td><td>+4%</td><td>20</td><td>1,391,790,362</td><td></td><td></td><td></td><td></td><td></td><td>:</td></td<>			_	1 India	2,387,154	2,746,255	-13%	1,715	27,921	26,875	+4%	20	1,391,790,362						:
111				2 Brazil	439,985	424,653	+4%	2,057	13,368	14,919	-10%	63	213,873,096						_
Neekly Trends Info as at mid May 2021A agentia164,77142,293.4943,3983,2112,494.4949.704,556,161Veekly Trends Info as at mid May 2021Ian99,205124,613.2004.11682,204.3,414.1494.675,133,88812Eane99,205124,613.2004.1168.2,104.2,10				3 <u>USA</u>	231,508	303,036	-24%	696	4,293	4,717	-9%	13	332,690,850						
Neekly Trends- Info as at mid- May 2021 S Colombia 117,77 107,790 109,790 2,294 3,421 3,144 149% 67 51,353,888 Neekly Trends- Info as at mid- May 2021 Fance 99,205 124,513 -20% 11,168 2,109 2,434 -1-13% 225 84,925,931 7 Fance 95,880 125,600 -24% 1,466 1,255 1,571 -20% 19 65,399,271 6 Intkey 90,721 166,73 -26% 1,066 1,79 2,242 -20% 21 85,127,144 9 Germany 76,622 106,877 -26% 912 1,417 1,550 -9% 1 41 29,590,766 10 legan 61,814 66,997 -26% 836 1,369 1,418 17 143,550 100 14 29,590,766 12 May 50,486 67,304 -25% 836 1,369 1,418 1 16 140,902,151				4 <u>Argentina</u>	154,777	142,293	+9%	3,398	3,211	2,946	+9%	70	45,556,116						
Weekly Trends- Info as at mid- May 2021 6 Ian 99,205 124,513 -20% 1.168 2.109 2.434 -13% 2.25 84,925,931 7 Fance 95,80 125,60 -24% 1.466 1.255 1.571 -20% 1.19 65,39,271 6 Inferr 90,721 166,73 -46% 1.066 1.79 2.242 -20% 2.21 85,127,184 9 Gemany 76,62 106,87 -26% 1.24 3.34 +266% -41 29,690,786 10 Menal 61,814 65,997 -4% 2.089 1.24 3.34 +266% -41 29,690,786 12 May 59,848 67,286 -44% 2.089 1.366 1.466 -41 29,690,786 -60,384,337 13 Japan 45,816 -67,304 -26% 3.66 -473 -446% -25,838,85 -76,838,85 -76,838,85 -76,838,85 -76,838,85 -76,838,85 -76,838,85				5 <u>Colombia</u>	117,797	107,790	+9%	2,294	3,421	3,144	+9%	67	51,353,888						
Into as at mile- May 2021 7 France 95,880 125,600 24% 1,466 1,255 1,571 20% 19 65,399,271 Imb as at mile- May 2021 1 1 9 9,721 166,73 46% 1,066 1,791 2,242 20% 21 65,127,184 Imb as at mile- shown only 9 6many 76,622 106,877 -28% 912 1,417 1,560 -9% 11 23,590,786 Imb as at mile- shown only 1 Russia 69,848 57,286 -44% 410 2,488 2,472 +11% 17 149,5076 Imb as at mile- shown only 1 Russia 69,848 57,285 -44% 410 2,488 2,472 +11% 17 149,5076 Imb as at mile- is apan 45,810 34,642 +32% 363 663 473 -46% -0 128,138,855 Imb as at mile- is apan 45,810 34,642 +32% 361 307 111% 9 <td>Weekly</td> <th>Trends -</th> <td></td> <td>6 Iran</td> <td>99,205</td> <td>124,513</td> <td>-20%</td> <td>1,168</td> <td>2,109</td> <td>2,434</td> <td>-13%</td> <td>25</td> <td>84,925,931</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Weekly	Trends -		6 Iran	99,205	124,513	-20%	1,168	2,109	2,434	-13%	25	84,925,931						
Not Local a Tarkey 90,721 166,733 -46% 1,066 1,791 2,242 -20% 21 85,127,184 Top 19 countries shown only 9 76,622 106,877 -28% 912 1,417 1,560 -9% 17 84,017,137 10 Nepal 61,814 56,997 48% 2,089 1,224 334 +266% 41 29,590,786 11 Russia 59,848 67,285 44% 410 2,488 2,472 +11% 17 145,507 12 Ialy 50,456 67,304 -25% 838 1,369 1,661 -11% 2.2 60,384,337 13 Japan 45,810 34,642 +32% 363 663 473 +40% -16 60,384,337 14 Ganada 43,710 52,936 -17% 1,149 340 307 +11% 9 38,029,713 15 Philippines 43,371 48,179	Into as May	at mid- 2021		7 <u>France</u>	95,880	125,600	-24%	1,466	1,255	1,571	-20%	19	65,399,271						
Top 19 countries shown only 9 Germany. 76,822 106,877 -28% 912 1,417 1,550 -9% 17 84,017,137 10 Megal 61,814 56,997 +8% 2,089 1,224 334 +266% -41 29,590,786 11 Russia 69,848 67,286 +4% 410 2,488 2,472 +11% 17 145,0576 12 Iaiy. 50,456 67,304 -25% 836 1,369 1,661 -18% 2.3 60,384,337 12 Iaiy. 50,456 67,304 -25% 836 1,369 1,661 -18% 2.3 60,384,337 13 Japan 45,810 34,642 +32% 3663 473 +40% 4 9 38,029,713 14 Canada 43,371 51,362 -17% 1,148 340 307 +111% 9 38,029,713 15 Philippines 43,371 48,179 -10% 391 783 914 -14% 7 110,846,594 <t< td=""><td>ivity :</td><th>2021</th><td></td><td>8 <u>Turkey</u></td><td>90,721</td><td>166,733</td><td>-46%</td><td>1,066</td><td>1,791</td><td>2,242</td><td>-20%</td><td>21</td><td>85,127,184</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	ivity :	2021		8 <u>Turkey</u>	90,721	166,733	-46%	1,066	1,791	2,242	-20%	21	85,127,184						
shown only 10 Nepal 61,814 56,997 +8% 2,089 1,224 334 +266% 41 29,590,786 11 Russia 59,848 57,285 +4% 410 2,488 2,472 +1% 17 145,557 12 Ialy 50,456 67,304 -25% 836 1,369 1,661 -1% 28 60,384,337 13 Japan 45,810 34,642 +32% 363 663 473 +40% -5 513,858 14 Canada 43,710 52,936 -17% 1,149 340 307 +11% 9 38,029,713 15 Philippines 43,371 48,179 -10% 391 783 914 -14% 7 110,846,594 16 Netherlands 40,259 51,362 -22% 2,345 117 150 -22% 7 17,167,883 17 Peru 39,540 40,141 -1% 1,185	Тор 19 с	ountries		9 <u>Germany</u>	76,622	106,877	-28%	912	1,417	1,550	-9%	17	84,017,137	E	videnc	e tha	it the		
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13 Japan 45,810 34,642 +32% 363 663 473 +40% 5 125,138,855 14 Canada 43,710 52,936 -17% 1,149 340 307 +11% 9 38,029,713 15 Philippines 43,371 48,179 -10% 391 783 914 -14% 7 110,846,594 16 Netherlands 40,259 51,362 -22% 2,345 117 150 -22% 7 17,167,883 17 Peru 39,540 40,141 -1% 1,185 2,085 2,037 +2% 62 33,370,299 18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 3 19,258,802			1	12 <u>Italy</u>	50,456	67,304	-25%	836	1,369	1,661	-18%	23	60,384,337		reced	ing a	s at		
14 Canada 43,710 52,936 -17% 1,149 340 307 +11% 9 38,029,713 15 Philippines 43,371 48,179 -10% 391 783 914 -14% 7 110,846,594 16 Netherlands 40,259 51,362 -22% 2,345 117 150 -22% 7 17,167,883 17 Peru 39,540 40,141 -1% 1,185 2,085 2,037 +2% 62 33,370,299 18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 33 19,258,802			1	13 Japan	45,810	34,642	+32%	363	663	473	+40%	~	126,138,855	ŋ	nid-M	ay 20)21 -		
15 Philippines 43,371 48,179 -10% 391 783 914 -14% 7 110,846,594 16 Netherlands 40,259 51,362 -22% 2,345 117 150 -22% 7 17,167,883 17 Peru 39,540 40,141 -1% 1,185 2,085 2,037 +2% 62 33,370,299 18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 33 19,258,802			1	14 <u>Canada</u>	43,710	52,936	-17%	1,149	340	307	+11%	9	38,029,713		n fact,	tar f i+1	rom		
16 Netherlands 40,259 51,362 -22% 2,345 117 150 -22% 7 17,167,883 17 Peru 39,540 40,141 -1% 1,185 2,085 2,037 +2% 62 33,370,299 18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 33 19,258,802			1	15 Philippines	43,371	48,179	-10%	391	783	914	-14%	7	110,846,594			it:			
17 Peru 39,540 40,141 -1% 1,185 2,085 2,037 +2% 62 33,370,299 18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 33 19,258,802			1	16 <u>Netherlands</u>	40,259	51,362	-22%	2,345	117	150	-22%	7	17,167,883						
18 Chile 38,276 37,221 +3% 1,987 633 644 -2% 33 19,258,802			1	17 Peru	39,540	40,141	-1%	1,185	2,085	2,037	+2%	62	33,370,299						
			1	18 Chile	38,276	37,221	+3%	1,987	633	644	-2%	33	19,258,802						
19 Ukraine 36,106 36,052 +0.1% 830 1,742 1,764 -1% 40 43,504,483			-	19 Ukraine	36,106	36,052	+0.1%	830	1,742	1,764	-1%	40	43,504,483					00.50	

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Info as at 7 May 2021 Info as at 7	Daily New	Deaths in India Daily Deaths Deaths per Day Data as of 0:00 GMT+8				*
See also: <u>Daily Cases Graph</u>	9k 100 100 100 100 100 100 100 100 100 10	May 07, 2021 • Daily Deaths: 4 194 • Daily Deaths: 4 194 • Daily Deaths: 4 194 • Daily Deaths • 3-day moving average → 7-day moving average	Info as at 7 May 2021 MAX peak daily <u>CASES</u> up to date estimated as 4,200 - o May 2021 As always, the figure indica would have been a <u>VERY</u> significant number of multip less than the <u>ACTUAL</u> figu	this n 7 ted 2 bles re		E
		See also: <u>Daily Cases Graph</u>				
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	:	Country, # Other 1	Total Cases	New Cases 11	Total Deaths 🕼	New Deaths 🍂	Total Recovered 11	New Recovered 11	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop ↓↑	Total Tests	Tests/ 1M pop1↑	Population	11
		World	178,950,030	+359,757	3,875,334	+8,179	163,471,930	+364,639	11,602,766	82,769	22,958	497.2				
		1 <u>USA</u>	34,401,712	+7,782	617,083	+170	28,694,843	+18,914	5,089,786	3,989	103,347	1,854	498,689,211	1,498,123	332,876,	117
		2 India	29,881,352	+58,588	386,740	+1,239	28,758,447	+87,568	736,165	8,944	21,450	278	389,207,637	279,385	1,393,086,	773
1. for an at 40 loss - 2024 (for		3 <u>Brazil</u>	17,883,750	+81,574	500,868	+2,247	16,183,849	+46,881	1,199,033	8,318	83,562	2,340	52,714,701	246,310	214,017,	366
comment see page 66)		4 <u>France</u>	5,755,496	+2,624	110,724	+22	5,555,411	+8,485	89,361	1,703	87,987	1,693	90,467,735	1,383,023	65,413,	043
		5 <u>Turkey</u>	5,365,208	+5,480	49,122	+51	Search: <									
On this day Brazil became		6 <u>Russia</u>	5,299,215	+17,906	128,911	+466	4,861,343	New Recovered II Active Cases II Serious, Critical II Tot Cases/ IM pop II Deaths/ IM pop II Total Tests II Tests/ IM pop II Population II 11.930 +364.639 11,602.766 82.769 22.958 497.2 Image: Imag								
the world's 2nd country		7 <u>UK</u>	4,620,968	+10,321	127,970	+14	4,299,835	+2,078	193,163	210	67,726	1,876	200,024,844	2,931,615	68,230,	263
(after the USA) to 'report' a		8 <u>Argentina</u>	4,258,394	+15,631	88,742	+495	3,868,105	+23,776	301,547	7,386	93,395	1,946	15,791,124	346,329	45,595,	737
million COVID-19 deaths		9 <u>Italy</u>	4,252,095	+1,197	127,253	+28	4,035,692	+4,087	89,150	394	70,427	2,108	69,765,699	1,155,523	60,375,	868
		10 <u>Colombia</u>	3,917,348	+28,734	99,335	+589	3,644,287	+27,607	173,726	8,155	76,205	1,932	18,772,724	365,187	51,405,	720
NB: See also equivalent table		11 <u>Spain</u>	3,757,442		80,652		3,544,205		132,585	793	80,335	1,724	51,240,666	1,095,535	46,772,	280
(with comments) for mid -		12 <u>Germany</u>	3,729,557	+974	90,953	+41	3,601,200	+3,100	37,404	1,210	44,377	1,082	63,091,197	750,704	84,042,	690
document you are reading		13 <u>Iran</u>	3,086,974	+6,448	82,854	+108	2,736,013	+13,401	268,107	3,307	36,305	974	22,194,745	261,026	85,028,	735
right now)		14 Poland	2,878,634	+168	74,823	+41	2,650,194	+315	153,617	237	76,141	1,979	16,924,814	447,669	37,806,	538
		15 <u>Mexico</u>	2,471,741	+4,098	230,959	+167	1,966,702	+2,402	274,080	4,798	18,979	1,773	7,308,357	56,115	130,238,	690
		16 Ukraine	2,229,044	+852	51,992	+40	2,150,708	+2,736	26,344	177	51,267	1,196	10,656,207	245,086	43,479,	490
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NOTE	# 🎚	Country (or dependency) 1 î	Population (2020) It	Yearly Change ↓ ↑	Net Change J î	Density (P/Km²) ↓î	Land Area (Km²) Jî	Migrants (net) ↓↑	Fert. Rate ↓↑	Med. Age Jî	Urban Pop % Jî	World Share J 1		
Depending on the	1	<u>China</u>	1,439,323,776	0.39 %	5,540,090	153	9,388,211	-348,399	1.7	38	61 %	18.47 %		
opulation figures	2	India	1,380,004,385	0.99 %	13,586,631	464	2,973,190	-532,687	2.2	28	35 %	17.70 %		
n vary (relatively) slightly	3	United States	331,002,651	0.59 %	1,937,734	36	9,147,420	954,806	1.8	38	83 %	4.25 %		
o figuros chown in	4	Indonesia	273,523,615	1.07 %	2,898,047	151	1,81 <mark>1,</mark> 570	-98,955	2.3	30	56 %	3.51 %		
he adjacent table	5	<u>Pakistan</u>	220,892,340	2.00 %	4,327,022	287	770,880	-233,379	3.6	23	35 %	2.83 %		
flect the indicated	6	Brazil	212,559,417	0.72 %	1,509,890	25	8,358,140	21,200	1.7	33	88 %	2.73 %		
easonably well for	7	<u>Nigeria</u>	206,139,589	2.58 %	5,175,990	226	910,770	-60,000	5.4	18	52 %	2.64 %		
le purposes of the locument you are	8	Bangladesh	164,689,383	1.01 %	1,643,222	1,265	130,170	-369,501	2.1	28	39 %	2.11 %		
eading right now	9	Russia	145,934,462	0.04 %	62,206	9	16,376,870	182,456	1.8	40	74 %	1.87 %		





Worldometer is cited as a source in over <u>10,000 published books</u> and in more than <u>6,000 professional</u> iournal articles.

Conference on Sustainable Development (Rio+20), the U2 concert, and many others.



08:57



* COVID-19 Deaths - Info as at 19 June 2021 (see also 'worldometer' tables - pages 63 and 64)

We now provide our own comment below on what might be possible inconsistencies / anomalies etc. between deaths reported and actual deaths for the 10 most populous countries in the world. Between them they comprise approximately 58% of the world's population. There will be various reasons for such inconsistencies - but same are beyond the scope of this guideline

- On this date Brazil was the 2nd country in the world (USA was first in around Feb / March 2021) to have 'reported' more than 500,000 COVID-19 deaths from approximately 17.5 million infections. (See table page 63). This figure (for Brazil population around 213 million) is almost certainly a significant underestimate, due associated difficulties in accurate reporting etc.
- With 18.5% of the world's population (approx 1.44 billion people), one wonders why, more than 18 months (i.e. in June 2021) after COVID-19 originated / first emerged in *China*, stats published (for China) indicated 'only' around 105,000 infections and 'only' around 5,000 deaths?
- Similar concept (to China) goes for India, with approx 1.38 billion people (17.7% of world's population). Stats indicate almost 30 million infections but 'only' around 385,000 deaths?
- The USA (at this same time and with a population of around 331 million) had stats indicating around 33.5 million infections and 600,000 deaths. For various reasons (not expanded upon herein) these figures are probably the most accurate (relatively speaking) of all those shown in this table
- Indonesia (population 274 million approx) had stats of around 2 million infections and 'only' around 54,000 deaths
- Pakistan (population 221 million approx) had stats of around 945,000 infections with 'only' around 22,000 deaths? Pakistan shares a border with India
- Nigeria (population 206 million approx) had stats of around 'only' 167,000 infections and 'only' around 2,000 deaths?
- Bangladesh (population 165 million approx) had stats of around 845,000 infections and 'only' around 13.5 thousand deaths. With around 1 million Rohingya refugees (from neighbouring Myanmar) living in crowded, primitive camps in Bangladesh, these death figures must be seriously in question. Bangladesh has a border with India
- Russia (population 146 million approx) had stats of around 5.3 million infections and deaths of around 128,000
- Mexico (population around 129 million) had stats of around 2.24 million infections with around 230,000 deaths



* Some Further Amplifying Notes - as cross-referred to at / carrying on from the bottom of page 12

STARTS HERE

Particularly **India** where, in early May <u>2021</u> (more than a year into the COVID-19 pandemic) a 'reported' (approximately) million people were becoming infected (with COVID-19) around every 3 days - with associated daily death rates of almost 4,000

NOTE: For several, valid reasons (outside the scope of the document you are reading now) the infection / death rates mentioned just above for *India* were *GROSS* underestimates (as they similarly would have been in many other countries worldwide [for similar reasons] at that time)

Furthermore, Indian hospitals were running out of oxygen, had insufficient respirators, were turning infected persons away and, on top of all of this, the Indian vaccination programme was <u>very</u> significantly under-achieving. Accordingly, some other countries around the world had started providing 'COVID-19' related aid to India at this time (ventilators, oxygen and oxygen generators, drugs, 'expertise' etc.)

It is absolutely certain that the root cause of the above situation in India was the 'permitting' of 'super spreader covid-19' mass celebrations - particularly during March and April of 2021 - e.g.

- Holi and (separately) Kumbh Mela, in which millions of people (in very close proximity and, overwhelmingly ignoring 'official' direction to wear masks, social distance etc.) participated
- Running country wide elections (at all levels) mainly during April 2021

The refusal of the Indian Government to impose a national lockdown (when all of the above was becoming clearly evident) significantly exacerbated matters further

The above situation had been a complete turnaround for India - as it had previously (apparently) come through the first phases of the pandemic in **2020** relatively well (in terms of infections & deaths), compared to much of the world

Update - 5 May 2021:

It was estimated (at this specific time) that India accounted for almost half the coronavirus cases 'reported' worldwide - with 'reported' deaths (in India) rising by a record 4,200 between 10 - 11 May alone. As reported by the WHO - it (India) was estimated to have made up around 46 per cent and 25 per cent respectively of these global cases and deaths in the preceding week. Infection cases rose by 382,315 on 5 May alone (they exceeded 400,000 a few days later) - being the 14th consecutive day of new infections in excess of 300,000

Hospitals continued to have *severe* shortages of beds, oxygen, respirators etc. whilst morgues and crematoriums were overwhelmed by the unstoppable flow of bodies. A 'black-market' trade in oxygen (cylinders and generators); respirators; associated drugs etc. was also in the course of becoming 'well-established' at this time

Re the above: Prime Minister Narendra Modi's Government had been widely criticised at the time for not acting sooner (and more effectively) to try to suppress this second wave e.g. by banning the super-spreader events, delaying the elections referred to further above and imposing a national lockdown

https://www.youtube.com/watch?v=SWs6Z53RU-w

It was also becoming evident at that same time that some countries adjacent / (relatively) regionally close to India (e.g. Afghanistan, Bangladesh, Cambodia, Laos, Malaysia, Singapore, Nepal, Pakistan, Vietnam etc) were also starting to see significant surges of COVID-19 infection and, inevitably, deaths. Like India, most had come through 2020 relatively well from the pandemic viewpoint - Vietnam being a particular example to single out here



Elsewhere, a significant number of other countries continued to have severe COVID-19 related problems e.g. Brazil and Turkey to name just two of many:

'The majority of the world is heading into a "very, very dark period" of the coronavirus crisis' a World Health Organization (WHO) leader (Dr David Nabarro) stated at the time. 'Nearly 18 months into the global pandemic, infections across the world are now accelerating faster than ever' he warned

Dr Nabarro, the WHO's Covid-19 special envoy, had told a radio programme (in early May 2021) that the pandemic was at a "fearsome" stage. He added: 'There are just a few countries that are currently able to demonstrate that they've got much lower levels of disease and are actually feeling that they are recovering

The reason why it's particularly dark right now is that we don't have the full data, as more and more pandemic is spreading in places where testing is not available, so that the numbers that we <u>do</u> have are a <u>major</u> under-estimate. It's bigger than ever, it's fiercer than ever and it's causing more distress than ever, this is a bad phase'. He added that 'the "evolving" virus was going to **continue to build up and surge in many different parts of the world**'

Worryingly for the tourism industry (and thus the 'knock-on effect' for **aviation** etc.), some countries e.g. the Seychelles, Maldives and Cyprus were also undergoing COVID-19 infection spikes at this same time (**early May 2021**) e.g. and, as a result of a surge in cases (**Seychelles** had largest number of new COVID-19 cases per capita in the world at the time [with the **Maldives** coming second]) - Health Minister Peggy Vidot said that the **Seychelles would be reinstating COVID-19 related restrictions, having only just reopened to tourism at the end of March 2021**

'Despite all the exceptional efforts we have been making, the Covid-19 situation in our country is critical right now, with many daily cases reported last week' - she stated. Worryingly, this occurred despite around 70% of those living in the Seychelles already having had at least one dose of a ****** COVID-19 vaccine (+ around 35% having had the required second dose) - up to that point in time

(** Around 60 percent of the relevant doses administered in Seychelles at that time were vaccines made by the Chinese company Sinopharm, donated to the Seychelles by the United Arab Emirates. The remaining doses were developed by AstraZeneca and produced by the Serum Institute of India)

The WHO had previously warned that 'vaccines alone can't stop the pandemic due insufficient global coverage' and 'that social distancing measures, wearing of masks etc. remain just as important, as the vaccination rollout continues'

Some other countries (not identified here) having some of the largest populations in the whole world were (at this same time i.e. May 2021) continuing to report significantly low numbers of infections and deaths. It is left to the 'interested' reader to speculate why / how this might be so???

Also at this same time, some countries which had already (throughout mid-2020 / early 2021) experienced severe, adverse impacts (from COVID-19) on their populations and industries etc. (USA and UK being two examples) were, relatively speaking, recovering well. Intense, comprehensive & very successful vaccination programmes undoubtedly contributed to this, combined with various other (depending on the country) control measures re e.g. social distancing, wearing of masks, adequate control of borders and travel, mass testing and tracing etc.

However, it is noteworthy that by mid-May 2021, a rising COVID-19 infection rate was evident in some parts of the UK.

This was largely (but not exclusively) due to the UK government not having adequately 'banned' flights from India to UK 'soon enough' in the preceding period up to 23 April 2021 (after which a ban **had** been imposed). This was particularly worrying as (despite the UK's really excellent progress in vaccinating its population up to that point) the Indian 'variant' of the COVID-19 virus was new ('novel') to UK - and it was not clear ***** at that time** if the current vaccines used in UK could 'defeat' it adequately enough to prevent future, serious consequences

*** Associated testing found that the UK vaccination programme was effective against the Indian variant - but that the latter was significantly better (40-60%) at transmitting the virus than previous variants (e.g. the 'Kent' variant)



The above (UK / Indian variant) situation was exacerbated as many people living in the regions of UK (where this outbreak was first detected) were from ethnic groups which statistically had not (up to that point) taken up the UK government's offer of free vaccinations

As a last indication of 'being nowhere near out of the "COVID-19" woods yet' at this same time, Taiwan had started to experience a very worrying spike in COVID-19 infections. This despite the fact that throughout 2020 the island state of 24 million people had (generally speaking) been producing extraordinary COVID-19 statistics e.g. fewer than 1,000 cases, zero infection leaks from quarantine, a death toll of 12 and 253 days without a single, local case

About 91% of Taiwan's total local caseload had come in just the 4 days up to 17 May 2021. The outbreak began in late April 2021 - connected to flight-crews from the national carrier (China Airlines) quarantining in a Taoyuan airport Novotel, which was simultaneously hosting (non-quarantining) Taiwanese guests - and somewhere along the way the quarantine rules were broken. Both the airline and hotel had subsequently been fined

COVAX (COVID-19 Vaccines Global Access)

Below we show the first 6 paragraphs only - taken from an article (dated 26 May 2021) published in 'Science' magazine, under the auspices of the 'American Association for the Advancement of Science - AAAS):

'............. In January 2021, the director-general of the World Health Organization (WHO), Tedros Adhanom Ghebreyesus, issued a blunt warning. The world was "on the brink of a catastrophic moral failure," he said. Wealthy countries were buying up available COVID-19 vaccines, leaving tiny amounts for others - a replay of what happened during the 2009 (swine-flu) influenza pandemic. "The price of this failure will be paid with lives and livelihoods in the world's poorest countries," Tedros said

He was right. Today, some rich countries are vaccinating children as young as 12 years old who are at extremely low risk of developing severe COVID-19, while poorer countries don't even have enough vaccine for health care workers. Nearly 85% of the COVID-19 vaccine doses administered to date have gone to people in high-income and upper middle–income countries. The countries with the lowest gross domestic product per capita only have 0.3%

Tedros lambasted the "scandalous inequity" again in his opening speech at the World Health Assembly on 24 May 2021. By September of that same year 'at least 10% of the population in every country should be vaccinated', he said

Disparities in global health are nothing new. Lifesaving therapies such as monoclonal antibodies are unavailable in large parts of the world. Even vaccines and drugs that cost almost nothing to make don't reach millions of people who need them. But the COVID-19 crisis has exposed the inequities in a distinct, acute way. As normality is returning to vaccine front-runners such as Israel, the United Kingdom and the United States - India's health system is buckling under soaring case numbers - and the world is still recording almost 5 million cases and 80,000 deaths + every week

The moral argument aside, there's a very practical reason to distribute vaccines more equitably: No part of the world can feel safe if the pandemic rages on elsewhere, posing the risk of reintroduction and spawning potentially more dangerous viral mutants

To read the full article - follow the below link:

https://www.sciencemag.org/news/2021/05/rich-countries-cornered-covid-19-vaccine-doses-four-strategies-right-scandalous



Study shows India's Excess Deaths during COVID-19 Pandemic (to date) could be up to 4.9million

Ankur Banerjee and Neha Arora - 20 July 2021, 11:36 a.m. - Reuters

India's excess deaths during the Covid-19 pandemic could be as high as 4.9 million, according to a new study that provides *further evidence that millions more may have died from coronavirus than the official tally*

The report by the Washington-based Center for Global Development, co-authored by India's former chief economic adviser Arvind Subramanian, included deaths from all causes since the pandemic's start in March 2020 - up to June 2021

India has officially reported around 414,000 deaths due to Covid-19, the third highest tally in the world after the United States and Brazil, but the study adds to growing calls from experts for a rigorous nationwide fatality audit. A devastating rise in infections in April and May 2021, driven largely by the more infectious and dangerous Delta variant, overwhelmed India's healthcare system and killed at least 170,000 people in May alone, according to official data

"What is tragically clear is that too many people, in the millions rather than hundreds of thousands, may have died," the report said, *estimating the excess death toll during the pandemic at between 3.4 and 4.9 million*

The report did not ascribe all the excess deaths to the pandemic. "We focus on all-cause mortality, and estimate excess mortality relative to a pre-pandemic baseline, adjusting for seasonality," it said. India's health ministry did not immediately respond to a Reuters email seeking comment

Some experts have said that excess deaths are the best way to measure the real toll from Covid-19. The New York Times said the most conservative estimate of deaths in India was 600,000 and the worst case scenario several times that number. The Indian government has dismissed those figures

Health experts have said the undercounting is largely because of scarce resources in India's vast hinterland where two-thirds of the population lives - and because many have died 'at home' etc. without being recorded / tested

India has reported a decline in daily infections from a peak in May 2021, recently logging its lowest daily count in four months at 30,093 fresh cases

Indian Prime Minister Narendra Modi's government has also been criticised for a messy vaccination campaign that many say contributed to the worsening of the second wave of infections. India has so far only vaccinated just over 8% of eligible adults with the mandatory two doses. In July 2021 the government administered fewer than 4 million doses per day on average, versus a record 9.2 million doses on June 21, when Modi started a campaign to inoculate the country's 950 million adults for free

'Further Amplifying Notes' END HERE (please now return to page 12 if so required)



To clearly demonstrate that the COVID-19 pandemic was still very much adversely *impacting a significant number of the world's countries* (and thus the 'travel' industry also [including airlines etc.]) **as at mid-2021** (some 15 months after the pandemic was first declared) **- take a look at the article on the next page**

Following that, we have also included an article which explains why 'official' COVID-19 death figures for the world had been significant under-estimates compared to 'the reality'



Brazil Is now 2nd Country in World with 500,000 Covid Deaths

Infections are <u>not</u> slowing down!

(Joe Walsh - Forbes Staff - 19 June 2021)

'More than a half-million Brazilians have died of Covid-19', officials said Saturday, making Brazil the second country on Earth to pass that bleak milestone - *but, unlike some other large countries, Brazil is still grappling with high daily case rates and low vaccination levels*

<u>Key Facts</u>

Some 500,800 people in Brazil have died from the coronavirus, according to government figures updated Saturday, an increase of more than 2,000 in one day. Case counts haven't relented in Brazil, with some 505,000 people contracting the virus in the last week, just 30,000 below the country's mid-March peak, according to data compiled by Johns Hopkins University

An average of more than 2,000 Brazilians are still dying from the virus daily, compared to 3,000 daily deaths in early April. Brazil's coronavirus outbreak is the world's second deadliest, behind only the United States, which has logged more than 600,000 deaths since the start of the pandemic

<u>Big Number</u>

29 percent - that's the share of Brazilians to have received at least one Covid-19 vaccine dose so far, with 11 percent of the population being fully vaccinated, according to government data. Brazil's vaccination campaign has moved faster than those of some Latin American countries like Colombia and Peru, and its vaccination rate is similar to Argentina's, but is well behind those of Chile and Uruguay

What to Watch For

Brazil has signed contracts with drug-makers to buy hundreds of millions of extra Covid-19 vaccine doses in recent months. However, the country's vaccination efforts are moving so slowly that "the impact of vaccines might not be realised until September 2021" - Raphael Guimaraes from Brazilian public health institute Fiocruz told 'Reuters'

Tangent

Brazil is grappling with stubbornly high infection rates, even as other countries with previous large death tolls experience steep declines. New daily cases have slid to their lowest level in over a year in the United States (with a 53% partial vaccination rate), and daily infections have plummeted more than 80% since early May in India (with a 16% partial vaccination rate)

Key Background

Brazil has struggled with high Covid-19 infection rates, jarring death tolls and overwhelmed hospital systems for months. Some experts have blamed the country's brutal spring surge on a more infectious new coronavirus variant discovered in western Brazil. Meanwhile, the government has <u>staunchly resisted</u> nationwide lockdowns or social distancing rules, and President Jair Bolsonaro has mocked public health measures, <u>downplayed</u> the virus' severity and derided Brazilians cautious about Covid-19 as "sissies."


Surprising Fact

Brazil's true coronavirus death toll is probably even higher than the number reported in official statistics, as not all Covid-19 deaths are accurately diagnosed and counted in real time, which is likely the case in virtually every country

Using data on overall mortality rates from all causes of death, a team of researchers from the University of Washington <u>estimated</u> in early May 2021 that nearly 600,000 Brazilians had died from Covid-19, even though the government had only tallied about 400,000 deaths at that time

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Worldwide Covid Death Count more than Twice Official Tallies

(Joe Walsh - Forbes Staff - 7 May 2021)

In another grim sign that the Covid-19 death toll is even worse than previously thought, University of Washington (UW) researchers said (6 May) that an estimated ***** 6.9 million people globally had died from the pandemic so far i.e. *more than double* the numbers *'officially*' recorded to date. Key facts are:

- A team from UW's Institute for Health Metrics and Evaluation (IHME) used statistics on mortality rates to (try to) measure the true number of coronavirus deaths since early last year (2020). They concluded that an estimated *6.93 million* people had died from the virus worldwide as of 3 May 21
- By comparison, fewer than 3.25 million deaths were reported on 6 May by government etc.
 entities, according to a worldwide tally maintained by Johns Hopkins University
- Over 905,000 Americans are estimated to have died from Covid-19, the world's highest death toll and more than 60% higher than the (USA's) Centers for Disease Control's own figures
- The study claims over 650,000 people have died in India, almost triple the Indian government's count, while Mexico has suffered 617,000 fatalities and Brazil has faced 596,000 even though authorities (in those countries) had counted just over 200,000 and 400,000 deaths respectively
- The researchers said governments have wildly undercounted Covid-19 deaths because of limited testing and differing rules for when fatalities should be recorded

"As terrible as the COVID-19 pandemic appears, this analysis shows that the actual toll is significantly worse," Dr. Chris Murray, the director of IHME, said in a <u>statement</u>

Key Background

Researchers have warned for months that official coronavirus death counts underestimate the total damage wrought by the virus, especially as not everybody is tested before dying. Instead experts, like the IHME team, have tracked the rate of "excess mortality" - comparing the overall number of deaths from all causes since Covid-19 first arose to the number of deaths reported in a typical non-pandemic year. These figures suggest an abnormally large number of people have died every week in the United States and other pandemic-ravaged countries - an increase (researchers have) largely blamed on Covid-19

Not all excess deaths were necessarily caused by Covid-19 infections. For example, some people may have died from other causes as Covid-19 overwhelmed healthcare systems and caused patients to steer clear of crowded hospitals. Also, U.S. drug overdose deaths <u>appeared to increase</u> last year. The authors of Thursday's study tried to exclude such deaths from their estimates, even though many might be indirectly linked to Covid-19

* Note: (From author / owner of the document which you are reading right now)

The links shown on the *next* page re-inforce and expand somewhat on the information provided in the article shown just above. However, they are / were <u>not</u> part of that article:



Various statistical organisations around the world were reporting (up to around mid-July 2021) (from a start point of the advent of the pandemic in March 2020) around 4.25 million deaths (worldwide) from almost 200 million infections.

However, it is distinctly possible (likely even?) that **India** <u>alone</u> might have had around 5 million deaths up to this same point. Follow links below for associated information:

https://www.reuters.com/world/india/indias-30093-new-covid-19-cases-are-lowest-daily-figure-4-mths-2021-07-20/

covid-19-may-have-claimed-as-many-as-5-million-lives-in-india (i.e. in India alone)

https://ourworldindata.org/excess-mortality-covid

What is 'excess mortality / death'?

Excess mortality is a term used in epidemiology, public health etc. which refers to the number of deaths *from all causes* during a crisis *above* and *beyond* what might be expected in 'normal' circumstances

In this case, we're interested in how the number of deaths (worldwide) during the COVID-19 pandemic - compared to the death numbers we might have otherwise expected **had the pandemic not occurred** - a crucial quantity that cannot be definitively known - but can be estimated in several ways

Excess mortality is a more comprehensive measure of the **total** impact of the pandemic on deaths, than the 'confirmed' (e.g. by governments) COVID-19 death count alone. It captures not only said confirmed COVID-19 deaths, but also those (COVID-19) deaths that might not have been correctly diagnosed and reported / recorded – in addition to deaths from other causes that are attributable to overall crisis conditions

Accordingly, the 'interested reader' might be advised to take a look at the data contained in the last link ('ourworldindata') shown a little further above

It (said data) 'indicated / best guess estimated' that around **15** *million excess deaths occurred* worldwide during period **12** *January* **2020** (world just becoming aware of COVID-19) - to **31** *December* **2021** (2 years later)

This figure (15 million) compares with the so called 'confirmed' deaths (e.g. official government etc. sourced figures - [good, bad or otherwise]) of around 5.47 million during that same period

With the COVID-19 vaccine programme becoming fairly well established in many (but by no means all) countries of the world by the end of 2021, the excess death rates generally started to decrease significantly during 2022. (But not by as much as might have been otherwise expected in some parts of the world e.g. the long 'heat wave' in Europe would have had some significant impact on keeping its excess death rate higher than it might otherwise be expected to have been; e.g. the economic crisis in UK during second half of 2022 and continuing through 2023 had very significant adverse impacts on medical treatments and associated care etc.)



To explore further into the 'history' of pandemics prior to the 20th century - click on the links just below:

https://www.visualcapitalist.com/history-of-pandemics-deadliest/

https://www.aljazeera.com/indepth/interactive/2020/05/plague-mers-history-pandemics-200520124051021.html

To find out more re the Covid-19 pandemic in general + some aviation connotations - follow below links:

https://en.wikipedia.org/wiki/COVID-19 pandemic

https://en.wikipedia.org/wiki/Impact of the COVID-19 pandemic on aviation

https://www.bbc.com/future/article/20200709-how-covid-19-will-change-air-travel-as-we-know-it



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Case Study XX (based on real events starting around December 2019)

Coronavirus (COVID-19) - Worldwide Pandemic

This case study was updated in June **2021**

Note

This case study XX is fundamentally different from the preceding case studies

How and why is it different?



The nature, scope, adverse impacts etc. of the *COVID-19* pandemic were typically (but not exclusively) *unconducive* to *viable* Business Continuity solutions by many of the various aviation related organisations (amongst many other types of organisation) directly and indirectly impacted

This situation existed (in a very general context and to a greater or lesser degree) from about March of 2020 and was anticipated to continue (at time of writing this case study) up to *at least* the $1^{st} / 2^{nd}$ quarters of 2023

• Why?

To inform the 'interested' reader that sometimes (rarely) a particular form / type / degree etc. of *disruption* might absolutely **NOT** have any *viably* effective, efficient, practical, timely, cost effective, non-hazardous etc. '*Risk Management / Business Continuity*' type solution(s) whatsoever

The COVID-19 pandemic fitted this latter situation perfectly - particularly for aviation related organisations and everything which relied upon them and / or upon which they relied e.g. tourism; essential resources (e.g. 'people' [staff / passengers etc. e.g. aviation fuel) etc.

The actual case study itself commences on the next page:

Note to Reader: - This case study was taken from our (*separate* document) 'Aviation Related **Business Continuity**' guideline (CRPM Part 3 / Volume 2) - which is *not* a guide for how to respond to a '*public health incident*' type situation. Nevertheless, it is hoped that the reader will appreciate this case study's 'useful intent' - as now used here in a *public health incident* (pandemic) *type context*

CRPM 3 (Volumes 1 and 2) can be found at:

https://aviationemergencyresponseplan.com/aviation-business-continuity/







Case Study XX (based on real events starting around December 2019 and updated to end of June 2021)

It has become 'fashionable' in *Risk Management* (and thus 'knocks on' to *Business Continuity* Management) to refer (generically) to *very* significant (adverse) impact disruption events as being a:

BLACK SWAN Event

A 'Black Swan' event / situation / occurrence (generally leading to massive 'disruption' [amongst many other adverse impact types]) typically

- Lies outside of rationale expectation as (typically [but not absolutely]) nothing like it will have happened before i.e. it is (almost) totally unpredictable
- Results in an extreme impact (good or bad [bad in the context used herein])
- Despite its 'unexpectedness', there is a tendency for humans to lean towards producing an associated explanation(s) for its occurrence <u>after</u> the fact i.e. as if it had been explainable / predictable in the first place

Examples include 'World War 1' and the 'September 11^{th'} terrorist attacks on the USA



OR (in contrast), a 'GREY SWAN' event is typically:

- Probable (to a greater or lesser degree)
- Predictable (to a greater or lesser degree)
- Capable of producing impacts which can easily cascade (for the good or bad [bad in the context used herein])and
- Despite the 'predictability and probability', human nature tends to have an associated explanation(s) for such an occurrence - with typical emphasis on 'error(s) of judgment' / some other human related form of causation (where appropriate)

Examples might include Donald Trump becoming US President in 2016 and the UK leaving the European Union in 2021

OR (in further contrast), a 'WHITE SWAN' event is typically:

- Certain
- Has an impact(s) (for the good or bad [bad in the context used herein]) which is capable of being estimated
- Despite the 'certainty', human nature again tends to have an associated explanation(s) (sometimes irrational) for such an occurrence etc. (where appropriate)

Examples include hurricanes (in season) in much of the Caribbean, West Coast Mexico, Gulf of Mexico and USA Eastern seaboard. Another is covered in an excellent (short) article (written in 'LGT' [Private Bank & Asset Management Group] on 20 May 2020 by 'guest' author Marc Lusterberger) - entitled:

The Corona (COVID-19) Pandemic: A White Swan - not a Black Swan?

You can read it by following the below link: (if link does not work try an appropriate internet search)

https://www.lgt.com/en/magnet/investment-strategies/the-corona-pandemic-a-white-swan-not-a-blackswan/#button1

This takes us on nicely to 'Case Study 7' itself i.e. the BC implications for *aviation* (particularly airlines, airports, GHAs, airframe & engine manufacturers, aircraft maintenance organisations, aviation training organisations, associated holiday companies / tour operators etc.) of the COVID-19 pandemic:





In brief, the 'knock-on effects' of the COVID-19 pandemic were typically catastrophic / near catastrophic for many (if not most [possibly the vast majority]) of said (aviation related) organisations / businesses / similar

Such 'effects' also impacted adversely (to one degree or another - severely in many cases) e.g. on whole countries (states) - including those relying to significant degrees on the business, employment and other opportunities brought to them via *aviation* related resources e.g. tourism and other types of impacted commerce such as import / export via air-cargo of perishable foods; flowers; other impacted 'goods' delivered by air etc.

To expand a little further (but still at an overview / generic level only) it was factual and / or otherwise realistically *anticipated at the time* (around the April to September period of 2020) that:

- Many <u>AIRLINES</u> (including some of the 'big names') were unlikely to make a 'viable' comeback postpandemic i.e. they would either cease trading altogether or need to trade in significantly different (e.g. smaller / operationally / commercially) ways than pre-pandemic (at least for some years).
 Some (a small selection) typical examples came under the following, actual 'headlines' at that time:
 - Easyjet plans to cut up to 4,500 staff
 - Virgin Atlantic to cut one third of staff in order to survive pandemic crisis
 - Air France / KLM boss starts discussions with unions re 'big' job cuts
 - Air Canada to lay-off 5,100 cabin crew
 - Air New Zealand to let go 3,500 staff (around 1/3 of its workers)
 - Norwegian Air temporarily lays off around 50% of its workforce (7,300 staff)
 - Scandinavian Airlines to temporarily lay off 10,000 employees (90% of staff)
 - Canadian operator Transat AT lets go 3,600 workers (70% of workforce)
 - British Airways puts 12,000 staff at risk of redundancy
 - Qatar Airways to cut more than 9,000 jobs
 - o 3,400 management and admin jobs to be cut at United Airlines
 - Lufthansa to cut 22,000 jobs as it struggles to deal with coronavirus pandemic
 - Emirates cuts 1,000 pilot and 7,000 cabin-crew jobs more cuts anticipated
 - TUI warns that up to 8,000 jobs would go as it strives to cut costs by 30%
- The knock-on from the above *airline* problems adversely impacted on many *AIRPORTS*:
 - Some of the most important airline customers (including British Airways, Norwegian and Virgin Atlantic) at the UK's 'second' airport (London Gatwick - LGW) anticipated that they might / would no longer use Gatwick going forward. Furthermore, the world's biggest tour operator (TUI) had been a major airline customer (pre-pandemic) at LGW
 - Europe's biggest airport, London Heathrow, reported a £352 million (\$USD 441 million) loss for the first quarter of 2020 (versus a profit of £102 million / \$128 million for the same period in 2019). It said it 'expected passenger numbers to be down by around 97% in April (due Covid-19) and that planned expansion, including a third runway, would be delayed by at least two years'



- Miami International Airport concession vendors collectively lay off 758 staff
- Over 1,200 workers were laid off from OTG (latter provides staff for restaurants & stores at New York's LaGuardia, JFK and Newark Airports)
- Workers have been laid off from Philadelphia, Orlando and Baltimore International Airports
- See below press article re Atlanta's 'Hartsfield-Jackson' International Airport:

ARTICLE

'Mostly empty' - Covid-19 has almost shut-down World's Busiest Airport

Hartsfield-Jackson international airport, Georgia's largest employer, has seen a huge loss of revenue and passengers

The Guardian:

Story by Khushbu Shah - Atlanta - 13 April 2020 (Last modified 1 July 2020)



Image Credit: Dawn Schnake / KCUR 89.3





A departure gate at an 'almost empty' Atlanta International Airport (mpi34/Media Punch /IPX/AP Images)

Atlanta to Greensboro, North Carolina: Atlanta to Houston-Bush, Texas: Atlanta to Los Angeles, California: Atlanta to Milwaukee, Wisconsin: CANCELLED CANCELLED CANCELLED CANCELLED

..... etc'

'<u>....</u>

(Above) A 'stylised' sample of the departure board at Atlanta's Hartsfield-Jackson international airport updates with cancellations due COVID-19 - whilst (below), nearly empty 'Plane Train' shuttles moved back and forth between seven largely empty terminals at that same airport





Though known as the world's busiest airport and the State of Georgia's largest employer, the COVID-19 pandemic and associated shutdowns have wiped out the passengers etc. at Atlanta's Hartsfield-Jackson airport - and with them a revenue stream propping up the southern capital's middle class

A city within a city, the giant airport's success kept tens of thousands employed across the metro area, but as the airline industry takes brutal hits amid travel bans from Europe to the United States, its troubles are a huge blow for this airport and its city

"Revenue is probably down, off the top of my head, 50 to 60%," the airport's general manager, John Selden said, on a city council transport committee conference call at the end of March 2020

"We usually have 2,600 flights a day here, fully loaded - in other words, almost all seats taken. Right now, we're down to 1,200 flights and they're mostly empty." The airport is 'down 85% in passengers' - he added

A staggering 63,000 people work at the airport when flights run at capacity

Among employees are thousands of airline workers, janitorial staff, restaurant staff and security - with a median salary of \$71,500 - well above the city's median income. Around 750,000 jobs are directly or indirectly tied to the airport across the USA's south-east

END of ARTICLE

• The 'interested' reader might also wish to take a look at the info found in the below link:

https://www.businessinsider.com/coronavirus-haunting-photos-of-empty-airports-and-planes-2020-4?r=US&IR=T

GROUND HANDLING OPERATORS

• The UK's four main ground handling companies have warned that their operations at UK airports could grind to a halt in weeks, as the sector faces collapse

Swissport, Dnata, Worldwide Flight Services & Menzies have written to the UK government to ask for financial support, as they face up to the impact of airline service cuts. They explain that currently more than 95% of flights are not operating, meaning that they (Swissport etc.) are not being paid

Meanwhile, John Menzies (parent of Menzies) has announced it will cut job numbers by 17,500 (more than half its workforce [at 200 airports] worldwide)



OTHER

Aircraft Engine and Airframe Manufacturers

- Boeing to cut more than 16,000 US jobs (with 4,000 more in the pipeline)
- Aircraft engine manufacturer Rolls-Royce to cut 9,000 jobs
- Bombardier to cut 2,500 aviation jobs as pandemic dents travel demand
- Thousands of job cuts might be made across Airbus's global operations (furloughing more than 6,000 workers and 'bleeding cash' as airlines cancel or delay orders for new planes)

For further related (historical) material see:

https://en.wikipedia.org/wiki/Impact of the COVID-19 pandemic on aviation

• Tourism (and thus the consequential knock-on effects e.g. for aviation) (This and next 8 pages)

The boxed info a little further below gives a 'feel' for how tourism (with 'knock-on' effects to aviation of course) worldwide had been similarly (adversely) impacted by the pandemic. For more (historical) details see:

https://en.wikipedia.org/wiki/Impact of the COVID-19 pandemic on tourism





IMPACT ASSESSMENT OF THE COVID-19 OUTBREAK ON INTERNATIONAL TOURISM

United Nations World Trade Organisation (UNWTO) - Updated December 2020

INTERNATIONAL TOURISM EXPECTED TO DECLINE 70% + IN 2020 (i.e. BACK TO 1990 LEVELS)

- The world is facing an *unprecedented* global health, social and economic emergency as a result of the COVID-19 pandemic
- Travel and tourism is among the *most affected sectors* with a massive fall of international demand amid global travel restrictions, including many borders fully closed, to contain the virus
- According to the latest issue of the UNWTO 'World Tourism Barometer', international tourist arrivals (overnight visitors) fell by 72% in January-October 2020 compared to the same period last year, curbed by slow virus containment, low traveller confidence and crippling travel restrictions
- The decline in the first ten months of the year represents 900 million fewer international tourist arrivals compared to the same period in 2019 - and translates into an approximate loss of US\$ 935 billion in export revenues from international tourism, more than 10 times the loss in 2009 under the impact of the global economic crisis
- Asia and the Pacific saw an 82% decrease in arrivals in January October 2020. The Middle East recorded a 73% decline whilst Africa saw a 69% drop. International arrivals in both Europe and the Americas declined by 68%
- Data on international tourism expenditure continues to reflect very weak demand for outbound travel. However, some large markets such as the USA, Germany and France have shown recently some hesitant signs of recovery
- While demand for international travel remains subdued, domestic tourism continues to grow in several large markets such as China and Russia, where domestic air travel demand has mostly returned to pre-COVID levels
- Based on current trends, UNWTO expects *international arrivals to decline by 70% to 75% for the whole of 2020*. This would mean that international tourism could have returned to levels of 30 years ago
- The estimated decline in internationals tourism in 2020 is equivalent to a loss of about 1 billion arrivals and US\$ 1.1 trillion in international tourism receipts. This plunge could result in an estimated economic loss of over US\$ 2 trillion in global GDP, more than 2% of the world's GDP in 2019
- Looking ahead, the announcement and the roll-out of a vaccine(s) are expected to gradually increase consumer confidence and contribute to ease travel restrictions
- UNWTO's extended scenarios for 2021 2024 point to a *rebound in international tourism by the* second half of 2021. Nonetheless, a return to 2019 levels in terms of international arrivals could take 2½ to 4 years



INTERNATIONAL TOURIST ARRIVALS BY REGION

January-October 2020





SOURCE: WORLD TOURISM ORGANIZATION (UNWTO), DECEMBER 2020



The UNWTO Confidence Index remains at record lows. Most UNWTO Panel Experts expect a *rebound in international tourism by the third quarter of 2021* BUT a *return to pre-pandemic 2019 levels not before 2023*

The UNWTO Panel of Experts considers travel restrictions as the main barrier weighing on the recovery of international tourism, along with slow virus containment and low consumer confidence. According to this Panel, domestic demand would recover faster than international demand

UNWTO PANEL OF EXPERTS OCTOBER EDITION

Return to 2019 levels expected by 2023

UNWTO conducted a global survey among its UNWTO Panel of Tourism Experts on the impact of COVID-19 on tourism and the expected time of recovery. *The survey was conducted during the first week of October 2020* and the results are shown just below:

WHEN DO YOU EXPECT A REBOUND IN INTERNATIONAL TOURISM IN YOUR COUNTRY?

A majority of experts see a rebound in international tourism in 2021, in particular by the third quarter 2021, while around 20% expects it to occur sometime in 2022

WHAT ARE THE MAIN FACTORS WEIGHING ON THE RECOVERY OF INTERNATIONAL TOURISM?

Experts consider travel restrictions as the main barrier weighing on the recovery of international tourism, along with slow / low virus containment and low consumer confidence

WHEN DO YOU EXPECT INTERNATIONAL TOURISM TO RETURN TO PRE-PANDEMIC 2019 LEVELS IN YOUR COUNTRY?

Most experts do not see a return to pre-pandemic 2019 levels before 2023

IS DOMESTIC TOURISM DRIVING THE RECOVERY IN YOUR DESTINATION?

Domestic tourism is driving the recovery of several destinations but in most cases only partially, as it is not compensating for the drop in international demand. Respondents from Asia and the Pacific were the most positive regarding this matter



TRAVEL RESTRICTIONS

According to UNWTO's Report on COVID - 19 Related Travel Restrictions, as of 1 September 2020, a total of 115 destinations (53% of all destinations worldwide) have eased travel restrictions, an increase of 28 since 19 July. Of these, two have lifted all restrictions, while the remaining 113 continue to have certain restrictive measures in place. 93 destinations (43% of all destinations worldwide) are keeping their borders completely closed for international tourism. This is a decrease of 22 destinations compared to 19 July 2020

FORWARD-LOOKING SCENARIOS - 2020

UNWTO published three scenarios in May 2020, indicating declines of 58 - 78% in international tourist arrivals in 2020, based on the gradual opening of national borders and lifting of travel restrictions on different dates. (The scenarios are not forecasts and should not be interpreted as such)

International travel almost came to a complete halt in late March 2020 after the shutdown of most international borders, with arrivals plunging 97% in April, 96% in May and 91% in June. Results then 'edged up' slightly to 80% in July and 77% in August after some destinations gradually reopened their borders during the Northern Hemisphere summer season, particularly in Europe

However, as COVID-19 cases surged again in some parts of the World, many destinations re-introduced or stiffened travel restrictions, including compulsory quarantines and other measures, resulting in an 80% drop in arrivals in September and 83% in October

By early December 2020 most of these restrictions had not been lifted, though some destinations had shifted from a policy of complete closure to targeted restrictions. Still, other large destinations and source markets, as well such as China, remained completely closed to international travel. The latest data indicate that the year 2020 will end within overall decline of 70% to 75% in international tourist arrivals, putting results between Scenarios 2 and 3





SCENARIOS FOR 2021 - 2024

In the outlook beyond 2020, international arrivals are expected to rebound in 2021, based on the assumption of a gradual reversal of the pandemic, the roll out of COVID-19 vaccines, significant improvement in traveller confidence and major lifting of travel restrictions by the middle of that year. The expected rebound is also a consequence of the large pent-up demand after months of closed borders and travel bans. The extended scenarios presented here are in terms of yearly totals, not growth.

The rebound is expected to continue in 2022 as travel conditions normalise and the pandemic is contained globally. However, international tourism could still take 2½ to 4 years to return to 2019 levels. The recovery times for each scenario are summarized below:

Scenario 1: recovery in 21/2 years (mid-2023)

Scenario 2: recovery in 3 years (end of 2023)

Scenario 3: recovery in 4 years (end of 2024)





KEY CONSIDERATIONS

Pandemic

How long the pandemic will last and when will a vaccine(s) become readily available?

- Lifting of travel restrictions and lockdown measures

When will countries start easing restrictions and how will social distancing rules impact supply?

Consumer & Business confidence

How long it will take consumers to reassume travel and how will travel behaviour change?

Economic impact

How deep and how long will the global recession be and what will be consumers' discretionary spending decisions?

Governments Measures

How will government measures support tourism?



STRENGTHS	WEAKNESSES	INTERNAL FACTORS				
 Proven resilience of tourism in past crises Domestic tourism can be a buffer Adaptation capacity: safety and hygiene protocols, trips closer to home, value for money, responsible consumer behaviour Government support to the sector 	 Segments potentially affected are also high spenders: international, long haul, business travel and events Major disruption in airline industry with airline failures and concentration Lack of references in previous downturns Perception of travel as a risk Low levels of demand when restarting tourism due to social distancing 					
OPPORTUNITIES	THREATS	EXTERNAL FACTORS				
 Re-think business model Innovation and digitalization Sustainability and sustainable- oriented segments (rural, nature, health) De-escalation phases initiated by several countries toward the 'new normal' Progress in adaptation plans in destinations & companies 	 Economic environment: world recession, rising unemployment and jobs at risk, closure of business mainly SMEs, disposable income, uncertainty weighing on consumer and business confidence Uncertain length of pandemic (including resurgence) and vaccine unavailability Extent of lockdowns and travel restrictions Unknown form of the "new normal" 					
POSITIVE	NEGATIVE					





Tightened Travel Restrictions Underline Current Challenges for Tourism

All Regions - 8 March 2021

One in three of the world's destinations are now closed to international tourism. According to the latest data from the World Tourism Organization (UNWTO), the emergence of new variants of the COVID-19 virus has prompted many governments to reverse efforts to ease restrictions on travel, with total closures to tourists most prevalent in Asia, the Pacific and Europe

The UNWTO 'Travel Restrictions Report' provides a comprehensive overview of the regulations in place in **217 destinations worldwide**. While previous editions had shown a movement towards easing or lifting restrictions on travel, the latest report shows that the **persistent seriousness of the epidemiological situation has caused governments to adopt a more cautious approach**

As of the beginning of February 2021, *32% of all destinations* worldwide (69 in total) were completely closed for international tourism. Of these, just over half have been *closed for at least 40 weeks*. A further *34% of all such destinations were partially closed* to international tourists

UNWTO Secretary-General Zurab Polilikashvili says: "Travel restrictions have been widely used to contain the spread of the COVID-19 pandemic. Now, as we work to restart tourism, we must recognise that restrictions are just one part of the solution. Their use must be based on the latest data / analysis and consistently reviewed to allow for the safe and responsible restart of an industry upon which many millions of businesses and jobs depend"

Regional Variations Clear

This edition of the UNWTO Travel Restrictions Report shows that *regional differences with regards to travel restrictions* remain. Of the 69 destinations where borders are completely closed to tourists, 30 are in Asia and the Pacific, 15 in Europe, 11 in Africa, 10 in the Americas and 3 are in the Middle East

At the same time, UNWTO research indicates a trend towards adopting a more *nuanced, evidence and risk-based approach* to implementing travel restrictions. For example, a growing numbers of destinations worldwide now require international tourists to present a negative *PCR / Antigen etc. test upon arrival* and also provide contact details for tracing purposes. Indeed, 32% of all worldwide destinations now use such tests as their main requirement for international arrivals - often combined with quarantine - whilst a similar percentage have made testing a secondary or tertiary measure

Top Tourism Markets Remain Cautious

As UNWTO leads the restart of tourism, the 'Travel Restrictions Report' also notes how different governments are issuing advice to their own citizens. Analysis of the *top ten tourism source markets currently advising against non-essential travel abroad* found they generated 44% of all international arrivals in 2018. UNWTO notes that advice issued by governments will play a crucial role in the restart and recovery of tourism in the weeks and months ahead



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	#	Country, Other It	Total Cases J.	New Cases 🍂	Total Deaths 🕼	New Deaths 1	Total Recovered J1	Active Cases 11	Serious, Critical 🕼	Tot Cases/ 1M pop 11	Deaths/ 1M pop 🕼	Total Tests	Tests/ 1M pop 🎵	Population 1					
Info as at 01 May 2021		World	153,505,795	+694,941	3,216,284	+10,025	131,512,283	18,777,228	111,800	19,693	412.6								
	1	<u>USA</u>	33,191,054	+36,745	591,069	+310	25,830,594	6,769,391	9,458	99,785	1,777	449,008,109	1,349,883	332,627,330					=
Top 20 countries (by estimated	2	India	19,919,715	+370,059	218,945	+3,422	16,281,738	3,419,032	8,944	14,317	157	290,142,339	208,534	1,391,345,879					
total number of COVID-19 cases)	з	Brazil	14,754,910	+28,935	407,775	+1,210	13,278,718	1,068,417	8,318	69,005	1,907	46,439,030	217,184	213,823,632					
shown only	4	France	5,652,247	+9,888	104,819	+113	4,637,053	910,375	5,585	86,433	1,603	76,694,164	1,172,791	65,394,549					
	5	Turkey	4,875,388	+25,980	40,844	+340	4,480,381	354,163	3,532	57,292	480	47,744,338	561,055	85,097,446	-				
This into has been shown (in this	6	Russia	4,823,255	+8,697	110,862	+342	4,443,922	268,471	2,300	33,039	759	129,800,000	889,121	145,986,929	-				
case study) for contextual	7	<u>UK</u>	4,420,201	+1,671	127,538	+14	4,229,006	63,657	185	64,827	1,870	156,302,824	2,292,349	68,184,563	-				
purposes only (i.e. it clearly	8	<u>Italy</u>	4,044,760	+9,146	121,177	+144	3,492,679	430,904	2,524	66,980	2,007	59,114,826	978,929	60,387,240					
demonstrates [very approximate	9	<u>Spain</u>	3,535,076	+6,548	78,268	+26	3,213,126	243,682	2,308	75,584	1,673	46,199,597	987,805	46,769,962	-				
as it might be that almost 14	10	Germany	3,425,598	+13,225	83,826	+124	3,024,600	317,172	5,049	40,777	998	55,490,413	660,534	84,008,377					
nontins after the COVID-19	11	Argentina	3,005,259	+11,394	64,252	+156	2,676,197	264,810	5,371	65,988	1,411	11,245,454	246,922	45,542,532	-				
the WHO $_{-}$ the situation was still	12	Colombia	2,893,655	+15,909	74,700	+485	2,700,594	118,361	6,006	56,367	1,455	14,944,628	291,113	51,336,116	-				
very far from heing over. The use	13	Poland	2,803,231	+4,610	68,068	+144	2,520,968	214,195	2,652	74,136	1,800	14,428,003	381,574	37,811,840					
of effective vaccines was at this	14	Iran	2,534,855	+18,698	72,484	+394	1,988,165	474,206	5,443	29,860	854	16,101,399	189,672	84,890,684					
same time only in its [relatively	15	Mexico	2,347,780	+3,025	217,168	+261	1,867,191	263,421	4,798	18,051	1,670	6,650,124	51,129	130,064,845	-				
speaking] infancy with MANY	16	Ukraine	2,083,180	+5,094	44,596	+160	1,676,265	362,319	177	47,875	1,025	9,477,843	217,816	43,513,052	:				
months+ to go before it was	17	Peru	1,810,998	+6,083	62,126	+337	1,688,091	60,781	2,654	54,294	1,863	11,269,734	337,870	33,355,236	-				
expected to make a real	18	Indonesia	1,677,274	+4,394	45,796	+144	1,530,718	100,760		6,078	166	14,703,659	53,286	275,940,759					
difference <i>globally</i>)	19	Czechia	1,634,113	+1,171	29,374	+30	1,565,311	39,428	497	152,356	2,739	18,422,238	1,717,590	10,725,632	-				
	20	South Africa	1,584,064	+1,222	54,417	+11	1,507,778	21,869	546	26,431	908	10,699,021	178,516	59,933,154	-				
																	10	-30	
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And for those wanting an 'indication' of the 'cost' to the travel industry of the COVID-19 pandemic, in terms of increasing debt, see the below for a small but representative sample:

Increase in debt from Q1 2020 to Q1 2021

Cruise and airline related companies in the S&P 500



29 April 2021 - Economy & Business - Kate Marino Data: S&P Global Market Intelligence; Chart: Will Chase/Axios

The Pandemic might be Temporary - but the Debt is Permanent

Boeing reported another quarter (January - March 2021) of negative cash flow Wednesday, to the tune of \$3.4 billion - its 6th consecutive, quarterly loss. The plane maker is one of many companies which borrowed from the capital markets heavily last year, even as the pandemic caused its revenue, and thus ability to pay interest, to shrink

Why it Matters: Piling on new debt helped businesses etc. to survive the immediate crisis, but borrowing their way through the turmoil now puts some at risk of becoming "zombie" companies i.e. can still operate but can't pay off their debts and / or invest in growth

The Big Picture: A slew of high yield companies took on billions more in debt during Covid-19 (to date), in some cases increasing their balances by more than half. Many of them (think cruise operators, airlines and the tourism industry in general) may not see earnings fully rebound any time soon



By the Numbers: Boeing sold \$25 billion in bonds last May - one of the largest non-M&A bond deals ever, boosting its total debt balance to \$64 billion from \$39 billion

 The bond deal helped it avoid running out of cash as it struggled delayed aircraft sales and its grounded 737 MAX jet, the Wall Street Journal reported. (Regulators began <u>lifting the grounding</u> in November 2020, and Boeing aspires to generate cash flow in 2022)

Delta, United Airlines and American Airlines all got financial lifelines as each burned through millions per day

- Air travel has started pick up alongside widespread vaccinations, and though all three airlines reported net losses in their last quarters, they all returned to positive cash generation in March 2021
- Trade group 'International Air Transport Association IATA' estimates that flight volumes won't return to pre-coronavirus levels until 2023 at the earliest

Carnival more than doubled its debt load, to \$33 billion from \$14 billion, as governments issued no-sail orders

- Norwegian's debt has increased by 36% to \$12 billion, while Royal Caribbean's grew by 20%, to \$20 billion
- Some countries have begun to loosen cruising restrictions and all three operators have announced plans for international cruises this year. However, the USA's *Center for Disease Control* (CDC) has not yet lifted the no-sail order for cruises in US ports and the companies all reported billions in net losses in their most recent quarters

Context: The USA's Federal Reserve's historic asset purchase programs underpinned investor willingness to buy the bonds despite the companies' minimal earnings

Yesterday, Fed Chairman Jerome Powell signalled that the central bank "isn't thinking about thinking about" tapering the bond buying program any time soon or raising interest rates from their rock bottom levels" wrote Axios' Dion Rabouin

The Bottom Line: Positive economic momentum will help pandemic-stricken companies return to normalised levels of profitability. But they still have to address the drastic increases in their debt loads spawned by unprecedented times, while keeping up with investments in their core businesses



SUMMARY

So, (re the COVID-19 pandemic and its impacts upon the *aviation* [and travel; tourism etc.] related industry word-wide) which of the 'Swans' might best fit the actual circumstances?

Pedantically speaking, COVID-19 was a White Swan event

Practically, however, (and nicely demonstrating the 'inadequacy' of such definitions and concepts [so why have them at all one might wonder?]) the COVID-19 pandemic exhibited certain elements of all 3 'Swans'

FOOTNOTE

From: 'Continuity Central.com' (below message released in March 2020)

'BCI Publishes its Annual Horizon Scan Report'

'..... BCI (Business Continuity Institute) has released the 2020 version of its Horizon Scan Report

Sponsored by BSI (British Standards Institution - the national standards body of the United Kingdom), the report reflects the concerns of business continuity and resilience professionals when looking ahead to anticipated threats

Note (written in June 2021) from author of this CRPM Part 4 / Vol 1 - i.e. the document you are reading right now:

'...... Interestingly, whilst COVID-19 is front-of-mind for business continuity managers around the world right now (at time of writing), when the above Horizon Scan SURVEY itself was actually conducted (probably sometime in the second half or 2019?) the threat category 'Non-occupational disease' (of which 'pandemic' [including COVID-19 when it eventually 'appeared'] was / became a major consideration) was <u>only</u> ranked as SECOND from LAST in the list of prioritised 'Future Threats' (see page 20 of that report for details)

If the survey had been conducted some months later, this result would have been very different !!!'

The interested reader might also find the article (at the end of the below link) useful:

https://www.continuitycentral.com/index.php/news/business-continuity-news/5346-was-covid-19-a-black-swan-andwhy-this-is-an-important-question



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Some Other Actual / Real Case Studies and 'Situations' (Pages 102 to 134)

Note: Before starting, the interested reader might wish to take a look at the information found at the end of the link found further below ,'

Said information *indicates* that the vast majority of the world's airlines did not have viable (if any) 'pandemic' (public health major crisis) contingency response plans in place as at 11 March 2020 - when the COVID-19 public health crisis was declared a pandemic by the World Health Organisation



Image: IATA

Early identification of pandemic risk and mitigating actions in the airline industry | S&P Global (spglobal.com)



Singapore Airlines: Is there a faint glimmer of light for the airline?

11 SEPTEMBER 2020 - By ROYSTON YANG for THE SMART INVESTOF



This above image has been released into the public domain by its author, 'arpingstone' - at English Wikipedia

SIA has announced that it will further rationalise staff numbers as it continues to cope with the unprecedented (COVID-19 pandemic) global, aviation crisis. The airline's capacity is expected to remain below 50% until the end of the fiscal year 2020 / 2021, with some industry groups forecasting that air travel (in general) might only fully recover by 2024

SIA also has a problem in that it does not operate a domestic network (unlike e.g. in some, larger countries - where associated airlines might have been able to restart some of their [domestic] routes to avoid the idling of associated elements of their fleets)

Measures such as early retirement for pilots and ground staff (plus a voluntary release scheme for cabin crew implemented in March 2020) had already eliminated around 1,900 positions. After accounting for this, the potential job cuts may be reduced to around 2,400 in Singapore itself and across SIA's overseas stations. With no respite yet seen in the battle against Covid-19, SIA has had to make this painful decision to enable it to operate with the required, leaner cost structure

Generally speaking, the Covid-19 pandemic had brought the airline (and aviation in general) industry / industries 'to its / their knees' e.g. due the adverse impacts arising from border closures, public 'lockdowns', flight bans etc. The stark exception was the air cargo industry



SIA group (SIA, Silk Air and Scoot) had announced in July 2020 that it would operate just 7 per cent of its scheduled capacity for August of that year, up marginally from a previous 6 per cent. As countries (hopefully???) slowly opened up to commercial, passenger air traffic, SIA hoped to be able to add more routes gradually, though it had been an arduous task managing the fallout from the pandemic up to that point

Case in point, the carrier had cancelled 96 per cent of all scheduled flights between late March to end of May 2020 due worldwide restrictions on air travel and the associated plunge in demand. Accordingly, the airline moved to shore up its balance sheet in late March by conducting a massive 3-for-2 rights issue at \$3.00 per share

Subsequently, *the group reported a first-ever full-year net loss* for the fiscal year (FY) 2019 - 2020 of \$212 million on a revenue base of \$16 billion (compared to a net profit of \$683 the previous FY). Part of the loss was attributed to \$710 million of mark-to-market losses on fuel hedges. With such downbeat news swirling around the airline, could there be any light at the end of this dark tunnel?

Incurred during the last quarter to March 2020 (and more particularly during February and March 2020) largely due to the associated, adverse impacts (on all aspects of aviation) of the COVID-19 pandemic

Massive First-half Loss (2020-2021 FY)

On 6 November 2020 SIA Group released its results for the first half (April to September 2020) of the 2020-2021 fiscal year. It wasn't a 'pretty picture' to say the least. Group revenue plunged \$6,691 million (- 80.4%) year on year to \$1,634 million as passenger carriage dived by 98.9 %. As a result, the airline booked an operating loss of \$1,863 million a net loss of \$3,467 million

In its outlook statement, SIA mentioned that the recovery in international air travel was slower than initially expected. Industry forecasts have estimated that it may take up to two to four years for passenger traffic numbers to return to pre-pandemic levels

Drastic Measures

The continued challenging scenario for the industry had spurred the airline to take drastic action. In late July 2020 SIA announced bigger pay cuts for management, a 10per cent salary reduction for other staff as well as early retirement for ground staff and pilots. Previous cuts had been in the range of 10 - 25% but were now increased to a range of 12 - 30% for all staff ranked manager and above

At that same time, SIA was also reviewing the size and shape of its network by observing the impact of Covid-19 on passenger traffic and revenues. This review was scheduled to be completed by end-September 2020 and could possibly result in significant changes to existing routes and flight paths

Managing the Balance Sheet

SIA is now facing its worst crisis since its founding and must manage its balance sheet prudently to ensure it can survive. As of 30 June 2020 cash and bank balances increased to \$9.6 billion - whilst total debt amounted to \$12 billion. Since the previous April SIA had raised approximately \$11 billion to boost the strength of its balance sheet. Of this \$11 billion, \$8.8 billion was from a recently-concluded rights issue, while the remaining \$2.2 billion was from secured financing and new loans. The debt-equity ratio for the group had also improved from 1.27 times to 0.68 times



All existing, committed lines of credit that had been due to mature in the previous fiscal year had been renewed until 2021 or later. These lines provided SIA with access to more than \$2.1 billion in additional liquidity. Furthermore, for the period up till July 2021, the group had the option to raise up to \$6.2 billion in additional mandatory convertible bonds should conditions deteriorate further

The Group had already announced a reduction of around 4,300 positions across the 3 airlines. Steps had been taken to reduce the numbers of staff that might be impacted by involuntary redundancy - including salary cuts, a recruitment freeze, open vacancies which would not be filled, an early retirement scheme and a voluntary staff release scheme. These measures reduced the numbers of staff impacted by the 'manpower rationalisation' exercise to about 2,000. The Group incurred a cost of \$ 42 million in so doing

Get Smart: Recovery not in sight for now

A new report by Moody's has warned of a slow and painful recovery for the airline industry. It predicts that commercial aviation will be ravaged by the pandemic for years to come, with a best-case scenario for recovery by end-2023 at the earliest. Even if the recovery comes sooner than that, the industry could be irreversibly changed by this crisis

New practices involving cleaning, sanitation, checking and testing of passengers may be instituted, raising the overall cost structure for airlines. As of now, it's also unclear if social distancing needs to be extended should the pandemic drag on, thereby decreasing the passenger capacity on all flights

With so many uncertainties, it seems highly unlikely that SIA can witness a recovery in its fortunes anytime soon. The group can survive through the crisis as it can tap on ample liquidity. But whether the airline can thrive in the years ahead remains an open question

This article was first published in 'The Smart Investor'. Disclaimer: Royston Yang does not own shares in any of the companies mentioned

PS: Updating note from author / owner of the guideline document you are reading right now:

- In the FY ending 30 March 2021 SIA Group's passenger traffic had fallen by 97.9%
- The Group reported an *operating* loss of \$ 2,513 million a deterioration of \$ 2,572 million compared to the previous FY
- The Group reported a *net* loss of \$ 4,271 million a deterioration of \$ 4,059 million compared to the previous FY
- The Group reported that '.....robust health and safety measures have been and continues to be a key focus area for the SIA Group, to safeguard the well-being of our customers and staff. Over 100 touch points have been reviewed throughout the customer journey with enhancements made, supported by digital technologies

These efforts were recognised with both SIA and Scoot being awarded the Diamond certification in the Airline Passenger Experience Association (APEX) Health Safety powered by 'Simpliflying' audit of global airlines. The Diamond rating is the highest level attainable, indicating that an airline has put in place hospital-grade health safety measures, processes and training, along with an end-to-end focus on wellness

SIA is also the world's first airline to pilot the International Air Transport Association's (IATA) Travel Pass mobile application for digital health verification, further enhancing convenience along the customer journey. SIA plans to integrate the entire digital health verification process into the SingaporeAir mobile app from around mid-2021, using IATA's Travel Pass framework

The SIA Group was among the first in the industry to vaccinate its front-liners, including cabin crew and pilots, providing added safety and reassurance for both our customers and staff members. Around 98% of SIA Group pilots and cabin crew have signed up for the vaccine, of which 96% have been fully vaccinated with both doses. On 11 February 2021, Singapore Airlines, SilkAir and Scoot became among the first carriers in the world to operate flights with a full complement of vaccinated pilots and cabin crew



ANZ's Road to Ruin & Recovery

'Devastating impact' of Covid-19 Outlined to Shareholders

'STUFF' (stuff.co.nz) - John Anthony - 29 September 2020



Date: 25 Oct 2014 / Source: ANZ Airbus A320 . Author: XPinger (Chris Sutton) . Licensing: Creative Commons Attribution Share Alike 2.0 Generic

A "gut-wrenching" decision to reduce Air New Zealand's workforce by more than 4000 staff was vital for the airline's survival through the coronavirus pandemic - Chairman Dame Therese Walsh says. In a virtual annual shareholders meeting on Tuesday, Walsh and chief executive Greg Foran outlined the challenges and disruptions caused by Covid-19, along with a plan to make the airline even more profitable than it was before the crisis

Due to the pandemic's impact, the national carrier quickly moved to reduce in size by a third and implemented sweeping cost-cutting measures, including mass redundancies. Walsh said letting staff go was a "gut-wrenching decision". "It's no secret that our people are a key competitive advantage and are second to none when it comes to taking care of our customers" Walsh said

"Sadly, these decisions were vital to the airline's survival"

In August 2020 Air New Zealand reported a loss of \$454 million for the year to June 30, its first since 2002.

Given uncertainty around travel restrictions and future demand it was not able to provide specific 2021 earnings guidance. However, current modelling suggested it would make a loss in 2021. This was the first time Air New Zealand had not paid a dividend to shareholders since 2005



"It was extremely disappointing for everyone here to announce our first loss in 18 years - particularly given we know that our team has been working harder than ever to deliver for our customers and for our airline" stated Walsh

She continued by saying that from late March through to the end of April, with all non-essential travel prohibited in New Zealand, demand reduced to almost zero, resulting in Air New Zealand operating less than 5 per cent of its total network. "Never in our 80-year history have we had to reduce network capacity to this extent"

Greg Foran said the airline went from operating nearly 600 international flights per week to effectively none - for a period of several months. Changes brought by Covid-19 tested every aspect of the airline's customer service, he said. "Although this situation was entirely unforeseen, and even our most pessimistic *black swan* event planning could not have predicted this, at times we did not just stumble - we fell. For that I sincerely apologise"

After cancelling four million seats in the space of a few weeks the airline had to develop a credit solution for customers, but Foran acknowledged this was not done fast enough. At one point its call centres were fielding 56,000 calls a day

In July 2020 a 'partial online solution' allowed 70 per cent of affected customers to access / redeem credit online. "However, we do recognise that there is still some work to be done to enable us to provide a fully self-serviced digital solution for customers with more complex bookings or those who booked via a travel agent"

Foran said the crisis had lasted for longer and been deeper than airline management first thought. Initially, it was hoped that Air New Zealand would be back to 70% (of what it was pre-Covid-19) by April 2021 - but he now thought that it would take quite a bit longer to recover to those levels

In March 2020 Air New Zealand negotiated a \$900m Covid-19 support loan from the NZ Government at interest rates of 7 - 9%. Walsh said (since announcing financial results in August 2020) that it had drawn down \$110m of the loan up to that point. How much of the loan would be drawn down in total would depend on variables, such as when the New Zealand border opened to overseas visitors

Asked about the high interest rates, she said that at the beginning of the crisis conventional credit markets were becoming more difficult to access. "We were seeing the situation internationally deteriorate at a very quick rate. It was critical with that level of uncertainty that we could obtain the level of funding we needed to ensure that we could have stable ongoing operations for the benefit of all New Zealanders - and that we had the liquidity we required in the short to medium term." Total available liquidity as at 25 September 2020 was about \$1 billion, comprising \$215m 'cash in hand' and \$790m remaining on the Crown standby loan facility

On Friday (25 Sep 2020), in an announcement to the stock exchange, Walsh said Air New Zealand expected to complete a cash raise before June 2021, following a strategic capital structure review expected to be finished by early 2021

Foran said that "when the airline emerged from the pandemic it would be focused on its network and products that would deliver the highest value to customers and shareholders"

'Painful' decisions the airline had made were done so with a view of making Air New Zealand even more profitable in the future, he said



Management had been working on a strategy refresh called "kia mau" or "get ready" in English. The strategy centred around five points:

- Prioritising people building a culture of care from the inside out
- Experiencing excellence shaping its network and products around its most loyal customers
- Lifting loyalty strengthening loyalty to create a second growth engine
- Doing it digital developing innovative digital products for customers
- Ambitious action leading and advocating for action on decarbonisation by developing a roadmap specific to the airline's network and operations, aimed at achieving net zero emissions by 2050

In conducting the review it was found that two things customers valued most related to digital and loyalty propositions. "Digital technology and tools will be at the centre of our future customer innovations and operational performance enhancements." For loyalty, it would grow opportunities to earn and use Airpoints Dollars, while creating new products and services - Foran said

The airline was undertaking testing with thousands of customers across the country to make sure its refreshed loyalty proposition exceeded expectations

Asked by shareholders about 'flights to nowhere' e.g. sightseeing flights to Antarctica as alternative revenue streams, Walsh said it had no such plans. Its domestic network was performing well and 'flights to nowhere' did not fit with the airline's sustainability goals - she said

Note from author / owner of this 'Major PH Incident Plan' guideline document (i.e. the document being read now):

The 'Air New Zealand' article above is particularly included herein because:

- It (Air New Zealand) suffered broadly (and relatively) the same types of commercially adverse impacts (due the COVID-19 pandemic) as many (most) other airlines from many different countries - including the UK
- Unlike the greater majority of those 'many different countries' New Zealand effectively 'locked itself off' from the rest of the world (particularly from the viewpoint of international travel) for most of the time period in which the pandemic was ravaging the world
- The amazing achievement was that by June 2021 New Zealand had suffered 'only' 26 deaths (from a population of almost 5.2 million) from COVID-19 and, for the vast majority of that period(March 2020 to June 2021), life in New Zealand itself had been relatively 'normal' business
- If we contrast the latter to another 'island' country (the UK) which could also have closed its borders like New Zealand (but effectively didn't [in the same period up to June 2021] and consequently experienced extensive periods when the country was under strict COVID-19 lockdown regimes with industry / commerce etc. effectively frozen) there were almost 128,000 deaths for a population of just over 67 million
- Comparing 'like with like' New Zealand would have had around 335 deaths due COVID-19 compared to 128,000 for UK. This is a devastating indictment as to how the UK as a whole (from 'government' to 'citizen') 'got it wrong' and an amazing achievement (relatively speaking as 26 deaths are still tragic) for New Zealand with particular praise for its Prime Minister at the time, Jacinda Ardern, who never faltered from protecting 'her' people

And to reiterate the point of the above 'note' (and again relatively speaking) the resulting, co-lateral damage to Air New Zealand's international operations had been similarly experienced (in its own way) by British Airways. Yet the differences in COVID-19 responses and consequences were stark - particularly with respect to the number of UK deaths i.e. could / should the UK have done things differently? There is an obvious answer
The Emirates Group:

H1 2020 Losses - but 'Well-Armoured' for Future

Frost & Sullivan / By Orkan Altintas - 19 Nov 2020



Image Author: Cory B / No Changes from Original / Image licensed under the Creative Commons Attribution 2.0 Generic licence

The Emirates Group is positioning itself to play a vital role in the global pandemic recovery, having established the world's first and largest dedicated air cargo hub for *COVID-19* vaccines at Dubai World Central

The *Group* had announced losses for only the second time in its 35 year history with H1 (first six months of financial year 2020 - 2021 [i.e. 1 April to 30 September 2020]) revenues plunging to US\$ 3.7 billion, down 74% versus the previous H1 for 2019 - 2020

As the biggest part of the group, Emirates *Airline* (EK) saw a 75% revenue decline, at US\$ 3.2 billion. From an operational perspective, Emirates carried only 1.5 million passengers in H1 2020 - *a figure it would have achieved in just over nine days* of normal operations pre-COVID. And another arm of the group, *Dnata* had not fared much better - with revenues down by 67% to US\$ 644 million

With other airlines worldwide also announcing significant losses as a result of the devastating impact COVID-19 on the global airline industry, the Emirates Group was by no means alone in this matter. Competitors such as Air France-KLM Group and Lufthansa Group had seen revenues plummet by 73% and 76% respectively within that same period







Chinese airlines had only fared a little better, with two of its three largest carriers, namely Air China and China Eastern, seeing declines of 56% and 57% respectively, attributed to an earlier recovery phase in China

We saw *domestic* services (in general) restarting in April and May 2020, showing a steady recovery in traffic levels due to not only aggressive pricing by airlines to attract customers - but also a strong demand for domestic travel. However, this did not apply to EK as its business model is based on "Dubai as a destination of global connectivity" - via its UAE hub

A rare area of improvement for some airlines had been in cargo revenues, as a direct result of an *increase in demand for air freight during the pandemic period*. Dramatic reductions and often complete cessation of passenger services had increased cargo capacity demand due to the loss of belly (cargo) capacity on passenger aircraft. This increase covered not only pure freighter aircraft but, in an industry first, conversion of a large number of passenger aircraft globally - to serve as temporary freighters - by removal of passenger cabin seats

EK itself had seen an increase of 106% in cargo *yields*, despite suffering a decline in its absolute cargo tonnage by 35%. However, while vaccine centric supply chain logistics helped to support this increased demand for cargo capacity, the revenue significance was expected to reduce as passenger aircraft with suitable belly capacities (for cargo) eventually returned to the skies

Despite the bleak financial results, the Emirates Group had been proactive in trying to safeguard its future. The group's efforts covered a range of areas from *cost base reduction* / to operational planning / to meeting existing demand - while also positioning for a post-pandemic recovery





Employee reduction of 24% to \$1,334 at group level

Conversion of B777 and A380 aircraft as temporary freighters to support its existing 11 strong dedicated B777 freighter fleet Launching the world's first and largest dedicated air cargo hub for Covid-19 vaccines at Dubai VVorid Central

While a return of traffic to pre-COVID levels was not expected before at least 2023, several areas of concern remained for airlines globally - including EK:

- Varying levels of travel restrictions, (frequently) changing by country
- Restrictions on passenger load factors applied by relevant authorities
- Speed of traffic recovery with an emphasis on higher-yielding business travel
- Dependence on regional and global traffic flows
- Revenue Yield performance
- Optimised network and fleet to meet any new / changed market conditions

Despite the turbulent times brought on by the pandemic, resulting in many airlines globally either suspending operations or ceasing altogether, the Emirates Group appeared to be 'well armoured' (see list below), to weather the (then) current crisis:

- Remaining strong cash reserves of US\$ 5.6 billion, despite a reduction of US\$1.4 billion in H1 2020
- A supportive ownership structure with US\$ 2 billion secured as equity investment during H1 2020
- Steady recovery of operations with the airline already operating (at time of writing this article) to 104 countries, albeit at lower frequency, aircraft sizes and loads
- A leaner organisation with a reduced cost base

Furthermore, the group was positioning itself to play a vital role in the global pandemic recovery, having established (as already mentioned at the start of this article) the world's first and largest dedicated air cargo hub for COVID-19 vaccines at Dubai World Central Airport.

With two-thirds of the world's population being within an 8 hour flight time from Dubai and the airline's freighter fleet of B777 aircraft capable of carrying more than 100 tons of cargo over 10 hours of flight time, the group aimed to be a critical link in the global pandemic recovery efforts



With the announcement of the availability of COVID-19 vaccines by Pfizer-BioNTech and Moderna in late 2020 and other potential vaccines in development, there was * hope that the first signs of recovery might be felt in 2021. This led to airline stocks rallying by 12% in expectation of stronger future bookings following the announcement

* Note from author / owner of this guideline document (which you are reading right now):

This hope was dashed by a worldwide COVID-19 surge in the first half of 2021. See info provided on pages 13 and 14 for more details

In the meantime, the COVID-19 situation led to calls to explore more agile itinerary management for the Aviation and Tourism industries - e.g. could this push such industries towards an 'Amazon model' of high adaptability, accommodating the changing choices and needs of customers and hosts. And the answer, at the time, was 'why not'?

UPDATE - 15 June 2021 - by Mateusz Maszczynski

The Emirates Group has reported a \$6 billion pandemic loss for the 2020 / 2021 financial year on Tuesday. The vast majority of the group's losses came from the airline which haemorrhaged \$5.5 billion over the last year

Emirates' chairman and chief executive Sheikh Ahmed bin Saeed Al Maktoum revealed on Tuesday that the Dubai government had injected a total of \$3.1 billion into the company and that financial support would carry on coming as the pandemic continues to take a "tremendous toll" on the aviation and travel industry

Despite Dubai's decision to aggressively reopen last July, Emirates was hit hard by the UAE's initial lockdown order and 8 weeks of near-total grounding at the start of the pandemic. Passenger numbers for the year plummeted by over 88 per cent to just 6.5 million and load factor dropped to around 44%

The airline has since recovered its route network to 120 destinations but Sheikh Al Maktoum admitted that recovery would be "patchy". In recent weeks, the airline has been forced to axe the majority of flights to and from India - traditionally its strongest market - plus a slew of other travel restrictions have weighed down Emirates' recovery ambitions

The pandemic drove the group to its first loss in over 30 years and also resulted in redundancies across every part of the business for the first time in the company's history. *Nearly a third of the Emirates Group workforce was made redundant driving the worldwide employee count down to just 75,145*

Emirates aircraft fleet currently stands at 259 at the end of March after five Airbus A380's and nine Boeing 777-300's were retired. The airline's order book of 200 new aircraft has not been altered "at this time" although there is still the possibility that Emirates could adjust its fleet requirements in the years ahead



United Airlines CFO says Financial Impact of COVID-19 was 'as bad as it gets'

The company says it will be well-prepared next time something catastrophic happens



Gary Guthrie Reporter - 22 Jan 2021

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When the man who counts the money says things are bad, you better listen. United Airlines CFO Gerry Laderman says the financial whammy that COVID-19 put on the company was worse than the worst-case-possible scenario that the company had imagined

"We weren't even close," Laderman commented during United Airlines' earnings call on Thursday. "Before COVID, we modelled our worst-case scenarios based on the financial impact of 9/11, followed by a recession," Laderman said

The red ink Laderman said the company recorded over the course of 2020 was a loss of \$9.9 billion. No more "return to normal"

United Airlines CEO, Scott J. Kirby, said that the company was luckier than other carriers because it was "the first airline to recognize the potential severity of COVID-19." That gave it a leg up on the competition in being able to manage cash flow further out. Had executives not cut fourth-quarter operating expenses by 42 percent year-over-year, who knows how much further the bottom line would have fallen?

"As we recover from this crisis, we've stopped using the term 'return to normal' because it creates an environment where it's just too easy to go back to doing what we were doing before," Kirby said



"Instead, we want to focus on a return-to-new approach that applies to a wide variety of goals. When this is over, our employees, customers, the general public and shareholders will see a new United Airlines"

If something the size of a pandemic happens again, Laderman says the airline should be ready. "Going forward, we will focus on being ready for sustained destruction of global air travel demand like we are seeing today," he said

As company brass watched the company's 2020 losses mount, "managing liquidity and cash flow became far more important than any other financial metric," Laderman said, adding that the recovery process could take years. He added that liquidity and debt reduction will be tantamount to success

Years (query) - Yes. When the pandemic was still in its infancy, the International Air Transport Association (IATA) took a long look at the global airline industry's post-pandemic life and estimated that things might not return to normal until 2023. United anticipates being ready if something this catastrophic ever happens again

"If anything, we have the confidence that by 2023 at the latest, though possibly earlier depending on the pace of demand recovery, our gross earnings margins will exceed 2019 levels. But I'd just say that nobody, including us, has a perfect crystal ball on how soon this really will be over," Kirby said



Qantas swings to massive interim loss amid Covid-19 crisis

Flight Global - By Greg Waldron - 25 February 2021

Qantas swung to an underlying loss before tax of A\$ 1.03 billion for the six months ended 31 December 2020, as the carrier continued to suffer from the collapse in air traffic amid the coronavirus pandemic. This compares with an underlying profit before tax of A\$ 771 million recorded in the previous corresponding period, according to the airline's interim results for its 2021 financial year



Qantas, VH-ZNI, Boeing 787-9 Dreamliner / 12 Jan 2020 / Author Anna Zvereva, Tallinn, Estonia

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"These figures are stark, but they won't come as a surprise," says chief executive Alan Joyce

"Just consider the trading conditions we had to deal with in the first half. Border closures meant we lost virtually 100% of our international flying and 70% of our domestic flying. Three quarters of our revenue - around A \$7 billion, went with it"

Revenue for the period plunged 75.4% to A\$ 2.3 billion, compared with A\$ 9.5 billion a year earlier. Cash and cash equivalents as of 31 December 2020 stood at A\$ 2.6 billion. This was down from A\$ 3.5 billion as of 30 June 2020, but higher than A\$ 1.67 billion at the end of 2019



TOUGH TIMES AT DOMESTIC and INTERNATIONAL UNITS

As for individual units, Qantas Domestic generated revenue of A\$ 1 billion, a third of its revenue for the first half of the previous financial year. Domestic ASKs declined by two thirds, and passenger load factor fell 21.8 percentage points to 58.1%

Qantas International fared even worse, with interim revenue plunging to A\$ 722 million from A\$ 3.8 billion a year earlier. International ASKs collapsed and passenger load factors declined 60.7 percentage points to 25.8%

"The international passenger business was largely grounded, except for a limited one-way travel bubble with New Zealand and Australian government sponsored chartered flights, bringing home thousands of Australians who were stranded overseas," says Qantas

Low-cost unit Jetstar saw first half revenues decline 81.9% to A\$ 384 million. ASKs fell nearly 90%, while the passenger load factor declined 16.4 percentage points to 70.5%

Jetstar's international operations, as well as its New Zealand and Singapore units, were largely grounded during the last six months of 2020. Singapore-based Jetstar Asia is cutting its fleet to 13 from 18 aircraft by returning leased jets and transferring aircraft to Australia. This has seen staff cuts of 25%

"The previously announced exit of Jetstar Pacific is well advanced, with commercial functions transitioned and rebranding to Pacific Airlines and reservation system cutover completed," adds Qantas. "Qantas Group shares in Pacific Airlines will transition to Vietnam Airlines, awaiting regulatory approval"

FREIGHT IMPROVEMENT

Perhaps the only bright spot in Qantas' results was net freight revenue, which rose 23.6% to A\$ 613 million

As for its fleet, the mainline carrier had 221 aircraft as of 31 December 2020, the same number as at 30 June 2020. The number reflects the retirement of four Boeing 747-400s and the induction of four Airbus A320s

The airline's main deck freighter fleet rose by one aircraft to seven, with the addition of a single A321P2F

Jetstar Group had 83 aircraft at the end of year, compared with 87 at 30 June

Joyce also recognised the importance of government programmes to support jobs, reduce aviation charges, and keep regional and freight routes open. "At the same time as managing the daily realities of this pandemic, we've also redesigned our business," he adds. "These changes mean the Qantas Group of 2021 will be able to repair itself much faster than a pre-Covid Qantas Group could."



IAG crashes to €7.4bn annual loss as Covid pandemic takes toll



Frank Prenesti - 26 Feb 2021

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British Airways owner IAG swung to a massive €7.4bn annual operating loss and pulled guidance for 2021, reflecting the impact of the Covid-19 crisis. The loss compares with a profit of €2.61m the previous year. The company has called for digital health passes to help kick-start the crippled sector, as it said current passenger capacity for the first quarter of 2021 was estimated as a fifth of 2019 capacity, but even then remained "uncertain and subject to review"

Operating losses before 'exceptionals' came in at €4.37bn for the year to 31 December 2020 - as the group said it continued to target cost savings to stop cash burn. IAG, which also owns Iberia and Aer Lingus, reported a pre-tax charge of just over €3bn on fuel and foreign exchange hedge accounting being discontinued, write-downs on the value of its fleet and restructuring costs

To mitigate the impact of the collapse in air travel due to the pandemic, British Airways has *axed around 13,000 staff* and scrapped its fleet of Boeing 747 Jumbos. On Monday BA announced an extra £2.45bn of liquidity had been secured through loans and pension contribution deferrals. IAG now has total liquidity of €10.3bn

IAG called for a global approach to revive the battered industry, with common Covid-19 testing standards in a week when the UK government outlined plans that could see a reopening of markets, sparking a surge in holiday bookings for later in 2021. "Getting people travelling again will require a clear roadmap for unwinding current restrictions when the time is right," IAG's CEO Luis Gallego said. "We're calling for international, common testing standards and the introduction of digital health passes to reopen our skies safely"

CMC Markets analyst Michael Hewson said IAG's biggest problem was "no pickup in passenger numbers on an economic re-opening. Whilst it will be able to benefit from the return of domestic passengers such as its smaller peers EasyJet and Ryanair, its main problem will be getting the same levels of long-haul business travel that it had prior to the pandemic. This is where most big carriers make their money, and it is here that 'normal service' may well take longer to return to the same levels as in 2019"



British Airways * Ground Staff to Continue 'Work-from-Home' post Covid Pandemic

* Including flight and cabin-crew undertaking 'management' duties on the ground

Published: 18 March 2021 - BBC (UK)

"Working from Home" / by Victoria Heath / CC BY Licence

British Airways will permit ground staff to split their working lives between head office and home - in another example of big firms offering flexible employment. The airline is also exploring the sale of its huge *Waterside* HQ near Heathrow Airport, where 2,000 people worked before the coronavirus lockdown. "It's not clear if such a large office will play a part in our future," BA said in a message to staff. The firm is in a race to cut costs after the COVID-19 pandemic led travel (in general - including airlines) to collapse

BA, part of the IAG airline group that also owns Iberia and Aer Lingus, has shed more than 10,000 jobs and is raising billions of pounds of extra cash from shareholders to shore up its finances. Stuart Kennedy, the airline's director of people, said in a recent message to staff that one of the very few positives to come out of the pandemic was how well staff had coped with working from home

"We'll want to consider what the ideal office layout for the future will be. Perhaps it's less fixed desks and more casual meeting areas, and we need to consider colleague wellbeing, too," he said. However, he emphasised that plans to sell Waterside were still at a very early stage. It is thought the airline has only recently hired property consultants to evaluate options. In a separate statement to the BBC, BA said on Thursday: "The global pandemic has shown us that many of our colleagues enjoy working remotely and want to continue to do so if possible. This has accelerated our approach to offering more agile and flexible ways of working. Our aim is to find a hybrid working model that suits our business, blending the best of office and remote working for our people. We've also re-structured our business to emerge from the crisis and are considering whether we still have the need for such a large headquarters building"

'It's cheaper'

The move to hybrid working after the pandemic is growing. The Nationwide building society has indicated that it does not intend to force people to return to the office if they have been successfully able to work from home during the pandemic. Oil giant BP has told office-based staff they can spend two days a week working from home after lockdown restrictions ease. And banks HSBC and Lloyds are among many other companies looking into split working arrangements. Earlier this month the boss of IWG, which provides office space across the world, told the BBC he expected hybrid working "to become the norm" for many companies. Mark Dixon said: "It works for companies, because it's a lot cheaper. It's also much, much better for the environment"



COVID-19 impact: Cathay Pacific to Slash 5,900 jobs & End 'Cathay Dragon' brand

Cathay, which has stored around 40% of its fleet outside Hong Kong, said on Monday it planned to operate less than 50% of its pre-pandemic capacity in 2021



Reuters - 21 October 2020

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Hong Kong's Cathay Pacific Airways Ltd said (21 Oct) it would slash 5,900 jobs and end its regional Cathay Dragon brand, joining peers in cutting costs as it grapples with a plunge in demand due to the coronavirus pandemic. The airline would also seek changes in conditions in its contracts with cabin crew and pilots as part of a restructuring that would cost HK\$2.2 billion (\$283.9 million), it told the stock exchange

Overall, it will cut 8,500 positions (24% of its current headcount) but that includes 2,600 roles currently unfilled due to cost reduction initiatives, Cathay said. "The global pandemic continues to have a devastating impact on aviation and the hard truth is we must fundamentally restructure the group to survive," Cathay Chief Executive Augustus Tang said in a statement

Cathay shares jumped almost 7% in early trade - with broker Jefferies saying the announcement removed a key overhang on the stock. Singapore Airlines Ltd and Australia's Qantas Airways Ltd have also announced similarly large payroll cuts, as the International Air Transport Association (IATA) forecasts passenger traffic will not recover until 2024

Cathay, which has stored around 40% of its fleet outside Hong Kong, said it planned to operate less than 50% of its pre-pandemic capacity in 2021. After receiving a \$5 billion rescue package led by the Hong Kong government in the previous June, it had been conducting a strategic review that analysts expected would result in major job losses



The airline said it was bleeding HK\$1.5 billion to HK\$2 billion of cash a month and the restructuring would stem the outflow by HK\$500 million a month in 2021 - with executive pay cuts continuing throughout next year

BOCOM International analyst Luya You said she had expected more strategic insight from the airline on its fleet plans and route network as part of the restructuring. "Had they revealed more on fleet planning for 2021/22 - we would get a much better sense of their outlook," she said

The decision to end regional brand Cathay Dragon is in line with rival Singapore Airlines' pre-pandemic move to fold regional brand Silkair into its main brand. Cathay Dragon, once known as Dragonair, operated most of the group's flights to and from mainland China and had been hit by falling demand *before* the pandemic due to widespread anti-government protests in Hong Kong that deterred mainland travellers

Plans to end the brand earlier this year hit roadblocks from China's aviation regulator because of infractions during last year's pro-democracy protests - two sources told Reuters in May

Cathay said the Cathay Dragon would cease operating immediately and it would seek regulatory approval to fold the majority of Cathay Dragon's routes in Cathay Pacific and low-cost arm HK Express. "Now that Cathay has decided on staff count and the elimination of the Dragon brand it knows the size of the airline and the structure going forward and can complete its new fleet and network plan," said Brendan Sobie - an independent aviation analyst

Like Singapore Airlines, Cathay lacks a domestic market to cushion it from the fall in international travel due to border closures. In September 2020, Cathay's passenger numbers fell by 98.1% compared with a year earlier, though cargo carriage was down by a smaller 36.6%

Cathay shares have fallen 43% since the start of January 2020. In July, it reached agreement with Airbus SE to delay the delivery of A350s and A321neos and said it was in advanced talks with Boeing about deferring its B-777 / 9 orders. The airline's share register is dominated by Swire Pacific Ltd, Air China Ltd, Qatar Airways and the Hong Kong government, with only a 12% free float. (\$1 = 7.7500 Hong Kong dollars at time of writing)



..... and a March 2021 update on Cathay Pacific

Cathay Pacific Posts Record Annual Loss

The Covid-19 pandemic has dragged Hong Kong's flag carrier airline, Cathay Pacific, into a record annual loss

The Guardian - 10 March 2021

Cathay Pacific gave a bleak illustration of the impact of the lockdowns, unveiling its worst ever financial results today. It lost HK\$21.6bn (or around £2bn) in 2020, due to the grounding of flights around the world and major restructuring costs, and said last year had been "the most challenging 12 months of its more than 70-year history"

After an unprecedented bad year, Cathay Chairman Patrick Healy warned that the airline industry faces a long road to recovery. "Market conditions remain challenging and dynamic." "All our cash preservation measures will continue unabated. Executive pay cuts will remain in place throughout 2021."

The loss was larger than analysts had expected and followed a profit of HK\$1.69bn in 2019. The restrictions on international air travel were particularly painful for Cathay Pacific, as the airline did not have a major domestic market to fall back on

Reuters explains:

In December 2020, Cathay's passenger numbers fell by 98.7% compared with a year earlier, though cargo carriage was down by a smaller 32.3%. Nearly 60% of its 2020 revenue of HK\$47.9 billion was from its cargo operations, up from around 20% in 2019.

The airline said in January 2021 that it would cut passenger capacity by 60% and cargo capacity by 25% as a result of new rules that required crew to quarantine for two weeks in hotels before returning to normal life in Hong Kong (took effect on February 20). As a result, Cathay has put most crew on voluntary rosters of three weeks flying, two weeks in a hotel and two weeks off at home



Etihad to ground A380s 'indefinitely' and axe its Boeing 777-300ER fleet

22 April 2021

Etihad Airways CEO Tony Douglas has said the airline has decided to ground its entire fleet of 10 Airbus A380s "indefinitely", as well as axe its entire Boeing 777-300ER fleet



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Image by / Copyright of: Richard Vandervord (https://www.airliners.net/photo/Etihad-Airways/Airbus-A380-861/2574151/L)

Douglas announced the move at the World Aviation Festival today saying: "We had got far too diversified, when it came to fleet types, to be operationally efficient." He said that the ten A380s were "a wonderful product, but were no longer commercially sustainable"

The airline will also be without the Boeing 777-300ER after the end of this year. "You will see of us a very focused and disciplined operating model - heavily built around the fleet of the Boeing 787 Dreamliner and (Airbus) A350-1000," he said. Etihad currently has 19 Boeing 777-300ERs, with orders for 25 of Boeing's next-generation 777X series

Douglas said: "We're now into midsize but commercially sustainable aircraft and obsessive with customer service. It's the 'boutique' end where we want to operate. In so doing, the statement we've made clear is that the backbone of our fleet, for the medium term, is the 787"

Etihad counts 39 Boeing 787 Dreamliners in its fleet, with both the 787-9 and 787-10 models. The airline has also taken delivery of five of the 20 Airbus A350-1000s ordered



Most Commercial Pilots No Longer Flying

FlightGlobal - 28 January 2021

'Fewer than half of all commercial pilots are still flying for a living - with 30% describing themselves as unemployed and a further 17% furloughed' - according to the first worldwide survey of the profession since the Covid-19 crisis commenced around 1 year before

Furthermore, 6% say they are employed in aviation in a non-flying role. Another 4% are working, but in another industry - leaving just 43% of pilots doing the job they trained for

The poll of almost 2,600 flight crew, carried out during October 2020 by GOOSE Recruitment in partnership with FlightGlobal, paints a picture of a community devastated economically and psychologically by the pandemic. Of those who identify as unemployed, two thirds say they are actively looking for a new position as a pilot. In 'normal' times, a high number of job-seekers might indicate a buoyant jobs market. However, the opposite is the case here. Only 3% are currently in an interview process and more than eight in 10 say they would happily take a pay cut for a new cockpit opportunity

The online survey comes 12 months after a previous survey by the same two organisations revealed that pilots - though admitting occasional challenges of stress and achieving a better work-life balance - were enjoying a strong global demand for their services.

At the time, China was one region experiencing an acute skills shortage, with supply of experienced flight crew struggling to keep pace with industry growth. Today it has the highest level of unemployment, with 43% of respondents who last worked there having lost their jobs during the pandemic. South America, at 41%, is close behind but North America (where 20% of pilots regard themselves as unemployed) is the most unscathed, due largely to the fact that its extensive domestic networks have remained intact

When pilots describe their status as 'furloughed' this may have different meanings but, in most cases, it refers to a situation where someone is still formally employed by an airline and is being compensated by either the company and / or 'government'. 20% of First Officers are currently on furlough and 17% of Captains

China has the largest group of pilots on furlough at 24%. Europe at 16% and South America at 14% are the lowest. However, pilots in these two regions have also been affected by unemployment, hinting that carriers there have made tough decisions faster than others

Pilots taking on jobs outside the industry (e.g. driving delivery vans for supermarkets, online retailers etc.) may not be as widespread a phenomenon as some media coverage has suggested - as just 4% of respondents had chosen this option

When it comes to the pilot recruitment market, of those that are unemployed, Captains are more likely than First Officers to be in the job-interview process, but the percentage is still low at 5% - with only 2% of First Officers getting through at least one interview. Whilst 82% of that same group would be prepared to take a pay cut for a new job, those flying in North America are the least likely (at 71%) to make this sacrifice - whilst those employed in the Middle East and Africa are most willing at 88%. First Officers are more likely to take a pay cut than Captains - at 84% and 79% respectively

The swift and deep impacts of the Covid-19 crisis, after almost two decades where pilots have been in short supply, had been made evident by the survey. For almost 7 in 10 out-of-work pilots (69%) this is their first time experiencing unemployment. Captains, unsurprisingly given their longer careers, are more likely than First Officers to have faced a similar situation previously - at 36% compared with 26%. One respondent notes: "This is the third occasion that an aviation down-turn has pushed me into unemployment"

For those pilots still flying or furloughed, insecurity is high. A total of 82% are concerned about job security - a steep uptick from last year's response of 52%. The rate is highest for pilots working in the Middle East, Africa and South America. Furthermore, whilst furlough schemes are designed to keep employees on the payroll over difficult periods, those who describe themselves as furloughed are most worried about eventually losing their jobs (95%). That same group of pilots were also asked how valued they felt by their employer. Almost half say they are less-valued, with only 14% saying the opposite

So, would pilots choose a cockpit career again if they had the chance? In the previous survey, 71% said yes to this question. This year, that has fallen to 64%. Those flying in North America (77%), South America (73%) and the Asia-Pacific (66%) are the most likely to repeat their career choice. Those flying in China (58%) and the Middle East and Africa (59%) are the least likely

Would they recommend a cockpit career to young people? Only 46% said they would, down from 57% in the previous survey. Those flying in Europe would be the least likely to recommend a pilot career, at 34%.

Pilots were also asked to rate their stress level from 1 (not stressed) to 5 (very stressed) on a normal day. The average score was 3, a half point increase from the last survey. They were also questioned about how their mental health had been affected by the pandemic, with answers largely reflecting the age of the pilot. A total of 58% of those under 24 say their mental health has been affected. However, this falls for every age category, with only 32% of 55 to 64-year-olds responding in the same way.

Finally, pilots gave their opinion on the speed and shape of the airline recovery. A total of 27% believe Covid-19 will have a long-term negative impact on air travel, whilst 19% say passengers will return to the skies as soon as it is feasible. The remainder feel that, whilst the pandemic will change some behaviour - it will not have a lasting effect

More than 72% of pilots believe the industry will recover to its 2019 peak in between (the next) 1 to 3 years. As one commented - "As soon as travel restrictions become a thing of the past, the public will be keener than ever to travel by air. It has been proved in previous crises that the public has a very short memory. What is a viable alternative to flying?"

And as for the return of what seems like a phenomenon from another age - a pilot shortage - 43% of respondents say there will not be enough experienced pilots to meet demand in five years' time, with a further 23% believing that there will be a shortage of all pilots. 34% are of the opinion that in 2025 there will be too many pilots for the jobs available



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...... And whilst this guideline document (the one you are reading right now) relates primarily to larger, passenger airlines, the following (this and the next 8 pages) provide examples of some other aviation related organisations (including Tourism) also having been severely impacted by the COVID-19 pandemic

Revenue and Profit Still Severely Impacted by Covid-19 Pandemic for FRAPORT

11 May 2021



FRAPORT operating expenses reduced by about 33% - Group achieves balanced operating result (EBITDA) - Group result (net profit) clearly negative - Fraport CEO Schulte: "We are re-emerging from the bottom of the trough"

In the first three months of 2021, the financial performance of the Fraport Group continued to be severely impacted by the Covid-19 pandemic. With passenger traffic still down at Frankfurt Airport and across the Group's airports worldwide, Group revenue declined by more than 40% year-on-year in the January-to-March reporting period. Fraport posted a negative Group result (net loss) of €77.5 million

Fraport AG's executive board chairman, Dr. Stefan Schulte, said: "The aviation industry still did not see any noticeable recovery during the first quarter of 2021. This was not unexpected considering the global pandemic situation. Nevertheless, we are confident that we are now re-emerging from the bottom of the trough. Vaccination campaigns in Germany and many other countries are gaining momentum

Moreover, a number of Covid-19 testing options are now available. People still have a strong desire to travel and explore the world. Therefore, we are expecting passenger numbers to increase noticeably during the summer months - particularly on European routes at first, but also for intercontinental destinations over the long run. At the same time, we have leveraged the crisis to substantially reduce costs and realign our company to become leaner and more agile for the future"

Passenger traffic declines noticeably

During the first three months of 2021, the Group's Frankfurt Airport home base saw passenger traffic drop by 77.6% year-on-year to just below 2.5 million travellers. Compared to the first quarter of the 2019 pre-pandemic year, this represents an even stronger *decline of 83.2%*





In contrast, FRA's cargo throughput in the first quarter grew by 21.6% year-on-year to 565,497 metric tons (up 7.3% compared to Q1/2019)

At Fraport's Group airports worldwide, traffic also dropped overall in the first quarter, with year-on-year declines ranging from about 50% to 90% at some airports. Supported by strong domestic traffic, only two gateways performed better: St. Petersburg's Pulkovo Airport in Russia (down 18.3%) and Xi'an Airport in China (up 40.7%)

Voluntary redundancy program almost completed

Fraport has launched various measures at all levels to counter the impact of the coronavirus pandemic, including an extensive cost-reduction program. By eliminating expenses not essential for operations, Fraport is saving costs of between €100 million and €150 million yearly. Simultaneously, Fraport scaled down or cancelled a number of investments, particularly at its Frankfurt home base - thus reducing related capital expenditure by about €1 billion over the medium and long-term

Fraport has also started to adjust its overall business organisation and administration to make the company leaner and more agile. The company will be able to reduce personnel costs in Frankfurt by up to €250 million yearly compared to 2019, by *cutting about 4,000 jobs* in a socially responsible manner. This goal has already been nearly achieved. As of 1 April 2021, Fraport reduced its staff in Frankfurt (compared to December 2019) by some 3,900 employees - who left the company taking advantage of severance packages and other measures or via regular staff attrition

Fraport will continue to operate a short-time working scheme with the aim of temporarily reducing personnel costs. In the first quarter of 2021, about 80% of employees at the Fraport AG parent company and other major Group companies in Frankfurt continued to work on a short-time basis. This involves an average reduction in working time of about 50% measured in terms of available hours

Outlook

After conclusion of the first quarter, the Fraport executive board is maintaining its outlook for the entire 2021 business year. Passenger traffic at Frankfurt Airport is forecast to range from under 20 million to 25 million. Group revenue is expected to reach approximately ≤ 2 billion in 2021. The company is forecasting Group EBITDA in the range of about ≤ 300 million to ≤ 450 million. Group EBIT is expected to be slightly negative, while the Group result (net profit / loss) will also remain in negative territory. However, both of these key performance indicators will improve markedly compared to 2020

Fraport AG Corporate Communications



Citing 'Devastating' Pandemic Impact - Boeing to Lay Off 7,000 More Workers

28 Oct 2020 / DAVID SCHAPER (NPR.ORG)



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Boeing will be laying-off thousands of additional employees as the airplane manufacturer continues to lose money due to the coronavirus pandemic and the prolonged grounding of its 737 Max jet

A global collapse in air travel has all but eliminated airlines' need to buy new commercial jets. As a result, Boeing has slowed production of new aircraft and announced this summer (2020) that it would be eliminating 19,000 jobs. But now the aerospace giant says it needs to reduce its workforce even more. In an email message to employees Wednesday, CEO David Calhoun said the company need to "align to market realities," and eliminate about 30,000 jobs in all

Boeing started 2020 with about 160,000 employees around the world, but in the memo to employees, Calhoun said "we anticipate a workforce of about 130,000 employees by the end of 2021." The company has been offering early retirement packages and other incentives for workers to leave voluntarily and it hopes to achieve some of the job cuts through natural attrition, but the company will also layoff an additional 7,000 employees

"There's no doubt that this moment is among the most difficult in our more than 100-year history," Calhoun said Wednesday in a conference call announcing a net third quarter loss of \$466 million. "The COVID-19 impacts on our commercial customers continue to be devastating and airlines have cut back operations dramatically"

In March and April 2020, as many countries locked down and imposed travel bans to slow the spread of the deadly coronavirus, passenger air travel globally almost came to a complete halt

The number of people flying plummeted 96% and Calhoun says, even as some international borders reopened and air travel resumed "the overall recovery has been at a slower pace than we originally anticipated. Although this remains an unprecedented and uncertain time we are confident air travel will return"

But in the short term, the pandemic is expected to sharply reduce the need for new planes and thus Boeing's sales. The airplane manufacturer has lowered its forecast of demand for new commercial jets over the next decade by 11%, and some industry analysts say that prediction is still overly optimistic

"The reality is that our industry as a whole will simply build less in the coming years," said Boeing Chief Financial Officer Greg Smith on the conference call. "In the current environment, we must take these actions to adapt to lower demand" he said, referring to the slowdown of production and job cuts

Though Boeing is headquartered in Chicago, most of the layoffs will be in the Puget Sound region of Washington State, where Boeing designs and builds many of its aircraft

Boeing has had to slow airplane production because it has hundreds of finished yet undelivered commercial jets piling up. About 450 of the planes are 737 Max jets. A Lion Air 737 Max crashed into the Java Sea in Indonesia two years ago Thursday, killing all 189 people on board. A second 737 Max operated by Ethiopian Airlines crashed a little more than four months later in March 2019 killing 157 people - and the Max has been grounded ever since

Both crashes were blamed in part on an automated flight control system that activated due erroneous data from a single sensor, and repeatedly forced the planes into nose dives that the pilots could not pull out of. Boeing has been working to overhaul the flight control software and to implement other safeguards

Aviation regulators from the US, Canada and Europe have conducted test flights and are reviewing data, and the FAA could certify Boeing's fixes to the troubled plane and allow it to return to passenger service as soon as next month. (Note: It actually started flying [commercial ops] again in USA in late 2020 and in Europe in early 2021 - although a number of the aircraft were subsequently grounded again [only a few months later] - due 'electrical problems')

Financial Updates (not part of NPR/ORG article which started on the previous page)

Boeing posted an \$8.4 billion net loss for last (4th i.e. October to December) quarter 2020 and a net loss of \$11.9 billion for the *whole* of 2020

'The \$11.9 billion dollar net loss is the largest in the aerospace giant's more than 100-year history and a **big part of the reason is the coronavirus pandemic**' Boeing reported. Air travel demand plummeted amid global travel restrictions and fears of spreading the virus. Calhoun noted that the number of people 'flying today is still down almost 60% from a year ago'. He predicted (at that time) that global air traffic would not return to 2019 levels for at least three more years, and it would take several years for it to catch up with the growth levels that had been forecast before the pandemic

"The pandemic's impact on aircraft sales will last for many years to come" he said, adding that Boeing's 10-year commercial airplane market outlook is approximately 11% lower than what was assumed a year ago. "From a 20-year perspective, we still see the impact of Covid, but to a lesser extent," he said

Note: Boeing's net loss for first quarter 2021 was \$537 million



Rolls-Royce Swings to £4bn Loss amid Covid-19 Pandemic

Chief Executive Warren East said 2020 was "unprecedented" as the company announced its full-year results



By: Hannah Baker - Bristol Post Business Editor - 11 March 2021

Image / file is licensed under the Creative Commons Attribution-Share Alike 4.0 International license - 5 Sep 08 by Lars Hentschel

Aerospace giant Rolls-Royce has swung into the red following the collapse of air travel amid the Covid-19 pandemic. The aircraft manufacturer, which has UK bases in Derby and Filton, posted a £4 billion loss - compared to a £583 million profit the year before. Chief executive Warren East said 2020 was an "unprecedented" year, with the impact of Covid "felt most acutely" by the firm's civil aerospace business

Rolls-Royce said in January 2021 that it expected to 'burn through a further £2 billion this year', with the advent of more contagious variants of the virus creating "additional uncertainty" for the business

In 2020, the company launched a restructuring plan to axe 9,000 roles from its global workforce of 52,000. Then, in November of that year, the firm announced proposals to shed a further 1,400 from it civil aerospace division

"We have taken decisive actions to enhance our financial resilience and permanently improve our operational efficiency, resulting in a regrettable, but unfortunately very necessary, reduction in the size of our workforce," said Mr East. "With the support of our stakeholders we successfully secured additional liquidity with a rights issue, bond issuance and further credit facilities put in place during the year. We have made a good start on our programme of disposals and will continue with this in 2021"

Mr East said the near-term outlook remained uncertain but the company had made strong progress with its restructuring programme and was well positioned for the future



Rolls-Royce also said it expected to return to a positive net-cash position in the medium term - and was investing heavily in green technologies. "We continue to invest in developing market-leading technology and low-carbon opportunities in all our end markets, to create value for our stakeholders and ensure we are well positioned to take advantage of the transition to a lower carbon economy and growing demand for more sustainable power solutions," Mr East added

This week, the aerospace giant announced its technology would be used to power a drone-like 'flying taxi' that is being developed in Bristol. The company's ground-breaking tech is set to power the so-called Urban Air Mobility (UAM) aircraft - an all-electric flying vehicle being built by aerospace manufacturer Vertical Aerospace

The engineering giant also announced this month the world's fastest all-electric plane was a matter of weeks from taking to the air for the first time. It said that the 300mph "Spirit of Innovation" has completed its first runway taxiing tests, ahead of a first light which is expected to take place this spring



COVID-19: Portugal Removed from UK's Green List as 7 countries added to Red



Sky News - By Alix Culbertson and Sophie Morris - Friday 4 June 2021 - UK

This image / file is licensed under the Creative Commons Attribution 2.0 Generic license - 8 Mar 16 by Adamina

Hopes of a summer holiday abroad have been dashed as no new countries have been added to the UK's latest 'green' travel list and Portugal has been moved down to 'amber'. No further countries are being moved from the amber to green status and travellers returning from Portugal will have to quarantine following the review of the government's travel traffic light system:



See page 134 for further details

7 countries (were amber) are being added to the red list i.e. Afghanistan, Bahrain, Costa Rica, Egypt, Sudan, Trinidad & Tobago and Sri Lanka. The change will come into effect at 4am on Tuesday 8 June 2021



The UK's Department for Transport (DfT) said the measures are being implemented "to safeguard public health against COVID-19 variants of concern and to also protect our vaccine rollout". Transport Secretary Grant Shapps said it was "a difficult decision" and Portugal was downgraded because the government wants to give the UK "the best possible chance of unlocking domestically" on 21 June. He said the emerging Nepal mutation of the Indian (Delta) COVID-19 variant was of concern and *Portugal's positive case rate has "nearly doubled since the last review*"

There had been hopes that some Greek and Spanish islands plus Malta might have been added to the green list in the first review of the system since it came into play three weeks ago. Portugal was the only major holiday destination on the initial / previous 12 country green list, meaning tourists could return to the UK without having to quarantine. Nearly 20% of Portugal's population has been fully vaccinated and cases are relatively low *but have been increasing over the past week*. Madeira and the Azores are also being moved with mainland Portugal, from green to amber

(The UK Labour Party's) shadow home secretary Nick Thomas-Symonds said the government has "caused chaos with the mishandling of travel restrictions at the border". He added: "The confusion over the 'Amber List' has led to reports of over 50,000 people travelling to the UK daily, with only a tiny percentage going into hotel quarantine and a stream of flights entering the UK from 'Amber List' countries"

"Labour has warned time and time again that this is leaving the door wide open to new strains of the virus. Moving Portugal onto the 'Amber List' is not the answer. The 'Amber List' itself should be scrapped. Ministers also now need a clear plan to manage the confusion that will result in Portugal being removed from the 'Green List' so quickly - and must publish all of the data behind this decision"

Meanwhile, in a tweet, the Portuguese foreign ministry said it could not understand the "logic" behind the UK Government's decision to move Portugal to the amber list

UK Health Security Agency chief executive Dr Jenny Harries said: "Current increases in UK case rates serve as a reminder that this pandemic is not over yet and we need to take a cautious approach. Everyone should observe the travel guidance, continue to follow hands, face, space and fresh air - and have both doses of the COVID-19 vaccine when offered"

Shares in airlines EasyJet and British Airways and travel companies TUI and Jet2 fell on fears Europe would lose another peak travel season, when millions of Britons usually head to southern Europe. The industry has already been weakened by 15 months of lockdowns and many companies - and countries had been hoping for a summer boom as the UK has one of Europe's highest vaccination rates, with 75% of adults having one dose and 50% having two. Lockdown restrictions are easing across the UK but the Indian variant, also called the Delta variant, has caused concern

The British Airline Pilots Association (BALPA) said: "This excessive caution could be the final nail in the coffin for the travel industry which has borne the economic brunt of the COVID-19 crisis with no help from the government

BALPA's acting general secretary Brian Strutton said: "This decision is a total disaster for the already fragile travel industry and is likely to lead to further airline failures and many more job losses. We understand that safety comes first, but with vaccination programmes going well in many countries, it seems the government is ignoring the evidence and is allowing safe countries to languish in the amber and red categories for no valid reason"



"Any shred of public confidence is in tatters and the traffic light system seems stuck on red"

"Our airlines need this summer season if they are to survive. The government must look at the evidence and stop this illogical, over-cautious approach - which is killing a once-thriving industry"

Ahead of the list announcement, England's Health Secretary Matt Hancock warned: "We have got to follow the data and of course, I understand why people want to travel - but we've got to make sure we keep this country safe, especially because the vaccine programme is going so well. We have seen deaths and hospitalisations come right down and we have got to protect the progress we have made here at home, whilst allowing for travel where it is safe. One must follow the data"

On Wednesday, UK Prime Minister Boris Johnson said the government will have "no hesitation" in moving countries off the green list if necessary. Each country is assessed based on a range of factors, including what proportion of a population is vaccinated, rates of infection, emerging new variants and access to reliable scientific data - including genomic sequencing

UK's Traffic Light System: Red, Amber & Green List Countries - Where Can I Go on Holiday Abroad?

Holidaymakers can only travel for leisure to * green list countries

By Rory Boland - **3 June 2021** - which.co.uk (Note: This article applied to England only. However, the other 3 countries comprising the UK [N. Ireland, Scotland and Wales] were also effectively following the 'English' system for the period mentioned in this article)

The (English) government's traffic light system is now (and has been for some weeks) in place for overseas travel and is set to be reviewed every few weeks. In the latest update, popular holiday destination Portugal was removed from the green list and downgraded to the amber list from Tuesday 8 June. Holidaymakers visiting destinations on the green list do not have to quarantine when they return to England, making planning a trip easier this summer. * However, before booking, you still need to consider the destination country's entry requirements. Some current green list countries etc. do not currently allow leisure travel from the UK

Those returning from green list countries e.g. Gibraltar and Iceland will need to take a pre-departure (in such countries) Covid-19 test and a PCR test on or before day two of their return. Previous 'Which' research has found private test requirements can add hundreds of pounds to the cost of a trip. Arrivals from countries on the amber list will need to quarantine at home for 10 days, in addition to forking out for tests before and after their trip. The government states that you should not travel to amber list countries for leisure purposes. Arrivals from red list countries must quarantine for 10 days in government managed hotels which cost £1,750 per person. Countries on this list include the Maldives, Egypt and Turkey. You should not travel to red list countries or territories for leisure purposes

Destinations have been assigned to each colour list based on a range of Covid-19 health metrics, including vaccination numbers, infection rates and prevalence of variants. The different traffic light colours indicate the risk in each destination and which tests and quarantine periods are required. Similar to last year's *travel corridors*, the government has confirmed countries will move in and out of different colours in the *traffic light* system. Corridor changes caused significant disruption last year with travellers forced to cut holidays short and rush home to try and beat the introduction of quarantine

To reduce disruption risk this summer the government plans to move countries between red, amber and green lists three weekly, (instead of weekly as per the previous corridor system). It is introducing a 'green watchlist' to identify countries at risk of moving from green to amber, but there are no details yet on how it will work. The government warns it will not "hesitate to act quickly should data show countries' risk ratings have changed" - meaning travellers could also face disruption this year. If you're in a destination when it is added to the red list, you may need to pay for a flight to get home before the change takes place (with airfares likely to be very high) or, *if you return as normal* (original schedule) you will have to pay for hotel quarantine. Wherever you decide to holiday, you'll need to factor in the cost of tests, as they are still required even for travel to and from green list countries. Although pricey, costs of such tests are slowly coming down



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FINALLY (at least for now)

Let's now take a last look (pages 138 - 148) at a small selection of the COVID-19 pandemic data / statistics updated to 01 July 2021. Anything which we have already written in other parts of this guideline re the accuracy etc. (or otherwise) of such data etc. still applies as appropriate

The vast majority of the various Covid-19 *vaccines* available on the above date were typically 'doing what they were supposed to do'. However, taking the world as a 'whole' - vaccination progress was still painfully slow on average (see the 'arrowed' statistic shown on page 147)

When the COVID-19 pandemic eventually ceases 'to be a pandemic' (but the virus will be with us for a very long time after that, just the same as annual influenza viruses still are) it is envisaged that 'updated' annual COVID-19 (SARS-CoV-2 coronavirus) vaccinations will be required by / recommended for certain classes of 'person' (e.g. mainly the elderly, the appropriately vulnerable, front line health and equivalent workers etc.). However (and just as with the annual influenza and other 'recommended' *recurrent* vaccinations) much of the world will still continue to 'miss out' - for all sorts of reasons - the main ones being poverty and 'government etc.' neglect / incompetence / selfishness / corruption etc.

It is feasible that some *near*-future variant(s) of the SARS-CoV-2 virus might 'defeat' the efficacy of current (i.e. writing this as at July 2021) vaccinations in use. Updated versions of said vaccines will no doubt be able to eventually counter such threat (just as they did the current threat) - *but what happens in the intervening period* - particularly if * testing of any such updated vaccines is required before release? At time of writing, such variants are developing at a *VERY* significantly, quicker rate than it currently (mid-2021) might take to produce and test (in theory at least) any associated new / modified vaccines??

* Note: The following is an extract from comment made by Dr. Albert Bourla, Pfizer Chairman and CEO in about November 2020. It relates to the production of the Pfizer / BioNTech COVID-19 vaccination. The word '*study*' relates to the final bout of testing the vaccine before it actually went '*live*' on 8 December 2020:

"The study results mark an important step in this historic eight-month journey to bring forward a vaccine capable of helping to end this devastating pandemic. We continue to move at the speed of science to compile all the data collected thus far and share with regulators around the world," said Dr. Albert Bourla, Pfizer Chairman and CEO. "With hundreds of thousands of people around the globe infected every day, we urgently need to get a safe and effective vaccine to the world."

Finally, take a look at Appendices starting page 150

Aviation Emergency Response Plan Solutions (AERPS)

01 July 2021

PS: On finishing the reading of this guideline, it is suggested that the 'interested reader' moves on to our *separate* document in the same series i.e. CRPM Part 4 / *Volume 2* (includes some typical, practical assistance measures which airlines might (and actually did in the case of some [but not enough] airlines) implement during a pandemic such as COVID-19)

Current versions of CRPM Part 4 / Volumes 1 and 2 can always be found via our website at:

https://aviationemergencyresponseplan.com/guideline-template/



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			#	Country, Other ↓↑	Total Cases ↓	New Cases ↓↑	Total Deaths ↓↑	New Deaths ↓↑	Total Recovered ↓↑	New Recovered ↓↑	Active Cases ↓↑	Serious, Critical ↓↑	Tot Cases/ 1M pop ↓↑	Deaths/ 1M pop ↓↑	Total Tests ↓↑	Tests/ 1M pop ⊔↑	Population 1	
				World	183,401,125	+432,039	3,971,144	+8,317	167,909,901	+362,664	11,520,080	78,708	23,529	509.5				
			1	USA	34,561,403	+16,949	620,645	+315	29,052,087	+25,399	4,888,671	3,868	103,807	1,864	506,604,612	1,521,611	332,939,637	
			2	India	30,453,937	+43,360	400,271	+796	29,536,087	+54,565	517,579	8,944	21,854	287	412,021,494	295,667	1,393,531,257	
			3	Brazil	18,622,304	+63,140	520,189	+1,943	16,931,272	+72,640	1,170,843	8,318	86,993	2,430	53,209,627	248,565	214,066,830	
			4	France	5,777,965	+2,664	111,111	+29	5,622,756	+3,846	44,098	1,162	88,324	1,698	93,465,436	1,428,747	65,417,765	
			5	Russia	5,538,142	+23,543	135,886	+672	5,017,321	+16,928	384,935	2,300	37,933	931	150,121,327	1,028,250	145,996,982	
			6	<u>Turkey</u>	5,430,940	+5,288	49,774	+42	5,300,504	+6,219	80,662	706	63,711	584	61,012,512	715,743	85,243,660	
			7	<u>UK</u>	4,828,463	+27,989	128,162	+22	4,327,556	+2,680	372,745	287	70,755	1,878	213,530,473	3,129,022	68,241,931	
	Chart for 1	lulv 2021	8	Argentina	4,491,551	+21,177	94,772	+468	4,092,053	+15,132	304,726	6,046	98,479	2,078	16,798,807	368,320	45,609,321	
		,	9	<u>Colombia</u>	4,269,297	+28,315	107,137	+593	3,964,074	+27,918	198,086	8,155	83,022	2,083	20,060,182	390,098	51,423,492	
			10	<u>italy</u>	4,260,788	+882	127,587	+21	4,083,843	+1,941	49,358	229	70,574	2,113	71,771,680	1,188,805	60,372,965	
			11	<u>Spain</u>	3,821,305	+12,345	80,883	+8	3,603,584	+3,860	136,838	584	81,699	1,729	52,691,812	1,126,546	46,772,872	
			12	<u>Germany</u>	3,736,940	+717	91,530	+71	3,625,700	+1,500	19,710	736	44,460	1,089	63,813,168	759,216	84,051,450	
			13	Iran	3,218,860	+14,303	84,389	+125	2,889,939	+13,111	244,532	3,187	37,840	992	23,308,926	274,016	85,063,982	
			14	Poland	2,880,010	+98	75,044	+23	2,651,906	+119	153,060	130	76,180	1,985	17,444,955	461,443	37,805,184	
			15	Mexico	2,519,269	+6,105	233,047	+244	2,000,530	+3,149	285,692	4,798	19,337	1,789	7,507,730	57,626	130,283,076	
			16	Ukraine	2,235,801	+705	52,391	+51	2,168,387	+1,719	15,023	177	51,432	1,205	10,861,246	249,851	43,470,921	
			17	Indonesia	2,203,108	+24,836	58,995	+504	1,890,287	+9,874	253,826		7,971	213	20,079,271	72,644	276,406,727	
			18	Peru	2,057,554	+3,079	192,687	+122	N/A	N/A	N/A	2,346	61,549	5,764	14,224,136	425,499	33,429,296	
			19	South Africa	1,995,556	+21,584	61,029	+382	1,754,793	+6,751	179,734	546	33,230	1,016	13,209,499	219,961	60,053,687	
4			20	Netherlands	1.685.825	+825	17.748	+3	1.634.035	+2.320	34.042	126	98.169	1.033	14.730.069	857.759	17.172.738	-
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			# Coun Other	itry, r ↓î	Total Cases ↓	New Cases ↓†	Total Deaths ↓†	New Deaths ↓†	Total Recovered ↓↑	New Recovered ↓↑	Active Cases 11	Serious, Critical ↓↑	Tot Cases/ 1M pop ↓↑	Deaths/ 1M pop ↓↑	Total Tests ↓↑	Tests/ 1M pop ↓↑	Population 1	-
			21 <u>Czec</u>	hia	1,667,444	+137	30,307	+1	1,635,727	+16	1,410	11	155,417	2,825	29,875,529	2,784,604	10,728,825	
			22 Chile	2	1,558,557	+2,655	32,588	+43	1,502,411	+8,127	23,558	2,943	80,839	1,690	17,012,734	882,410	19,279,850	
			23 Philip	<u>ppines</u>	1,418,337	+5,795	24,797	+135	1,341,973	+2,859	51,567	1,957	12,774	223	14,988,187	134,987	111,033,906	
			24 <u>Cana</u>	<u>ida</u>	1,415,310	+26	26,295		1,381,943	+41	7,072	466	37,174	691	36,768,392	965,755	38,072,162	
			25 <u>Iraq</u>		1,353,458	+7,554	17,216	+30	1,250,121	+4,593	86,121	633	32,915	419	11,771,294	286,272	41,119,335	
			26 <u>Swec</u>	<u>den</u>	1,090,553		14,592		1,061,185	+2,786	14,776	41	107,316	1,436	10,828,578	1,065,584	10,162,103	
			27 Belgi	ium	1,085,131	+581	25,173	+3	1,036,831	+799	23,127	143	93,225	2,163	15,270,322	1,311,886	11,639,975	
			28 <u>Rom</u>	ania	1,080,823	+31	33,861	+5	1,045,351		1,611	67	56,560	1,772	9,831,916	514,510	19,109,295	
			29 Pakis	<u>stan</u>	958,408	+1,037	22,321	+40	904,320	+836	31,767	1,844	4,257	99	14,590,230	64,800	225,157,751	
	Chart for 1 July 2021		30 Bang	<u>ladesh</u>	921,559	+8,301	14,646	+143	820,913	+4,663	86,000	1,192	5,541	88	6,640,982	39,928	166,325,159	
			31 Portu	<u>ugal</u>	882,006	+2,449	17,101	+5	830,224	+1,234	34,681	113	86,752	1,682	13,332,860	1,311,388	10,166,984	
			32 <u>Israe</u>	<u> </u>	842,067	+290	6,429		833,600	+134	2,038	27	90,292	689	15,091,313	1,618,198	9,326,000	
			33 <u>Hung</u>	<u>gary</u>	808,160	+32	29,992		739,204	+422	38,964	20	83,870	3,113	6,138,529	637,053	9,635,828	
			34 <u>Japa</u>	<u>n</u>	799,978	+1,819	14,781	+41	768,328	+1,712	16,869	517	6,345	117	16,445,549	130,428	126,089,354	
			35 <u>Mala</u>	<u>ysia</u>	758,967	+6,988	5,254	+84	688,260	+5,580	65,453	917	23,154	160	14,645,806	446,803	32,779,126	
			36 Jorda	<u>an</u>	751,937	+533	9,756	+6	735,610	+516	6,571	467	72,974	947	7,892,481	765,954	10,304,118	
			37 <u>Serb</u> i	ia	716,643	+81	7,047		707,706	+115	1,890	13	82,352	810	4,422,502	508,206	8,702,177	
			38 <u>Switz</u>	zerland	703,176	+172	10,894	+3	684,621	+756	7,661	39	80,660	1,250	8,329,750	955,492	8,717,762	
			39 <u>Aust</u>	<u>ria</u>	650,474	+62	10,706	+4	637,909	+158	1,859	52	71,815	1,182	55,451,224	6,122,010	9,057,682	
			40 <u>Nepa</u>	<u>ul</u>	640,662	+1,857	9,145	+33	600,149	+4,017	31,368		21,602	308	3,351,263	112,996	29,658,170	
			41 <u>UAE</u>		634,582	+1,675	1,819	+8	612,998	+1,556	19,765		63,398	182	58,026,680	5,797,176	10,009,473	
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		#	Country, Other It	Total Cases ↓₹	New Cases 💵	Total Deaths ↓†	New Deaths ↓†	Total Recovered ↓↑	New Recovered ↓↑	Active Cases ↓↑	Serious, Critical ↓↑	Tot Cases/ 1M pop ↓↑	Deaths/ 1M pop ↓↑	Total Tests ↓↑	Tests/ 1M pop ⊔1	Population 1	•
		42	Lebanon	545,016	+150	7,854	+3	532,776	+239	4,386	54	80,210	1,156	4,731,376	696,315	6,794,877	
		43	Morocco	532,150	+789	9,298	+2	518,101	+525	4,751	154	14,249	249	6,854,680	183,543	37,346,518	
		44	Saudi Arabia	489,126	+1,534	7,832	+13	469,120	+1,487	12,174	1,389	13,835	222	22,008,712	622,531	35,353,615	
		45	Ecuador	459,538	+1,034	21,605	+45	423,688		14,245	421	25,658	1,206	1,550,222	86,557	17,909,788	
		46	<u>Bolivia</u>	439,624	+2,001	16,767	+65	360,926	+2,075	61,931	200	37,157	1,417	1,826,165	154,346	11,831,617	
		47	Tunisia	426,879	+6,776	15,065	+106	356,321	+1,880	55,493	526	35,746	1,262	1,737,467	145,493	11,941,894	
		48	<u>Kazakhstan</u>	425,573	+2,436	4,375	+26	396,396	+1,134	24,802	221	22,398	230	11,575,012	609,195	19,000,508	
		49	Paraguay	424,998	+1,716	13,017	+122	373,253	+2,598	38,728	568	58,865	1,803	1,537,487	212,953	7,219,834	
		50	Greece	423,185	+729	12,691	+4	405,408	+378	5,086	189	40,800	1,224	10,674,006	1,029,104	10,372,134	
	Chart for 1 July 2021	51	Bulgaria	421,902	+73	18,067	+6	394,930	+273	8,905	163	61,180	2,620	3,206,721	465,005	6,896,105	··· 7 3 5 3 5 3 7 4 4 5 7 4 4 5 7 4 4 5 7 4 4 5 7 4 4 5 5 7 4 4 5 5 7 4 4 5 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7
		52	Belarus	418,212	+1,023	3,153	+10	410,984	+1,187	4,075		44,273	334	6,813,944	721,341	9,446,217	
		53	Panama	404,983	+1,205	6,552	+7	385,671	+968	12,760	84	92,412	1,495	3,012,379	687,384	4,382,382	
		54	Slovakia	391,659	+17	12,511	+1	378,700	+61	448	26	71,702	2,290	2,964,856	542,787	5,462,284	
		55	<u>Uruguay</u>	370,600	+1,250	5,619	+26	350,291	+1,802	14,690	251	106,319	1,612	2,815,347	807,673	3,485,750	
		56	Costa Rica	369,540	+1,602	4,674	+7	294,872	+1,340	69,994	398	71,888	909	1,489,540	289,765	5,140,503	
		57	Georgia	367,058	+980	5,327	+11	352,624	+877	9,107		92,191	1,338	5,847,116	1,468,566	3,981,513	
		58	Croatia	359,975	+103	8,209	+3	351,241	+71	525	13	88,230	2,012	2,153,014	527,707	4,079,940	
		59	Kuwait	358,511	+1,824	1,979	+10	337,829	+1,707	18,703	294	82,731	457	2,992,536	690,565	4,333,458	
		60	<u>Azerbaijan</u>	336,122	+75	4,975	+1	330,275	+56	872		32,856	486	3,758,131	367,353	10,230,310	
		61	Dominican Republic	326,193	+972	3,840	+18	267,396	+1,317	54,957	372	29,772	350	1,717,949	156,799	10,956,361	
4		67	Palactina	214 000	±101	2 ECE	-0	200 202	1117	0 400	7	60 017	602	1 004 455	264 002	E 010 001	•
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				#	Country, Other J1	Total Cases ↓	New Cases ↓†	Total Deaths ↓†	New Deaths ↓†	Total Recovered ↓↑	New Recovered ↓↑	Active Cases ↓↑	Serious, Critical ↓↑	Tot Cases/ 1M pop ↓↑	Deaths/ 1M pop ↓†	Total Tests ↓↑	Tests/ 1M pop ↓†	Population 1
				62	Palestine	314,288	+121	3,565	+2	308,303	+117	2,420	7	60,217	683	1,904,455	364,893	5,219,221
				63	Guatemala	296,438	+2,855	9,282	+67	265,352	+926	21,804	5	16,247	509	1,590,968	87,199	18,245,225
				64	<u>Denmark</u>	294,152	+475	2,535	+1	288,476	+286	3,141	12	50,606	436	68,936,564	11,859,915	5,812,568
				65	<u>Egypt</u>	281,524	+242	16,194	+25	212,059	+675	53,271	90	2,700	155	2,869,589	27,525	104,254,145
				66	<u>Lithuania</u>	278,796	+12	4,386	+3	267,721	+98	6,689	45	103,864	1,634	3,769,808	1,404,424	2,684,237
				67	Ethiopia	276,250	+76	4,325	+5	260,737	+365	11,188	142	2,345	37	2,871,470	24,378	117,791,247
				68	<u>Venezuela</u>	274,024	+1,312	3,136	+17	255,256	+1,310	15,632	356	9,664	111	3,359,014	118,461	28,355,389
				69	Ireland	272,784	+448	5,000	+11	257,330	+715	10,454	14	54,636	1,001	4,729,538	947,279	4,992,759
	Chart for 1 July 2021		70	<u>Oman</u>	270,504	+1,959	3,140	+40	236,988	+2,127	30,376	530	51,667	600	1,550,000	296,052	5,235,564	
			71	<u>Bahrain</u>	265,975	+148	1,353	+1	261,740	+453	2,882	85	151,110	769	5,052,499	2,870,511	1,760,139	
			72	<u>Thailand</u>	264,834	+5,533	2,080	+57	210,702	+3,223	52,052	1,971	3,785	30	8,129,670	116,180	69,974,894	
				73	Honduras	262,760	+691	7,005	+25	92,454	+51	163,301	566	26,116	696	792,602	78,776	10,061,416
				74	<u>Sri Lanka</u>	260,972	+1,883	3,120	+43	227,840	+1,888	30,012		12,137	145	3,743,577	174,097	21,502,881
				75	<u>Slovenia</u>	257,358	+23	4,419		252,368	+83	571	16	123,776	2,125	1,348,941	<mark>648,771</mark>	2,079,224
				76	Moldova	256,816	+82	6,194		249,774	+68	848	53	63,812	1,539	1,266,454	314,679	4,024,591
				77	<u>Armenia</u>	225,221	+126	4,517	+3	216,882	+104	3,822		75,863	1,522	1,188,922	400,476	2,968,775
				78	Qatar	222,217	+146	591	+1	219,985	+186	1,641	50	79,143	210	2,172,413	773,705	2,807,805
				79	<u>Bosnia and</u> <u>Herzegovina</u>	205,032	+10	9,667	+2	183,534	+228	11,831		62,885	2,965	1,032,106	316,558	3,260,404
				80	Cuba	193,945	+2,952	1,302	+18	176,030	+1,879	16,613	184	17,133	115	5,149,286	454,896	11,319,707
				81	<u>Libya</u>	193,905	+431	3,198	+5	178,621	+234	12,086		27,842	459	1,123,702	161,350	6,964,359
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	#	Country, Other 11	Total Cases ↓	New Cases ↓†	Total Deaths ↓↑	New Deaths ↓†	Total Recovered ↓↑	New Recovered 1	Active Cases 1	Serious, Critical 🕼	Tot Cases/ 1M pop 11	Deaths/ 1M pop ↓†	Total Tests 11	Tests/ 1M pop ↓†	Population 1	•
	82	<u>Kenya</u>	184,537	+376	3,640	+6	126,594	+910	54,303	113	3,358	66	1,963,532	35,734	54,948,318	
	83	<u>Nigeria</u>	167,692	+74	2,121	+1	164,273	+29	1,298	11	794	10	2,300,266	10,891	211,212,872	
	84	<u>Myanmar</u>	159,347	+2,070	3,347	+13	136,992	+549	19,008		2,909	61	2,743,783	50,093	54,773,731	
	85	Zambia	157,832	+2,884	2,271	+72	134,419	+2,627	21,142	1,307	8,353	120	1,885,589	99,794	18,894,728	
	86	<u>S. Korea</u>	157,723	+762	2,021	+3	148,024	+331	7,678	144	3,074	39	10,614,317	206,853	51,313,265	
	87	<u>North</u> <u>Macedonia</u>	155,689	+5	5,485	+1	150,063	+86	141	25	74,732	2,633	881,870	423,307	2,083,289	
	88	Algeria	140,075	+449	3,726	+10	97,380	+291	38,969	28	3,138	83	230,861	5,172	44,638,796	
	89	<u>Latvia</u>	137,500	+71	2,520	+7	134,062	+134	918	30	73,714	1,351	2,915,159	1,562,822	1,865,317	
Chart for 1 July 2021	90	<u>Albania</u>	132,523	+2	2,456		130,014	+5	53	3	46,100	854	809,570	281,623	2,874,657	
Chart for 1 July 2021	91	<u>Norway</u>	131,509	+193	794		88,952		41,763	7	24,070	145	6,148,762	1,125,420	5,463,525	
	92	<u>Estonia</u>	131,085	+21	1,269		127,416	+65	2,400	6	98,751	956	1,529,150	1,151,966	1,327,426	
	93	<u>Kyrgyzstan</u>	126,395	+1,392	2,009	+9	110,698	+616	13,688	102	19,060	303	1,310,251	197,585	6,631,324	
	94	<u>Afghanistan</u>	122,156	+1,940	5,048	+86	71,924	+912	45,184	1,124	3,069	127	617,618	15,518	39,799,449	
	95	Mongolia	117,963	+2,485	578	+15	79,256	+2,602	38,129	126	35,415	174	3,266,128	980,572	3,330,839	
	96	<u>Uzbekistan</u>	111,153	+476	740	+4	107,696	+633	2,717	23	3,274	22	1,377,915	40,584	33,952,226	
	97	<u>Montenegro</u>	100,272	+20	1,613		98,371	+19	288	6	159,632	2,568	452,318	720,085	628,145	
	98	Finland	95,964	+222	973		46,000		48,991	7	17,293	175	5,442,313	980,717	5,549,318	
	99	<u>Ghana</u>	95,914		796		93,444		1,674	9	3,024	25	1,276,266	40,238	31,717,705	
	100	<u>China</u>	91,792	+12	4,636		86,718	+29	438	8	64	3	160,000,000	111,163	1,439,323,776	
	101	<u>Namibia</u>	91,208	+1,291	1,556	+35	67,780	+450	21,872	81	35,261	602	532,519	205,870	2,586,682	
	102	Uganda	81,034	+1,057	1,061	+38	53,551	+590	26,422	1,081	1,718	22	1,333,486	28,268	47,172,633	Ŧ
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Note:

The 'appendices' below provide some further 'follow-up' information which *might* be of *some* interest to *some* readers:

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Appendix A to CRPM Part 4 / Volume 1

'Different Paths to the Same Destination': Screening for Covid-19

By Chloe Kent - 18 May 2021 / 'Medical Device Network'

Differences between PCR, LFT and Antibody Tests for Covid-19

Over the course of the Covid-19 crisis to date, the importance of reliable, accessible testing to screen for the disease has become increasingly apparent. Tests for Covid-19 can be divided into antigen or antibody tests, both of which use different kinds of 'samples' to search for different 'hallmarks' of the SARS-CoV-2 virus. 'Medical Device Network' takes a closer look here at the different types of Covid-19 test

What are the different types of Covid-19 test?

- Polymerase Chain Reaction (PCR) tests must be sent to a lab for potential Covid-19 diagnosis (typically takes several days to get the result)
- Lateral Flow Tests (LFT) diagnose Covid-19 quickly (typically within 30 minutes of taking the test), but aren't as accurate (and thus reliable) as PCR tests
- Antibody (or serology) tests can't diagnose active COVID-19 infection, but help to tell if a person has current immunity to it (e.g. because they have already had Covid-19; have been successfully vaccinated against it etc.)

What is **PCR** testing?

PCR tests are used to directly screen for the presence of viral RNA, which will be detectable in the body before antibodies form or symptoms of the disease are present. This means the tests can tell whether or not someone has the virus *very early on* in their illness

During Covid-19 PCR testing, substances known as reverse transcriptase or DNA polymerase are added to a (potentially infected person's) nasopharyngeal sample in a lab. They work to make numerous copies of any viral RNA that may be present. This is so that enough copies of the RNA are present to signal a positive result (as appropriate), as specifically designed primers and probes attach themselves to sequences of the genetic code of the virus, to signal that a pathogen has been found

"PCR gives us a good indication of who is infected," says University of Sussex senior lecturer in microbiology Dr Edward Wright. "Those infected can be isolated and also make contact with people they've been in touch with relatively recently, so they can be quarantined too, just in case. That's the true advantage of the current major diagnostic tests; you can (try to) break that transmission chain and get a clearer picture of what's happening"

By scaling PCR testing to screen vast numbers of nasopharyngeal swab samples from within a population, public health officials can get a clearer picture of the spread of a disease e.g. Covid-19. However, PCR still has its limitations - the main one being the time it takes for people to get their results

Furthermore, 'false negatives' can occur up to 30% of the time with PCR tests, meaning they're more useful for confirming the presence of an infection than giving a patient the 'all-clear'. They can also deliver false positive results, (their very sensitivity meaning they might signal a positive result from detection of dead / deactivated virus still present in the body of someone, who has already recovered from Covid-19)



Warwick Medical School honorary clinical lecturer Dr James Gill said: "During the course of the (COVID-19) outbreak, PCR testing has been refined from the initial testing procedures together with the addition of greater automation to reduce errors. As we are looking at swabs taken from people, who have lots of other organisms floating around, *we are essentially dealing with the question of how 'right' the result we are looking at is?*"

How About LATERAL FLOW Tests?

LFTs are similar to PCR tests, in that they're both types of antigen test, designed to pick up active Covid-19 infection rather than antibodies to the disease. With the LFT, a nasopharyngeal sample is placed on a small absorbent pad, which is then drawn along the pad via a capillary line to a strip coated in antibodies, which can potentially bind to SARS-Cov-2 proteins. If these proteins are present, this will show as a coloured line on the test, indicating infection

The major benefit of LFTs over PCRs is that they do not need to be sent away for confirmation and can provide results within 15 to 30 minutes. *However, what they gain in speed they sacrifice in accuracy*

A review of 64 studies from Europe and the US showed a wide variance in accuracy between different brands of LFT. The review also found that the tests were far better at identifying Covid-19 in people who had symptoms than those who did not. LFT sensitivity in *symptomatic* people ranged from 34% to 88%, with an average accuracy of 72%. In people *without symptoms* the LFTs correctly identified an average of 58% of those who were infected

Whilst the use of LFTs for mass asymptomatic screening has been encouraged in countries like the UK, some experts have cast doubt on how useful Covid-19 LFTs really are in this context

What is ANTIBODY Testing?

A COVID-19 antibody test tells us who has already had COVID-19 but typically no longer has it (and thus should be immune to the associated virus - at least for a certain amount of time). The test does not indicate if a tested person is currently infected, as the associated antibodies are only generated after a week or two, after which time the virus should have cleared from the infected person's system

A study has found that people who recover from even mild cases of Covid-19 produce antibodies for at least five to seven months, and could do so for much longer

Historical studies have indicated that people who survived the sudden acute respiratory syndrome (SARS [coronavirus SARS-CoV-1] - 'Bird Flu') outbreak in the early 2000s had antibodies in their blood for years after recovery. Both 'Bird Flu' and Covid-19 are caused by similar coronaviruses, so it might not be unreasonable to assume that Covid-19 might have a similar effect?

"If there's a high enough level of people in the population who have immunity, this will stop this virus (not accounting for any future variants) from circulating within the population, which is known as *herd immunity*," says Wright. "If someone is infected, as long as the people around them have immunity, the virus won't be able to spread"



Unlike PCR tests, which commonly use swabs to detect Covid-19, blood samples are usually used for antibody tests. This is because there will be a very small amount of Covid-19 circulating in the blood compared to the respiratory tract, but a significant and measurable antibody presence in the blood following infection

Antibody tests are being used to evaluate the immune responses in people who have been vaccinated against Covid-19. Researchers don't yet know how long vaccine-induced immunity will last or if booster shots will be needed

There has been some indication that Covid-19 variants *might* be making certain vaccines less effective, but thus far they still appear to generally provide enough protection to guard against severe or fatal disease





Appendix B to CRPM Part 4 / Volume 1

Note: Where **2** / 'double' vaccinations (full dose / treatment) are mentioned as being required in the article below (e.g. for Pfizer, Astra Zeneca and Moderna vaccines) - certain single vaccinations (e.g. Janssen) which also provide the full dose (BUT with just the one vaccination [instead of 2 e.g. as for Pfizer etc.]) are also acceptable

Traffic Light System: (red / amber./ green list countries) - Where can I go on Holiday?

Vaccinated English Travellers will soon be able to travel to Amber List Countries without needing to Quarantine on their Return

'Which? Travel' (UK Consumer Organisation) / By Rory Boland - 8 Jul 2021

Under new travel rules, residents of *England* will be able to travel to *amber* list countries (as per England's COVID-19 'traffic-light system') for leisure purposes, from 19 July 2021. All such persons who are *double vaccinated* will *NOT* need to self-isolate on their return to England but will still need to take an appropriate (e.g. lateral flow test) COVID-19 test (which must be negative of course) *before* departing said amber list country and a COVID-19 PCR test *on or before day two* after their return to England. Children returning from green / amber list countries don't need to self-isolate either but will be subject to the testing if they are aged 5 and over

The change to amber list quarantine advice will only take effect in England. Scotland, Wales and Northern Ireland are yet to announce whether they will follow suit. Previously, you could only avoid quarantine on return to the UK by visiting a *green* list destination specifically. England, Scotland, Wales and Northern Ireland currently have the same green list, but England additionally operates a green *watchlist*

Green and amber list status only relates to quarantine and test requirements when returning to the UK i.e. *you must still check entry requirements for the destination* before you go e.g. some green list countries such as Australia and New Zealand *DO NOT* allow UK arrivals to enter for leisure purposes. Others, such as Malta, only allow entry for those fully vaccinated (and who can prove it). Italy is an amber list country, which you *can* visit (after 19 July) under these new (English) rules - *however, Italy's current ENTRY rules mean isolating on arrival for five days*. Consequently, it's best to check the entry rules *VERY* carefully before booking a holiday / leisure trip *anywhere*

What is the green 'watchlist'?

A green 'watchlist' status indicates that the UK government (England only) may change a (country already on the green watchlist specifically) destination's colour to amber or red at any time, rather than the otherwise fixed traffic light reviews every three weeks. This means there is increased risk in booking to such countries, (unless you can book with a service provider that can commit to refunds for such watchlist changes) - in addition to the possibility of being adversely impacted during the holiday / travel itself etc.

Travellers from Wales, Scotland & N. Ireland *MUST currently* self-quarantine for 10 days on return from an *amber* list country. Same applies for *unvaccinated* travellers and those who have only had one jab (subject to the 'note' at the top of this page) *if returning to England*. They will also need to pay for all of the associated tests



In England (from 19 July 2021) fully vaccinated residents will *not* need to quarantine on their return from holidays to green and amber list countries. They still need to take the required tests though i.e. one (typically a lateral low test [fail it and you might {will??} have problems]) within 72 hours <u>before</u> leaving an amber list country and a PCR test within 2 days of returning home

Holiday makers exceptionally arriving from countries on the *RED* list <u>must</u> (mandatory) quarantine for 10 days in government-managed hotels. This costs £1,750 per person. Examples of countries on the red list include Egypt, Tunisia and Turkey. *You should NOT travel to red list countries or territories for leisure purposes*

How does the government decide which countries go on the green, amber or red lists?

Destinations have been assigned to each list based on a range of Covid-19 health metrics, including vaccination numbers, infection rates and prevalence of variants. The different traffic light colours indicate the 'estimated' risk in each destination and which associated tests and quarantine periods are required

How frequently might countries change traffic light colours?

The government has confirmed that it will move countries in and out of different colours in the traffic light system, as required by the associated 'data'. To reduce the risk of disruption this summer, the government plans to make changes to the green list every three weeks, instead of the previous (travel corridors) weekly system. It was at one of these three week review dates that Portugal was recently downgraded from green to amber - catching thousands of English holidaymakers (already in Portugal) unawares and 'scrambling to get home' before the change took effect

The government has warned that destinations on the green or amber list could move to red at any time (some short notice warning of the change might [but not necessarily] be provided). If you're in a destination when its traffic light status changes adversely, you may want to pay for a flight to get home before the change takes place (*if possible* [it might not be if you don't have enough time!] and note that the associated airfares are likely to [i.e. will] increase significantly as a result [as they always have done in similar, past circumstances])

If '*red' is* declared whilst you are away you will (as mentioned above) have to pay £1,750 per person for mandatory 10 day quarantine in a 'government' arranged and monitored hotel back in England, so it might be cheaper to buy a new flight and get home before the change takes effect (again, if possible???)

If a country's status changes to *amber* and you're not fully vaccinated you will either need to get a flight home early or self-quarantine at home (after return) for 10 days

The government warns that it won't hesitate to act immediately should data show countries' risk ratings have changed, meaning travellers could potentially face significant disruption and 'grief'! However, as the new amber list rules kick in from 19 July, disruption should be eased *for those who have been fully vaccinated*

Wherever you decide to holiday, you'll need to factor in the cost of tests, as they're required even for travel to and from green list countries. Although pricey, costs of tests are slowly coming down



Which countries are on the green list?

From 30 June 2021 the following countries were added to the green list: Anguilla, Antarctica / BAT, Antigua and Barbuda, the Balearic Islands, Barbados, Bermuda, British IO Territory, BVI, Cayman Islands, Dominica, Grenada, Madeira, Malta, Montserrat, Pitcairn Islands, Turks and Caicos Islands. See the full list on the UK government's website

Can I take a holiday to countries on the green list? What tests are needed??

If the country is accepting UK arrivals, yes. For example Spain will *currently* let UK residents in without vaccinations or tests. Others might not let you in at all (e.g. Australia), and some might let you in but only if you're fully vaccinated (and can prove it), such as Malta

Returning to England from such green list countries, you will need to take a pre-departure COVID-19 test (which must be negative of course and also be 'provable' to UK authorities on arrival [in UK]) in said country + a PCR test on or before day two of your arrival back in England. No quarantine is required in England unless you test positive - in which case 10 days self-quarantine (typically at home) will be necessary

The country you are travelling to may also require a test(s), thus further adding to the cost

The *EU* has suggested those who have been fully vaccinated, and can provide adequate evidence of same, may not need to take a test in future, but its recommendations don't have to be followed by individual EU countries

English holidaymakers can now use the NHS (UK government's <u>National Health Service</u>) 'APP' to 'prove' their vaccination status in some countries e.g. Greece. You can also access this online if you don't have a smartphone or request proof from the NHS in letter form if you don't have access to a computer or printer

Which countries are on the amber list?

The many countries on the amber list include e.g. Greece, Portugal, Cyprus, France, Spain (including the Canaries), Italy and Croatia

Can I take a holiday to countries on the amber list? What tests are needed?

The UK government will change its stance on leisure travel to amber list countries for residents of England - effective from 19 July 2021. The latter can now take holidays to amber-list countries (if they will 'let you in' of course') and, if you are fully vaccinated (see again note at top of this article if required), you will not need to quarantine on return to England unless the post-arrival PCR test proves negative (i.e. you will still need to take all of the tests already described further above)

The requirement for a negative pre-departure test (prior to leaving an amber holiday etc. location) plus PCR tests on day two and day eight during a mandatory 10 day quarantine ('self-isolation at home etc.) will remain in place for those *not fully inoculated*, and (for the moment at least) all travellers from Scotland, Wales and Northern Ireland. Alternatively, you can pay for an additional 'Test to Release PCR test' on day five to end self-isolation (in England) early (if negative of course)

The government may make spot-checks to see if you're self-isolating at home etc. as described above. You could face up to a £10,000 fine if you aren't. Scotland, Wales and Northern Ireland may follow suit and we will update this piece when further detail is announced



The UK government's Foreign, Commonwealth & Development Office (FCDO) travel advice and the advice referred to herein for *amber* list countries won't always align e.g. if FCDO advises against travel to a county on the amber list (almost certainly for a reason(s) other than COVID-19 related e.g. a security risk of some type), your travel / holiday insurance (if any) will, in most cases, be invalidated if you do so travel

However, 'Which?' is aware of one type of insurance available through Biba's 1,800 member brokers which will insure you even if you travel against FCDO advice. It has not yet been assessed by 'Which?' as to whether or not it offers complete Covid cover

Which countries are on the red list?

Some examples of the many places on the red list include the Maldives, Seychelles, Egypt, Sri Lanka, Costa Rica, Trinidad and Tobago, South Africa, Turkey and India. See the full list on the UK government's website

Can I take a holiday to countries on the red list? What tests are needed?

<u>You should not travel to red list countries for holidays</u>. However, if you do so travel, you'll need to pay for a 10 day stay at a government-managed quarantine hotel on your return to England - currently costing £1,750 per person. You'll also need to take and pass (negative result for COVID) the usual pre-departure test at the appropriate overseas country - together with PCR tests on day two and eight whilst in the England quarantine hotel

Generally Speaking - Should I book a holiday?

With the *green* list in place and changes on the way soon for *amber* list holidays for those fully vaccinated, it's now somewhat easier to plan a trip, but there are still risks involved. Jet2, Kuoni and Trailfinders are 'Which?' recommended providers - and all have good, flexible booking policies

You should protect yourself in case the green or amber list country you've booked is later changed to red. There could also be issues around delayed Covid-19 test results

Additionally, with Covid cases currently rising sharply in the UK (as at July 2021), there may be a significant increase in the amount of people being 'directed' to self-isolate (in UK) this summer. This could feasibly cause major issues for holiday makers yet to depart. Despite soon having the freedom to book more trips to amber list countries if vaccinated, very few holiday companies will refund you if you are 'pinged' (contacted) by the NHS 'Test and Trace' APP (before holiday departure date) as having been in 'significant' close contact (typically for 15 minutes or more) with a COVID-19 infected person - and thus must self-isolate for 10 days immediately

Once abroad you must also be prepared that if you test positive for Covid whilst you are there - you will need to self-isolate *at that overseas location* for 10 days before returning to England

These risks can be reduced depending on how you book your holiday / break etc. and who you book it with. Choose your holiday company carefully and prepare to be flexible. It's often possible to move to different dates and even swap destinations if disruption does affect your travel, but not to claim a refund. Find out more information on 'whether it's safe to book a holiday and what to look out for when booking' in our Q&A. You should also try to find a good insurance provider that offers decent Covid cover



Vaccination passports and entry restrictions

Several countries have indicated that they will allow entry for holidays for fully vaccinated travellers without the need to take a Covid-19 test (e.g. Greece will permit entry to UK travellers who can prove they've been fully vaccinated and it will accept the NHS APP or an associated NHS letter as proof of this), whilst the UK government has confirmed it plans to drop quarantine requirements later this summer for travellers who have been fully vaccinated

The *European Union Commission* has recommended that countries should permit entry to all *fully vaccinated* individuals from non-EU countries, as well as those travelling from countries with a low incidence of coronavirus

Countries on an EU 'low-risk' list will be defined as those with 75 or less new Covid-19 cases per 100,000 people in the previous 14 days. (The UK isn't on this list at time of writing - as will be evident for the reason given [i.e. rapidly rising infection rate] – on the previous page)

Despite this recommendation, EU countries can individually set their own entry requirements, including poof of associated and adequate COVID-19 negative tests. Furthermore, children excluded from vaccination should be able to travel with their vaccinated parents if they have a negative PCR Covid-19 test taken no earlier than 72 hours before arrival. However, this could prove confusing as each EU country has different rules on the ages above which they expect children to be tested

If you are planning to travel to a destination where proof of vaccination is required, you also need to check rules on what evidence is needed. France, Greece and Madeira, for example, will accept the NHS APP - whereas Malta, which requires UK travellers to have been fully vaccinated, does not (accept the NHS APP)

Vaccination certificates on the 'NHS APP'

In England, the NHS APP can be used as proof of vaccination status and is ready to use now. However, you should check that the destination country will accept this as valid proof, before travelling. 30 countries and territories currently accept this APP or an associated and adequately verifiable NHS letter. Additionally, some countries may still require proof of a negative test(s) (check well before booking your travel)

English residents can also request the same proof online or in letter form by telephoning 119 in UK. Travellers will be responsible for making sure they have evidence of full vaccination before travel. If for any reason you don't, you'll be liable for any additional test costs and anything else associated that might be required

If you plan to use your vaccination status to travel to *amber* list countries and avoid quarantining on your return, *then you must show proof of this* on your *Passenger Locator Form / Card* - which you must complete before / on returning or otherwise travelling to the UK (An associated airline, airport, government, travel operators etc. will typically have made available / provided this form to you. It is likely to be available 'on-line' and also in hard copy format. If completed 'on-line' - proof of having done so will typically be requested on 'entering' the UK i.e. by immigration / border / police etc. officers. Don't expect permission to enter will be granted unless you can provide a correctly and fully completed passenger location form / card)







Appendix C to CRPM Part 4 / Volume 1

Israeli Government says Pfizer's COVID-19 Vaccine provides 'Significantly LESS' Protection against the Indian 'Delta' Variant than Health Officials had hoped

(Daily) Mail Online (UK) – By MARY KEKATOS ACTING U.S. HEALTH EDITOR FOR DAILYMAIL.COM PUBLISHED: 16 July 2021

Israel says the Pfizer-BioNTech COVID-19 vaccine is 'weaker' against the Indian 'Delta' variant and provides significantly less' protection than hoped. The country, which once led the world in the vaccine race, said new data show the two-dose shot provides just 64% protection against delta variant infection

The variant now makes up more than 80% of all samples sequenced in Israel as it deals with a surge in cases. Prime Minister Naftali Bennett also addressed the crises in the UK and the US, which have seen new cases reach 50,000 and 26,000 respectively

The Pfizer-BioNTech COVID-19 vaccine is 'weaker' against the Indian 'Delta' variant than health officials had hoped, a new report from Israel claims. On Friday (16 July), Prime Minister Naftali Bennett held a discussion about the coronavirus with his Cabinet at the Kirya in Tel Aviv

Israel once led the entire world in the vaccine race, vaccinating 61 percent of its population with the Pfizer-BioNTech vaccine - but is now dealing with a surge in cases. On Thursday (15 July), the test positivity rate was 1.52 percent, which is the highest number since March 2021

As of 6 June 2021, the vaccine provided 64 percent protection against infection from the variant, according to the Israeli government. 'At the moment, there is an idea that is spreading to the effect that the protective ability of the existing vaccines against the Delta mutation is weaker than what we had hoped,' Bennett said. 'We do not know exactly to what degree the vaccine helps, but it is significantly less. We are all hoping to see a slowdown but the facts at the moment are that there is no slowdown, not here and not in the world'

The Delta variant has been labelled as a 'double mutant' by India's Health Ministry because it carries two mutations: L452R and E484Q. L452R is the same mutation seen with the California home-grown variant and E484Q is similar to the mutation seen in the Brazilian and South African variants. Both of the mutations occur on key parts of the virus that allows it to enter and infect human cells

Bennett also addressed the current crises in the UK and the US, both of which are using the Pfizer vaccine (amongst others) and are overrun with the Delta variant. On Thursday (15 July) the U.S. recorded 28,412 new cases with a seven-day rolling average of 26,079, a 135 percent increase from the 11,067 average recorded two weeks before. Nearly every state and the District of Columbia have seen infections rise in the last week, according to a DailyMail.com analysis of Johns Hopkins data. What's more, about 40 states have seen their infection rates increase by at least 50 percent with some of the biggest rises seen in hotspots such as Arkansas, Louisiana and Missouri

With cases doubling every two weeks, this means the U.S. could see 50,000 cases per day by the third week of July and 100,000 per day at the end of that month



Meanwhile, Britain's daily coronavirus cases hit 50,000 on Friday for the first time since the depths of the second wave in January 2021. Figures from the Department of Health show that the number of positive tests, which sits at 51,870, has risen by 45 percent in a week

Hospitalizations and deaths are now both rising steadily following the ferocious surge in cases, which top experts blamed on the relaxation of restrictions and Euro 2020

'At the moment, the Delta mutation is leaping forward around the world, including in vaccinated countries such as Britain, Israel and the US,' Bennett said. 'In Britain, in recent days, we have seen a jump in the number of children who are being hospitalized on a daily basis. This is a development that we are aware of; we are dealing with it rationally and responsibly'

'On the one hand, the vaccines are effective against the virus; therefore, we are seeing to the necessary continuity of vaccinations and inventories. Whoever hoped that the vaccines alone would solve the problem, they are wrong. What is necessary is a strategy that brings as many vaccines as possible on the one hand and, on the other, also understands the limits of the vaccine.'

Note the unmoderated comment (on [and part of] the above article) immediately below - posted by 'bigdustup' (Boulder, Colorado)

'.....The Pfizer vaccine that is specifically formulated against the delta variant starts testing in August (2021). Pfizer also says that their current vaccine provides protection against the delta variant for 6 months, but that protection declines after that. They are in the approval process to deliver a "booster" - which would likely be delivered via a third inoculation in the September to November 2021 timeframe - of the same vaccine originally distributed





Appendix D to CRPM Part 4 / Volume 1

Is UK facing disaster? Israel reintroduces strict rules after relaxing Covid measures

By JAMES BICKERTON (Daily Express - UK). PUBLISHED 1251 - Sat, Jul 17, 2021

FEARS are growing in *Israel* over a fourth wave of coronavirus, despite 85 percent of the population having received at least one vaccine dose

On Thursday the country recorded 855 new cases, the highest figure since March 22. The government has reintroduced the legal requirement to wear masks in public places, just two weeks after it was dropped. Anyone who ignores the ruling can be fined 500 shekel (£110). Quarantine has also been reintroduced for all those arriving in Israel - currently set at 24 hours for most countries, rising to seven days for countries deemed high risk

The *UK*, which is battling a surge in cases of the Delta coronavirus variant, will be added to that high-risk list next week

Naftali Bennett, Israel's new Prime Minister, is urging children aged 12-16 to get vaccinated, along with adults. He warned: "The vaccine is not sufficient to fight against the Delta variant. We need the co-operation of citizens to defeat the coronavirus without having to impose a new lockdown. We can beat coronavirus in five weeks - it's just up to us." Mr Bennett added another lockdown, "jailing people in their homes", would only be used as a "last resort"

Over the past week, Israel recorded 11 coronavirus related deaths, whilst 16 patients are currently receiving respiratory assistance in hospital. The Israeli government has reintroduced plans for vaccine passports, which had been scrapped last month. Renamed the "happy pass", it will be required for those attending weddings and other mass inside events

Today is Tisha b'Av, a fasting day for Jews, which marks the start of the traditional Jewish wedding season. Authorities are urging wedding organisers to ensure guests have either been vaccinated or recovered from COVID-19

Israel has one of the world's most advanced vaccination programmes, raising fears new Covid measures will follow in other countries.

On Friday (16 July) another 51,870 coronavirus infections were recorded across the UK, the highest figure since mid-January 2021. Another 49 people died, within 28 days of a positive Covid test, across the country.

Boris Johnson (UK Prime Minister) has confirmed that on Monday (19 July 2021) England's "Freedom Day" will go ahead. All remaining coronavirus restrictions on socialising (including the wearing of masks) will be ended, allowing nightclubs to reopen for the first time in over a year. Theatres and sports stadiums can expect bigger crowds, as their capacity limits are removed. Social distancing rules will end, allowing handshakes between strangers to return. However, Mr Johnson has urged "caution", warning "this pandemic is not over". He added: "We cannot simply revert instantly from Monday, July 19 to life as it was before Covid."

More than 128,000 people have died, across Britain, since the pandemic began





Appendix E to CRPM Part 4 / Volume 1

COVID-19 PANDEMIC

EUROPEAN UNION

PUBLIC FINANCE SUPPORT (STATE-AID) **GRANTED TO AVIATION SECTOR**

Info at end of link further below was current as at mid -June 2020



Funded by European Union

https://ec.europa.eu/commission/presscorner/detail/nl/ip 20 514

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Appendix F to CRPM Part 4 / Volume 1

Pandemic Highlights National Strategic Importance of Airlines

Irish Times - 27 July 2021 - Cantillon

Ryanair's first quarter results again made for grim reading, with the Irish carrier recording a loss of €273 million for its group operations. However, there is the promise of better times ahead following the launch recently of the EU's digital Covid certificate for fully vaccinated people

The airline now expects to carry between 90 million and 100 million passengers by the end of its financial year in March 2022 - up from previous guidance of close to 80 million. In financial terms, Michael O'Leary guided that a "likely outcome for full year 2022 is somewhere between a small loss and breakeven"

This is dependent on the continued rollout of vaccines across Europe this summer and no adverse Covid variant developments. There could yet be turbulence on both of those fronts

European airlines have had a torrid time in the pandemic. EasyJet recently announced a loss of £318 million (€372 million) for the three months to the end of June. The airline said it wouldn't be appropriate to provide financial guidance for the rest of its financial year "given the continued level of short-term uncertainty", adding that customers are booking closer to departure and "visibility remains limited"

On Friday, Air France-KLM and International Airlines Group (owner of Aer Lingus [amongst other airlines including BA]) will report their first-half results. It will be a similar story for the pair. We know that Aer Lingus was losing €1 million a week prior to last week's loosening of air travel restrictions

In contrast, domestic air travel has taken off once again in the US and three (Delta, Southwest and American) out of the four major US carriers reported a profit in the second quarter. Mind you, all three would have reported losses without US government aid, *which has totalled \$43 billion* (€36 billion) for the trio *since the start of the Covid crisis*

Meanwhile France, Germany and Italy have spent €20 billion in state aid to prop up their ailing national flag carriers. It seems that (some) airlines are 'too strategic' to some national economies - to be allowed to fail





Appendix G to CRPM Part 4 / Volume 1

Qatar Airways Brand enhanced by Flying through Pandemic: "Al Baker"



By Graham Dunn - 23 July 2021 - Copyright: DVV Media International Limited

https://creativecommons.org/licenses/by-sa/2.0/deed.en QATAR Airways - B777 ER – A7-BAP / 25 Feb 2019 / by Anna Zvereva, Talinn, Estonia

Qatar Airways chief executive Akbar Al Baker believes that the airline's brand has been enhanced by its high level of activity through the pandemic. The Oneworld carrier has been an active player throughout the crisis, rapidly restoring its network and adding new long-haul destinations. It expects its network to reach 140 destinations this summer

Speaking during an interview for the 'FlightPlan' event on 21 July, Al Baker said: "When many airlines grounded their aircraft, we never stopped. We knew there were people who were stranded, that were prepared to fly and wanted to trust someone (i.e. an airline) coming to their aid"

He also highlights that the airline refunded customers nearly \$1.3 billion within 45 days of the pandemic first materialising - something he believes will be valued by customers. "People will remember this" Al Baker says. "People will remember that it was an airline they could rely upon, trust and their money was like it was in a bank

We have really achieved huge 'brand recognition' in this process," he adds. "There were people we were carrying on our aeroplanes who had never travelled with us before - and who were pleasantly surprised and impressed with our standards and quality"

"Every downturn has an opportunity," Al Baker says. "Everybody wants to travel, everybody wants trade, everybody wants to go to places etc. Even in a downturn, there are opportunities to do business"





Appendix H to CRPM Part 4 / Volume 1

Coronavirus and Travel: What You Should Know (As applicable to USA)

Some COVID-19 Restrictions Return as Delta Variant Spreads

By Christina Ianzito, AARP, Updated 2 August 2021

Latest updates

• As the (COVID-19) Delta variant spreads and vaccination rates slow, some areas of the country reinstate restrictions. The Centers for Disease Control and Prevention (CDC) announced on July 27 that individuals who live in or visit areas of substantial or high COVID-19 transmission - which is currently about 75% of the country, should wear masks in public indoor settings regardless of vaccination status

Los Angeles County, Las Vegas and Washington, D.C. are among the jurisdictions that are again requiring people to wear masks in indoor public areas, regardless of vaccination status. Chicago has reinstated its COVID-19 testing requirement for visitors from 14 states that have passed the daily mark of 15 cases per 100,000 residents. If they are not vaccinated for COVID-19, those visitors will need to obtain a negative COVID-19 test result no more than 72 hours prior to arrival in Chicago or quarantine for a 10-day period upon arrival. Disneyland and Walt Disney World are also again requiring face masks to be worn indoors

• Other domestic destinations have loosened their COVID-19 restrictions for those who've been vaccinated - but maybe not for long. New York, for example, lifted all restrictions (capacity limits, health screenings) besides those recommended by the CDC (such as requiring masks for unvaccinated individuals in many settings and for everyone on public transit), but New York City Mayor Bill de Blasio has just announced a new recommendation - not a mandate - that everyone wear masks indoors. And Massachusetts is now recommending that even vaccinated individuals wear masks in public indoor settings if they or someone in their household is more vulnerable to complications from COVID-19 or is unvaccinated

• England has begun welcoming fully vaccinated Americans, who will no longer be required to quarantine upon arrival. Wales, Northern Ireland and Scotland have followed suit. But the CDC recently raised its warning for Britain to level 4 - "avoid travel to this destination." Due to high levels of COVID-19 there, the warning says, "even fully vaccinated travellers may be at risk for getting and spreading COVID-19 variants."

The State Department also now says, "Do not travel to the United Kingdom due to COVID-19." (You are considered fully vaccinated two weeks after receiving the second dose of either the Pfizer-BioNTech or the Moderna vaccine, or the one-dose Johnson & Johnson vaccine.)

• Unruly air passengers are described as a serious threat. The airline industry is calling for more serious prosecution of what appears to be a growing number of passengers who are violent or otherwise disruptive mid-flight. Since the middle of January 2021 there have been 3,615 reports of unruly passenger behaviour, at times involving physical assault - according to the Federal Aviation Administration. Those include 2,666 reports of passengers refusing to comply with the federal face mask mandate



• **Canada will begin welcoming fully vaccinated visitors from the U.S. on 9 Aug**. The Canadian government has barred leisure travel from the U.S. for more than a year to prevent the spread of COVID-19. Canadian officials will require proof of full COVID-19 vaccination, uploaded using the <u>ArriveCAN app</u> or web portal, for visitors to avoid a two-week quarantine upon arrival. (You are considered fully vaccinated two weeks after receiving the second dose of either the Pfizer-BioNTech or the Moderna vaccine, or the one-dose Johnson & Johnson vaccine.)

All travellers will still require a pre-entry COVID-19 molecular test result. Canada will begin allowing visitors from the rest of the world on 7 September 2021

• **Canada will allow big ships to sail this fall**. The country also said that it will allow big cruise ships (those with more than 100 passengers) back into its waters beginning 1 November, following a long pandemic ban. This is sooner than expected; Canada had previously suggested the ban would last until February

• The CDC lowered its warning level for cruising from level 4 (COVID-19 risk is very high) to level 3 (COVID-19 risk is high). It has also stopped explicitly warning those who are fully vaccinated against cruise travel. The CDC still recommends that those who are not fully vaccinated avoid travel on cruise ships. It also says that even those who are fully vaccinated should get a COVID-19 viral test one to three days before departure, and that everyone on a cruise ship should wear a mask in public spaces. Some cruise lines are requiring proof of vaccination; others are not. (See more on cruising below.)

• The CDC continues to revise its travel recommendations for countries around the world. It has lowered the warning levels from level 4 (avoid travel due to high COVID-19 levels) to level 3 (make sure you are fully vaccinated before you travel) for many popular tourist destinations - including Canada, Ireland, Italy and France. Finland and Germany are among those now at level 2, indicating moderate levels of COVID-19, while Iceland and Bermuda were recently upgraded to level 1 - the safest category of all. The CDC's advice for levels 1 and 2 is basically the same as for level 3: "Make sure you are fully vaccinated before traveling to these destinations." But it's raised its warnings for some countries, including Britain (as noted above), Portugal and Spain, to level 4.

(Note: Travelers should also check recommendations from the State Department, which has downgraded risk levels for many countries, though it is still advising against visiting some, at times, due to factors other than COVID-19)

• Europe is beginning to open to Americans who are fully vaccinated - under certain conditions. The European Union (EU) has added the U.S. to its safe travel list for the summer 2021 tourist season, though there are still plenty of roadblocks to easy passage. Some countries, including Italy, Greece, Spain, Germany, Iceland and Croatia, are already open to Americans - though with caveats (they typically require either proof of vaccination or a negative COVID-19 test). EU countries' rules vary, so travellers should do their research before settling on a destination

• *Testing is required for return to the U.S.* In order to board a flight to the U.S. - both visitors and American citizens must provide documentation of a negative viral test taken within three days of their departure or provide proof that they have recovered from COVID-19. Those who are fully vaccinated do not need to quarantine when they return to the U.S. from international locations, but they should get tested for COVID-19 three to five days after arriving back in the U.S. and watch for symptoms, according to the CDC.

Everyone should continue to wear masks in public and follow other infection prevention measures, such as frequent handwashing and social distancing



• *Masks still need to be worn on public transportation*. While the CDC has announced loosened mask-wearing guidelines for those who have been fully vaccinated for COVID-19, it still requires all travellers to wear them on airplanes, buses and rail systems, as well as in airports and bus and train stations.

Travel's surge back toward normalcy is starting to look more precarious, with the extremely contagious delta variant's spread - and its apparent ability to infect fully vaccinated individuals (though their symptoms tend to be far milder than those for unvaccinated people, they may be able to pass on the virus to others).

The CDC still advises against travel unless you are fully vaccinated. If those who are unvaccinated do travel within the U.S. - they should get tested for COVID-19 one to three days before departure and again three to five days after returning. They should stay home and self-quarantine for seven days after travel or 10 days if they don't get tested at the conclusion of travel.

The number of airline passengers screened by the Transportation Safety Administration (TSA) each day has risen substantially in the past few months - nearly 2.24 million people passed through airport security on 1 August 2021 for example. That's still lower than the approximately 2.69 million who did so on the same date in 2019, but it's a huge leap from the 800,000 who flew on 1 August 2020

There are a few things travellers should keep in mind:

At the Airport

The TSA is asking travellers to use enhanced precautions during airport screening, including putting personal items such as wallets, phones and keys into carry-on bags instead of plastic bins, and staying 6 feet from others waiting in line. TSA officers are required to wear masks and gloves and to change gloves after a passenger pat-down, and travellers are required to wear masks as well. Fines for refusing to wear a mask can range from \$250 for the first offense to \$1,500 for repeat offenders

Passengers are allowed to bring liquid hand sanitizer in containers up to 12 ounces in carry-on bags; previously, liquids could be in containers no bigger than 3.4 ounces. They are also allowed to board a flight with a driver's license that expired beginning 1 March 2020, "to use it as acceptable ID at checkpoints for one year after expiration date, plus 60 days after the COVID-19 national emergency." (Some people have been unable to renew their licenses because of the outbreak.) And note that you now have until 3 May 2023, before you'll need a security-enhanced '*Real ID*' instead of a regular driver's license in order to get through airport security. The deadline was recently delayed from 1 October 2021

On the Plane

The CDC requires passengers and crew to wear masks while boarding and disembarking and during the flight. No airlines are now blocking middle seats to enable social distancing. Whilst many airlines had stopped serving food and drinks during flights, some, such as Southwest and Delta, have begun to do so again, depending on the length of the flight

All of the major U.S. airlines have equipped their planes with high-efficiency particulate air (HEPA) filters, which remove at least 99.97 percent of dust, pollen, mould, bacteria and airborne particles as small as 0.3 microns, according to the Environmental Protection Agency. The CDC concurs, noting in its guidance for travel during the pandemic that "most viruses and other germs do not spread easily on flights because of how air circulates and is filtered on airplanes."





Cruising

It's really happening: Cruising is beginning to return to U.S. waters. The CDC recently clarified its requirements for big ships to cruise again, after a long hiatus during the pandemic. It asks them, for one, to undergo a test cruise before they sail to demonstrate their safety measures, unless they can prove that at least 95 percent of their passengers are fully vaccinated

Some passengers are still testing positive for COVID-19, however, including six passengers on a Royal Caribbean International cruise that departed from Nassau last weekend, four of whom were vaccinated; they were quarantined and evacuated from the ship. (Only one exhibited symptoms, and those were mild)

Meanwhile, Florida has implemented a ban on so-called vaccination passports, prohibiting cruise lines from requiring vaccinations if they hope to sail from ports in the state. The cruise industry is hoping for a reversal of this policy

And Alaska is again open to big-ship cruising. Congress has approved the bypassing of long-time rules that required foreign-registered ships traveling between U.S. ports to stop in another country (in Alaska's case, Canada, which has banned large cruise ships through November of this year)

With the rule change, many of the big lines have begun cruising to Alaska, with COVID-19 vaccination requirements for passengers

Editor's note: This story was originally published on March 9, 2020. It's been updated to reflect recent coronavirus developments. Christina Ianzito is the travel and books editor for aarp.org and AARP 'The Magazine' - and also edits and writes health, entertainment and other stories for aarp.org. She received a 2020 Lowell Thomas Award for travel writing





Appendix J to CRPM Part 4 / Volume 1

United States of America

* AVIATION RELATED DATA / STATISTICS TO DATE - COVID-19 PANDEMIC

* Primarily Relating to USA / USA Airlines



https://www.bts.gov/covid-19





Appendix K to CRPM Part 4 / Volume 1

How long does Protection Last from Two Covid Vaccine Doses?

James Morris - 15 September 2021 - (Yahoo News UK / Flourish)

The UK government is launching a coronavirus vaccine booster campaign to tackle waning immunity. It forms a key part of its "autumn / winter plan" to deal with the virus *in England* over the coming months

Heath secretary Sajid Javid referred to evidence that the protection given by vaccines "reduces over time, particularly for older people who are at greater risk". So, from next week, boosters will be offered to priority groups including over-50s, people with underlying health conditions and health / social care workers

The UK is now one of 10 countries, including France, running a booster campaign of third jabs, with either a full dose of Pfizer or a half dose of Moderna being offered - regardless of which one people had (already) had. AstraZeneca will be offered when Pfizer or Moderna doses are not possible, for example due to allergies. On Thursday last week, a Public Health England (PHE) study on vaccine duration was considered by the Scientific Advisory Group for Emergencies (Sage), with the document made public on Tuesday. Here are the key findings

How long does immunity last from two Covid vaccine doses?

The report considers the "VE" (vaccine effectiveness) of the Pfizer and AstraZeneca jabs, as full data were not available for the Moderna vaccine. Below, it is broken down by category:



Symptomatic Disease



After five months, both jabs are less likely to prevent symptomatic disease. The report stated: "With both vaccines, waning of VE against symptomatic disease is seen from around 10 weeks, reaching just over 50% with AstraZeneca and just over 70% with Pfizer by 20-plus weeks."

Hospitalisation

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This is where the outlook starts to improve, as demonstrated by the flatter lines on the above chart.

The report stated: 'Waning against hospitalisation appears to be much more limited, in particular with the Pfizer vaccine where VE of around 95% continues to be seen beyond 20 weeks post after vaccination'

'With the AstraZeneca vaccine, there appears to be some waning to just below 80% VE against hospitalisation from 20-plus weeks'



Death

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Ultimately, two doses of the vaccine continue to provide strong protection against death from Covid-19. "Similar to hospitalisation, there appears to only be limited waning of VE against death," the report said

Age Groups and Hospitalisations

See next page:



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Whilst the above graph (previous page) provides a useful, overall picture for over-16s, it was also important to consider vaccine effectiveness by older age groups, as this formed a key part of the decision to launch the booster vaccination campaign

For the key metric of preventing hospital admissions, which is the overriding focus of the UK government's autumn and winter plan, the study showed that after 20 weeks there was:

- A 4% reduction in effectiveness of Pfizer in over-65s (98.3% to 94.6%)
- A 15% reduction in effectiveness of AstraZeneca in over-65s (93.7% to 78.6%)
- A 23% reduction in effectiveness of Pfizer in *clinically extremely vulnerable* over-65s (94.6% to 71.4%)
- A 20% reduction in effectiveness of AstraZeneca in *clinically extremely vulnerable* over-65s (79.3% to 59.4%)

Meanwhile, the study also indicated a 30% reduction (to about 70%) in the effectiveness of Pfizer in over-80s, many of which received this vaccine in December 2020 and January 2021 - with a three-week interval between doses

Speaking about the booster campaign at a Downing Street press conference on Tuesday, England's deputy chief medical officer Prof Jonathan Van-Tam said it "will make a very substantial impact on keeping the lid on things Covid-wise in terms of hospitalisations and deaths - and keeping pressure off the NHS (UK's National Health Service) this winter"



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Not 'The End' actually as we have some additional updates (inserted May 2024) starting page: 241



Pfizer / BioNTech Provide Update on Booster Program in Light of the Delta-Variant



8 July 2021

As part of Pfizer's and BioNTech's continued efforts to stay ahead of the virus causing COVID-19 plus circulating mutations, the companies are providing an update on their comprehensive booster strategy. Pfizer and BioNTech have seen encouraging data in the ongoing booster trial of a *third* dose of the current **BNT162b2** vaccine. Initial data from the study demonstrate that a *booster* dose - given 6 months *after the second dose* has a consistent tolerability profile while eliciting high neutralization titers against the wild type and the Beta variant, *which are 5 to 10 times higher* than after the first two primary doses

The companies expect to publish more definitive data soon as well as in a peer-reviewed journal - and plan to submit the data to the FDA, EMA and other regulatory authorities in the coming weeks. In addition, data from a recent <u>Nature</u> paper demonstrate that immune sera obtained shortly after dose 2 of the primary two dose series of BNT162b2 also have strong neutralization titers against the **Delta variant** (B.1.617.2 lineage) in laboratory tests

The companies anticipate that a third dose will boost those antibody titers even higher, similar to how the third dose performs for the Beta variant (B.1.351). Pfizer and BioNTech are conducting preclinical and clinical tests to confirm this hypothesis

Whilst Pfizer and BioNTech believe a third dose of BNT162b2 has the potential to preserve the highest levels of protective efficacy against all currently tested variants *including Delta*, the companies are remaining vigilant and are *developing an updated version of the Pfizer-BioNTech COVID-19 vaccine that targets the full spike protein of the Delta variant*. The first batch of the mRNA for the trial has already been manufactured at BioNTech's facility in Mainz, Germany. *The Companies anticipate the clinical studies will begin in August 2021, subject to regulatory approvals*

As seen in real world data released from the Israel Ministry of Health, vaccine efficacy in preventing both infection and symptomatic disease has declined six months post-vaccination, although efficacy in preventing serious illnesses remains high. Additionally, during this period the Delta variant is becoming the dominate variant in Israel as well as many other countries. These findings are consistent with an ongoing analysis from the Companies' Phase 3 study. That is why we continue to believe that it is likely (based on the totality of the data we have to date) that a third dose may be needed within 6 to 12 months after full vaccination to maintain the highest levels of protection



Pfizer Covid Vaccine Still 90% Effective at Preventing Hospitalizations after Six Months, Study Finds

By Jemima McEvoy - Forbes - 4 October 2021

Pfizer's coronavirus vaccine remains highly effective at preventing nearly all virus-linked hospitalizations for "at least" six months, but protection against infection falls to less than 50% during that period, according to a large new study published Monday backing up previous research on waning immunity. The <u>study</u> by Pfizer and California-based healthcare company Kaiser Permanente looked at more than 3.4 million people who had been fully vaccinated against Covid-19

The analysis, peer reviewed and published in *The Lancet* medical journal, found just 5.4% (or 184,041) of those fully vaccinated were infected with the coronavirus, and only 6.6% (or 12,130) of those with so-called "breakthrough infections" ended up in hospital (the average time since the second dose was between three to four months)

Overall, the Pfizer vaccine remained 90% effective at preventing hospitalizations for "all variants," including the hyper infectious delta variant, during the analysis period and for all age groups, wrote the study's authors

However, protection against infection *waned significantly* over the months, falling from 88% within one month after receiving the second dose of the Pfizer vaccine to 47% after six months

A closer look at nearly 9,000 positive samples found that vaccine effectiveness against infections caused by delta drops from 93% to 53% after four months, versus a decline from 97% to 67% for other variants

<u>Crucial Quote</u> - Dr. Luis Jodar, the senior vice president and chief medical officer for Pfizer's vaccine division, highlighted that "breakthrough infections" are most likely due to waning efficacy and are "not caused by delta or other variants escaping vaccine protection." "Our variant-specific analysis shows that the [Pfizer] vaccine is effective against all current variants of concern," Jodar said in a statement

<u>Key Background</u> - The study by Pfizer and Kaiser adds to a growing body of research signalling Covid-19 vaccines become less effective at preventing infection over time. Moderna released an <u>array of clinical data</u> last month showing that while still effective at preventing severe disease and death, the rate of breakthrough infections among those who received its vaccine appeared to increase significantly over time. Healthcare records from <u>Israel</u> and the <u>United Kingdom</u> have also offered similar conclusions

<u>What To Watch for</u> - All this research has become critical as experts across the globe, including in the USA, assess the need for booster shots. The Biden administration originally aimed to provide vaccine top-ups for all Americans, but saw its plans hampered last month when a key FDA advisory panel questioned the necessity based on current data, which suggest vaccines are still preventing nearly all severe infections

The FDA ultimately approved booster shots of Pfizer's vaccine for people over 65, along with those who are at high risk of becoming seriously ill from the virus and those who could develop serious complications due to frequent exposure from their jobs

The agency is also reportedly leaning toward authorising a half dose of the Moderna vaccine as a booster and could soon be pondering Johnson & Johnson's vaccine for a third dose too, as the latter is reportedly planning to submit its emergency authorization application this week

New Antibody Treatment 'both Prevents and Treats Covid-19'

PA Media / Jane Kirby / 11 October 2021

An antibody treatment developed by pharmaceutical giant AstraZeneca has shown its *ability to both prevent and treat* Covid-19, according to new data

AstraZeneca submitted a request to the US Food and Drug Administration (FDA) last week for emergency use authorisation for AZD7442 (which is made up of two antibodies) as a preventative treatment

In new data released from its Tackle trial today, *AstraZeneca showed AZD7442 was effective in preventing severe disease in non-hospitalised patients with mild to moderate coronavirus, when compared with a placebo*. Most of the 903 people in the trial were at high risk of progression to severe Covid-19, including those with multiple health conditions

The study found that a single dose of 600mg of AZD7442, *given by INJECTION* into muscle, *managed to reduce the risk of developing severe Covid-19 or death from any cause by 50% in people who had been symptomatic for seven days or less* - when compared with a placebo,

For those who received the treatment within five days of their symptoms first appearing, AZD7442 reduced the risk of developing severe Covid or death by 67% compared with a placebo

Hugh Montgomery, professor of intensive care medicine at University College London and lead researcher on the trial, said: "With continued cases of serious Covid-19 infections across the globe, there is a significant need for new therapies like AZD7442 that can be *used to protect vulnerable populations from getting Covid-19 and can also help prevent progression to severe disease*

These positive results show that a convenient intramuscular dose of AZD7442 could play an important role in helping combat this devastating pandemic"

Mene Pangalos, executive vice president for biopharmaceuticals research and development at AstraZeneca, said: "These important results for AZD7442, our long-acting antibody combination, add to the growing body of evidence for its use in *both prevention and treatment* of Covid-19. An early intervention with our antibody can give a significant reduction in progression to severe disease, with continued protection for more than six months"

The treatment has been billed as suitable for those who e.g. cannot have a regular vaccination, respond poorly to Covid-19 vaccines or whose health conditions put them at particular risk of serious illness

Full results from the Tackle trial will be submitted for publication in a peer-reviewed medical journal

A separate study (by Provent) on the treatment (published in August 2021) showed that there were no cases of severe Covid or coronavirus-related deaths in those treated with AZD7442. *The study of more than 5,000 adults found AZD7442 reduced the risk of developing symptomatic Covid-19 by 77%* compared with a placebo. More than 75% of people in that trial had health issues which put them at increased risk of severe disease or they had a reduced immune response to vaccination



Pop a Covid Pill to Cut Risk of Hospitalisation, Death etc. - (PART 1)



Trials Show Anti-viral Tablet Dramatically Reduces Severe Cases - Raising hopes of a New Weapon in the Arsenal against the COVID-19 coronavirus

The Telegraph - by Jennifer Rigby, GLOBAL HEALTH SECURITY CORRESPONDENT, 1 October 2021

In late-stage trials an antiviral pill *cut the chances of Covid-19 patients being hospitalised by 50 per cent and dramatically reduced the risk of death*, raising hopes of a new weapon in the arsenal against the virus

The pill, *molnupiravir*, was initially developed to tackle influenza but is also effective at reducing deaths and hospitalisations from Covid-19, the data from human trials showed. Manufacturers 'Merck and Ridgeback Therapeutics' will now seek emergency use authorisation in the United States as soon as possible, and submit their data to regulators worldwide

A simple pill that can be taken at home to stop the disease in its tracks has been a key aim throughout the pandemic. Until now, remdesivir, another existing antiviral, was the only one licensed to treat Covid-19 - but it has to be *administered intravenously* and results have been modest. Other antivirals are also in development, including some specifically targeted at Covid-19, such as a pill currently being tested by Pfizer

Merck said it was "optimistic" that molnupiravir - which is named after Thor's hammer, Mjolnir - could become an important medicine for the pandemic

In the trial, 775 patients around the world - including in the UK - with at least one risk factor for severe illness began taking the drug within 5 days of the first onset of Covid-19 symptoms

Amongst the placebo group, 14.1 per cent of the patients were hospitalised (53 of 377 people) - compared to 7.3 per cent (28 of 385 people) who were amongst those *who took molnupiravir*. Eight people died during the trial; *none of them were in the group taking molnupiravir*

The trial was stopped early because of how effective the drug was proving. The data was released via a press release and has not yet been peer-reviewed. No severe side-effects were reported and similar levels of adverse reactions were recorded among the placebo groups and those who took molnupiravir

Experts hailed the results as "exciting", with huge potential for tackling Covid-19 long-term. If safe, the pill could become available via pharmacies



Note: for the more 'serious' reader, it would be well worth while studying the material found at the end of the link in the paragraph immediately above

The drug works by effectively stopping the virus replicating in the body and also works effectively against different variants, the developers said. Professor Peter Horby, emerging infectious diseases expert at the University of Oxford, said: "A safe, affordable and effective oral antiviral would be a huge advance in the fight against Covid - these interim results are very encouraging"

However, scientists cautioned that more data was needed and it would be important to gather more detail on side effects as well as on the potential for antiviral drug resistance in future. The United States has already pre-ordered 1.7 million doses of molnupiravir, if it is approved by regulators

Merck, known as MSD globally, said it is in discussions with a number of other governments and has also entered licensing agreements with generic drug manufacturers to develop the drug for use in low and middle-income countries

Eddie Gray, chair of the UK Antivirals Taskforce, said the development was "exciting" but he was not currently in a position to give out specifics on whether the UK had lined up any doses of molnupiravir

"At this point in time, all I can say is that the point of the Taskforce is to access the best possible treatments available for patients in the UK and we are looking closely at all of the options available. The emergence of phase three trial data tends to accelerate all processes of this type," he said

Note: This and the next 2 articles have been grouped together for reader convenience / continuity of subject matter. This means, of course, that the contents of these 3 articles are not necessarily in strict date / time order with other articles also appearing in this 'Updates' section of CRPM Part 4 / Volume 2



Pop a Covid Pill to Cut Risk of Hospitalisation, Death etc. - (PART 2)

First at-home pill to treat Covid-19 approved in the UK

Jane Kirby - pa media - 4 November 2021

More than 2,000 fully vaccinated over 70s have died from Covid-19 in the past month in England, new data shows. A report by the UK Health Security Agency showed 2,032 fully vaccinated persons aged over 70 have died within 28 days of positive Covid test in the last four weeks. In total, 2,447 double-jabbed people died in the period covered by the report, compared to 538 unvaccinated people

The disparity between the two numbers is due to most people being fully vaccinated, with more than 95% of the people at risk of Covid having had both jabs. The data shows that the death rate was far higher amongst those who did not have a jab (when looked at proportionately)

In the over 80s, the death rate among double jabbed people was 53 per 100,000 people compared to 125 per 100,000 for the over 80s who have not had their vaccine. In the 70-79 age group the death rate for the double jabbed was 14 per 100,000 compared to 47 per 100,000 for those who have not had their vaccine.

Dr Christina Pagel said that the thousands of deaths in the elderly were down to uncontrolled transmission. "This is the consequence of allowing high transmission rates to continue in your population, and while we are boosting the over 50s - which will be very effective - we should be keeping cases down as much as possible" she said. The figures come amid concern that the UK's booster rollout is not being implemented fast enough, with the oncoming winter sparking warnings from health professionals

'Labour' has called on the government to set a target of administering 500,000 Covid booster jabs a day

Shadow health minister Rosena Allin-Khan warned that the government needs to "turbocharge" the vaccine booster programme for the elderly and vulnerable so as to complete it before spring next year. The shadow minister also spoke of problems with the vaccine rollout, saying: "Local residents are contacting us saying they can't get the boosters they so desperately need. One lady in her 70s who has underlying health conditions went to her pharmacy and called 119 just to be told she wasn't eligible for a booster. She has now finally got one booked for December but had to rely on her daughter to book the appointment for her because she doesn't use the internet. The system simply isn't working"

Labour's call came as vaccines minister Maggie Throup told the Commons that more than 650,000 12 to 15 year-olds have had a first Covid jab, and eight million people have been given a booster across the UK

Despite concerns about the booster rollout, *the UK has just approved* (4 November 2021) *the world's first Covid antiviral that can be taken at home*, introducing a powerful drug to the fight against the coronavirus

Molnupiravir has been designed for people who have had a positive Covid test and are at risk from the disease. Results from a study by the US firm that made the drug, Merck, showed the drug reduced hospitalisations and deaths in a population of patients at risk of more severe outcomes by around 50% (from 14.1% to 7.3%). No patient who took the drug died from the virus on the trial

The UK Government announced last month that it had secured 480,000 courses of the drug which will be called Lagevrio in the UK



Pop a Covid Pill to Cut Risk of Hospitalisation, Death etc. - (PART 3)

Pfizer says its COVID-19 pill cuts disease's worst risks by 89%

Bill Chappell - NPR- 5 November 2021

Pfizer says that its COVID-19 pill *reduced the risk of hospitalisation or death by 89%*, in a clinical trial which tested the drug in adults with the disease - who were also in high-risk health groups

The oral medicine is called *Paxlovid*. Similar to Merck's new pill that was approved in the U.K. on Thursday (4 November), Pfizer said its drug showed good results when administered within five days first COVID-19 symptoms

Based on the strength of the trial's results, Pfizer says it will stop enrolling people into more clinical trials for the pill and will instead send the results it has so far to the U.S. Food and Drug Administration to seek emergency use authorization. "These data suggest that our oral antiviral candidate, if approved or authorized by regulatory authorities, has the potential to save patients' lives, reduce the severity of COVID-19 infections, and eliminate up to nine out of ten hospitalizations," Pfizer CEO and chairman Albert Bourla said

Both of the antiviral medicines from Pfizer and Merck attack the coronavirus by interfering with its ability to replicate itself

Pfizer says its pill is also helped by co-administering a low dose of ritonavir, a drug used in HIV/AIDS treatment regimens. Ritonavir helps protease inhibitors like the Pfizer drug persist longer in the human body, making them more effective in fighting a virus

Officials in both the U.S. and U.K. say that effective COVID-19 pills could be a game-changer in the fight to end the pandemic, because the pills can easily be administered at home. (Note: Regeneron's antibody cocktail became a key tool in medical workers' rush to prevent the worst outcomes for people who had contracted COVID-19. However, this monoclonal antibody treatment requires either an intravenous infusion or a series of shots)

Pfizer says its drug could be prescribed to reduce the severity of COVID-19 patients' illness, as well as to cut the chances that adults get infected after they've been exposed to the coronavirus

"It has demonstrated potent antiviral in vitro activity against circulating variants of concern, as well as other known coronaviruses, suggesting its potential as a therapeutic for multiple types of coronavirus infections," the company said as it announced the drug trial results



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Note 1: The afore-going articles (pages **184** - **190**) in this '**Updates**' section may give the impression that, almost 2 years into the SARS-CoV-2 (Coronavirus) COVID-19 pandemic, the world as a whole was almost 'on top of things' (an 'English' language expression meaning that most things are 'going right') concerning said pandemic. If this is the impression (for some at least), then it is incorrect

As at early November 20**21**, there were still 85,000 infections per day in the USA alone - with an associated 1350 deaths. At this same time Russia was 'reporting' around 41,000 infections with 1200 daily deaths

For the world as a whole, there had 'apparently' been around 250 million infections up to this same date - with an 'apparent' 5.6 million deaths. In reality both infection and death figures were almost certainly **gross underestimates**. For reasons / rationale for the latter, refer again to **this** document (the one you are reading right now) - pages **66** - **75**

On the next *four* pages we reproduce extracts from a BBC (UK Public Broadcaster) article dated *5 November 2021*. The latter is based on data provided by 'Our World in Data' (being a collaboration between Oxford University and an educational charity) which collated the information in the map and table shown a little further below

Population figures were sourced from United Nations' mid-2020 estimates - and UK data from official government sources + the Office of National Statistics. Whilst regularly updated, it may not reflect latest totals per country

Total vaccinations refer to the number of doses given, <u>not</u> the number of people vaccinated (it is possible to have more than 100 doses per 100 persons of population, as some vaccines require multiple doses per person)

Note 2: Around this same time the 'African Union' had started the distribution of 400 million vaccines produced by Janssen (Johnson & Johnson) - which, unlike the Pfizer and Oxford-AstraZeneca vaccines, only requires one dose

Note 3: See also article starting page 202





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		China	156.9	2,278,188,882		
		India	76.0	1,058,489,433		
		US	125.1	420,657,683		
		Brazil	127.4	272,673,196		
		Indonesia	69.6	192,442,506		
		Japan	149.0	187,865,740	Data valid 1 Novemb	er 2021
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		Russia	71.3	104,062,261		
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Re the last page above, 45 countries with populations having received 25 or less doses per 100 persons (at that time) are listed below. (A *further 25* countries [*not* listed below] had received more than said 25 doses but less than 50 doses per 100 persons - a combined total of more than 1 in 3 of the world's countries)

Egypt	24.1 doses per 10	00 persons
Algeria	25 doses per 100	persons - and so on
Iraq	21.8	
Nigeria	4.1	
Angola	18.2	
Kenya	9.6	
Ethiopia	4	
Uganda	6.9	
lvory Coast	11.6	
Ghana	9.4	
Afghanistan	7.3	
Guinea	16.4	
Senegal	11.4	
Sudan	3.7	
Тодо	16.2	
Malawi	6.3	
Syria	5.3	
Niger	3.6	
Tanzania	1.4	
Zambia	4.6	
Somalia	4.5	
Mali	2.8	
Madagascar	2	
Cameroon	1.8	Figures III (Dold) red Indicate
Yemen	1.5	countries where less than 5
Congo	7.2	been vaccinated
Liberia	7.9	been vacematea
Sierra Leone	4.9	
Central African Republic	7.8	
Lesotho	17.8	
Burkina Faso	1.8	
Papua New Guinea	3.2	
Benin	2.2	
Eswatini	23.3	
Gambia	10.3	
Gabon	9.8	
Chad	1.3	
Solomon Islands	21.7	
DR Congo	0.2	
South Sudan	1.1	
Guinea-Bissau	6.3	
Haiti	1.1	
Djibouti	9.2	
Burundi	0.005	
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Global airline industry sees \$201bn in COVID-related losses

[File / SOURCE: Bloomberg] - By Christopher Jasper - 4 Oct 2021

The combined \$201bn in net losses over the pandemic-blighted period eclipses close to nine years of industry earnings, according to the International Air Transport Association (IATA). Whilst domestic and regional travel have begun to rebound, there has been little recovery in the globe-spanning business routes that are so crucial to many airline carriers

Airline losses from the coronavirus pandemic are set to surpass \$200 billion as travel curbs weigh on corporate and long-haul demand well into 2022, according to the industry's main lobby. Carriers are poised to post a collective deficit of \$11.6 billion next year, IATA said Monday in Boston at its annual meeting. The trade body also increased its loss estimate for this year and revised upward the shortfall for 2020

The combined \$201 billion in net losses over the pandemic-blighted period eclipses close to nine years of industry earnings, as per IATA figures. While domestic and regional travel has begun to rebound, there's little recovery in the globe-spanning business routes so crucial to many carriers



The U.S. is poised to open its borders to trans-Atlantic visitors next month, but other long-haul markets remain in the doldrums, especially those connecting Asia with Europe and North America

"The magnitude of the Covid-19 crisis for airlines is enormous" IATA Director General Willie Walsh told the largest gathering of chief executives officers from the industry in more than two years

"People have not lost their desire to travel as we see in solid domestic market resilience. But they are being held back from international travel by restrictions, uncertainty and complexity"



Environmental Demands

Carriers face an added challenge in responding to demands that the industry move faster to lower its carbon footprint. The pressure, which started before the pandemic, has only increased in recent months

IATA on Monday accelerated its goals, setting a target to reach net zero emissions by 2050

Passenger traffic (the number of people flying times the distance covered) is expected to reach 40% of prepandemic levels this year, rising to 61% in 2022, when the traveller tally *should* be 3.4 billion??? That's similar to the customer figure for 2014, but about one-quarter down on 2019



To aid the recovery, Walsh called on governments to simplify complex travel restrictions and allow vaccinated travellers to move freely between countries. "Travel restrictions bought governments time to respond in the early days of the pandemic," he said. "Nearly two years later, that rationale no longer exists"

Losses this year will total almost \$52 billion, IATA predicts, worse than the \$48 billion estimated in April, after flights remained limited through the normally lucrative northern summer. Last year's loss was revised to about \$138 billion - up from \$126 billion

U.S. Recovery

Among global regions, only carriers in North America are forecast to return to profit next year, with almost \$10 billion in net income. European airlines will register about \$9.2 billion in losses, according to IATA, while Mideast operators, highly dependent on intercontinental routes, will rack up a \$4.6 billion deficit

Walsh, previously CEO of British Airways owner IAG SA, offered some optimism to the gathering airline leaders, saying the sector is "well past the deepest point of the crisis," and that "the path to recovery is coming into view"

Domestic flights, benefiting from the removal of curbs, will be almost back to pre-pandemic passenger levels next year, IATA said



Air cargo is another bright spot, with demand this year expected to be 8% above 2019 levels, increasing to more than 13% higher in 2022 amid a surge in shipments from a global restocking and the shift to online purchasing

Walsh said carriers will continue to need wage-support measures from governments until international travel recovers at scale, as well as regulatory steps such as the suspension of use-them or lose-them rules for airport slots

Airlines are forecast to rush back capacity faster than traffic rebounds, hurting seat-occupancy levels. The average passenger load factor is expected to be about 67% this year, rising to 75% in 2022 - still well short of the record 83% figure set in 2019

While IATA represents 290 airlines - comprising 82% of global air traffic, its membership excludes several low-cost carriers that are among those expected to rebound fastest from the crisis

US wants large airlines to make vaccines mandatory for staff United Airlines latest US firm to mandate COVID jabs for staff



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26 Nov 2021

'WHO' to Assess New Highly Mutated Covid-19 variant - as Countries ramp up Health Checks



Meeting will determine if B.1.1.529 variant is designated as one of 'interest' or of 'concern'

Guardian / Samantha Lock and Agencies

The World Health Organization (WHO) will meet on Friday (26 November) to assess a new Covid-19 variant detected in South Africa. It is possible that it might be the 'worst' variant yet identified. The meeting will determine if B.1.1.529 should be designated a variant of "interest" or one of "concern". The variant, which was identified on Tuesday (23 November), initially attracted attention because it carries an "extremely high number" of mutations

Some world leaders have responded quickly by issuing new precautions and travel restrictions, whilst markets around the world saw falls sparked by the uncertainty. Indian health officials on Friday put (Indian) states on alert, asking them to carry out "rigorous screening and testing" of travellers who had arrived from South Africa, Botswana and Hong Kong - and to trace and test their contacts. Health secretary Rajesh Bhushan urged all states to ensure that samples from Covid-positive travellers were swiftly sent to genome sequencing labs for testing

Singapore, a major transit hub, said on Friday that it would restrict arrivals from South Africa and countries nearby. All non-Singaporean or non-permanent residents with recent travel history to Botswana, Eswatini, Lesotho, Mozambique, Namibia, South Africa and Zimbabwe will be denied entry or transit through Singapore, its health ministry said. Italy announced a similar entry ban on Friday. "Our scientists are studying the new B.1.1.529 variant. In the meantime, we will adopt the greatest possible caution," health minister Roberto Speranza said. Japan, too, will clamp down on border controls for visitors from South Africa and five other African countries



New Zealand is also closely monitoring global advice on the new variant, the ministry of health said. The deputy Prime Minister, Grant Robertson, said the new variant was "a real wake-up call for all of us, that this pandemic is still going" and reiterated the need to continue with caution

Dr Maria Van Kerkhove, WHO's technical lead on Covid-19, said in a press briefing on Thursday: "We don't know very much about this variant yet - but what we do know is that it has a large number of mutations - and the concern is that when you have so many mutations, it can have an impact on how the virus behaves"

The infectious disease epidemiologist said that researchers would meet to "understand where these mutations are and what this potentially may mean" in terms of whether it is more transmissible and / or has potential to evade immunity and / or has potential to increase severity of illness and risk of death

High numbers of mutations do not necessarily make a variant more transmissible. In August 2021, similar concerns emerged about a variant in South Africa, known as C.1.2, but it was never listed as a variant of interest or concern. In Japan, some experts believe the country's pronounced fall in cases was down to mutations that drove it towards "natural extinction"

At the meeting the WHO may decide whether or not to give the B.1.1.529 variant a name from the Greek alphabet. If it does, it is likely to be named Nu, the next available letter

England announced it was temporarily banning flights from South Africa, Namibia, Botswana, Zimbabwe, Lesotho and Eswatini from midnight on Friday (26 November 2021) and that returning travellers from those destinations would have to quarantine. Israel has followed suit, also saying it will ban its citizens from travelling to southern Africa

UK civil service sources said the variant posed "a potentially significant threat to the vaccine programme which we have to protect at all costs". Britain's health secretary, Sajid Javid, confirmed the UK Health Security Agency (UKHSA) was investigating, saying "more data is needed but we're taking precautions now." UKHSA chief executive Jenny Harries said: "This is the most significant variant we have encountered to date and urgent research is underway to learn more about its transmissibility, severity and vaccine-susceptibility"

Scotland confirmed late on Thursday that all arrivals from South Africa, Namibia, Lesotho, Botswana, Eswatini and Zimbabwe will be required to self-isolate and take two PCR tests from midday on Friday, while anyone arriving after 4am on Saturday will need to stay at a managed quarantine hotel. The rest of the UK is expected to do likewise

Australia's health minister, Greg Hunt, said it was investigating and would swiftly close its borders to travellers from the African nation if the WHO were to classify it as a major new variant. "If the medical advice is that we need to change, we won't hesitate" he told reporters

South Africa's Foreign Ministry said Britain's decision to ban flights from the nation "seems to have been rushed" voicing concerns over the potential damage to tourism and business in both countries. Foreign minister Naledi Pandor said South Africa would engage with British authorities to try to get them to reconsider their decision. On Thursday, South Africa's health minister Dr Joe Phaahla said the new variant could be driving a recent "exponential rise" in cases in Gauteng, a north-eastern province which is home to the city of Johannesburg Markets took a hit on Friday, with world stocks heading for a 0.7% fall - their largest weekly drop in nearly two months, Reuters reported. South Africa's rand fell 1%, Japan's Nikkei was down 2.4% and Australian shares fell 0.6% in early trade, as did US crude futures. S&P 500 futures fell 0.4%, while the Australian and New Zealand dollars dropped to three-month lows. "The trigger was news of this Covid variant - and the uncertainty as to what this means," said Ray Attrill, head of FX strategy at National Australia Bank in Sydney. "You shoot first and ask questions later when this sort of news erupts"

B.1.1.529 is thought to contain a total of 32 unusual mutations to the spike protein, the part of the virus that most vaccines use to prime the immune system against Covid-19. Penny Moore, a virologist at the University of Witwatersrand in Johannesburg, whose lab is assessing the variant, said: "We're flying at warp speed." She said there were anecdotal reports of reinfections but that it was too early to draw any conclusions. Professor Tulio de Oliveira, director of South Africa's centre for epidemic response and innovation, said the news was "really worrisome at the mutational level"

Variants of *concern*, e.g. 'Delta', demonstrate increased transmissibility, virulence and / or change in clinical disease - plus an associated, decreased effectiveness of public health and social counter-measures

Variants of *interest* are those shown to cause community transmission in multiple clusters, as detected in multiple countries, but which are not necessarily proven to be more virulent or transmissible etc.

An infectious diseases specialist at the University of KwaZulu-Natal in Durban, Dr Richard Lessells, said the number of mutations "might affect how well the virus is neutralised" and may give the virus enhanced transmissibility

South Africa has confirmed about 100 cases as B.1.1. 529 but the variant has also been found in Botswana and Hong Kong, with the Hong Kong case a traveller from South Africa. The significance of the variant so far remains unknown, with the coming days and weeks key to determining its severity.

"It will take a few weeks for us to understand what impact this variant has," Kerkhove of the WHO said, adding the variant is "under monitoring" and "something to watch"

Ewan Birney, the deputy director general of the European Molecular Biology Laboratory and a member of Spi-M, which advises the UK government, said it (B. 1. 1. 529) posed a risk of worsening the pandemic. He urged countries not to repeat the mistake of failing to act quickly. "What we've learned from the other situations like this - some have turned out OK and some haven't - is that whilst we're (investigating) you have to be reasonably paranoid when responding"

The 32 mutations in B.1.1.529's spike protein are about double the number associated with the Delta variant. Mutations of this kind can affect the virus's ability to infect cells and spread, but also make it harder for immune cells to attack the pathogen. However, 'Africa Centres for Disease Control and Prevention' chief John Nkengasong urged for caution. "There are so many variants out there but some of them are of no consequence on the trajectory of the epidemic," he told a news conference on Thursday



WHO names 'Extremely Concerning' (COVID-19 Coronavirus) New Variant identified in South Africa

27 November 2021

The World Health Organisation (WHO) has designated the 'new' COVID-19 coronavirus variant *B.1.1.529* (recently detected in the Southern Africa region) as a variant of *concern* (VOC). The variant's associated 'name' is *Omicron*. Very low numbers of isolated (for now) cases in a small (but growing) number of countries outside that region are also occurring

The WHO said in a statement: "This variant has a large number of mutations, giving cause for concern. Preliminary evidence suggests an increased risk of **reinfection** with this variant, as compared to other VOCs. The number of cases of this variant appears to be increasing in almost all parts of Southern Africa"

Scientists have expressed concern about the large (compared to other COVID-19 variants to date e.g. the 'Delta' variant) number of mutations on the virus' spike protein in Omicron, which *might* make it (in comparison with other variants to date) more transmissible and / or deadly and / or 'dilute' the effectiveness of current vaccines

Many countries around the world are now in the early stages of *reinstating associated and selective COVID-19 precautions* accordingly (many of which had been reduced significantly - from around mid-Summer 2021 to date [i.e. late November 2021])

The WHO's 'Special Envoy on Covid-19', David Nabarro, said: "My own view is that it is appropriate to be concerned about this. The virus looks like it will have greater capacity to evade the defences that many have built up as a result of the various vaccination programmes which have been running since around December 2020"

Dr Susan Hopkins, Chief Medical Adviser of the UK's 'Health Security Agency', has said that Omicron is the 'most worrying' COVID-19 coronavirus variant so far detected - but stressed that much is still unknown about its properties. She said: "If we look at its mutations, there's some that increase infectivity, some that evade the immune response - both from vaccines and from natural immunity - and some which cause increased transmissibility. It's a highly complex mutation"

Work is already under way around the world to 'tweak' current vaccines to better combat the Omicron variant. A number of pharmaceutical firms have already said that they are working on adapting their current vaccines, drugs etc. accordingly

Novavax said it has "already initiated development of a new recombinant spike protein based on the known genetic sequence of B.1.1.529 (Omicron) and will have it ready to begin testing and manufacturing within the next few weeks"

Moderna said: "Since early 2021, we have advanced a comprehensive strategy to anticipate new variants of concern. This strategy includes three levels of response should the currently authorized 50 μ g (microgram) booster dose of mRNA-1273 prove insufficient to boost waning immunity against the Omicron variant"



Pfizer / BioNTech said that in the event of a particular variant 'escaping' the effectiveness of their current vaccines, it expects "to be able to develop and produce a tailor-made vaccine against such variant in approximately 100 days, subject to regulatory approval"

AstraZeneca said it has "developed, in close collaboration with Oxford University, a vaccine platform which enables us to respond quickly to new variants that may emerge" and is "already conducting associated research in locations where the Omicron variant has been identified". The firm is also testing its antibody combination drug against the new variant and is "hopeful it will retain efficacy since it comprises two potent antibodies with different and complementary activities against the virus"



Aviation Related Update

'Just When You Thought it was Safe to get back into the Water'



5 December 2021

Most (if not all) of the world's countries have now re-introduced one or other forms of (often fairly strict) international travel restrictions (including air travel) due to the potential threats posed by the 'new' *Omicron variant of the* COVID-19 (SARS-CoV-2) coronavirus related pandemic - as recently identified in South Africa and now rapidly spreading globally

A small number of countries (e.g. Israel and Japan) have closed their borders entirely to international travel (excepting return by their own citizens - subject to strict isolation [for an appropriate period] etc.)

And as a reminder, some (a very small number) of other countries had never opened their borders entirely since the pandemic started in March 2020 e.g. Australia (to a degree) and New Zealand (100%) - and their imminent plans to do so are now back on 'hold' again - albeit, perhaps, temporarily

It is obvious that the current 'comeback' to 'normalish' operations by the aviation industry might again take a major hit from this situation - just as it was looking like it was relatively safe 'to get back into the water'

Further to the above, you don't need to be a 'rocket scientist' to appreciate the very significant 'backwards' steps (operations; profit; ongoing survivability, associated 'people / human factors' etc.) that passenger airlines might now consequently face again e.g. US airline passenger traffic had returned to around 90% of its level for the recent 'Thanksgiving 2021' (late November) holiday - compared to the loads it was getting for the same period / holiday in (pre-Covid-19 pandemic) 2019. Although the latter relates generally to domestic USA air travel it seemed to be a positive sign for the industry as a whole

It will take some time (perhaps to the end of around 2021 - possibly longer) to get a better idea of whether or not this potentially, very dangerous Omicron variant (with regards to e.g. transmission / seriousness of infection / 'vaccine [potential immunity] avoidance' etc.) will have significant, further impacts on the aviation industry and, if so, to what extent



Was a Leak from a Wuhan (China) Laboratory the Likely Origin of the COVID-19 Coronavirus?

15 December 2021

Wuhan lab leak **'is now the most likely origin of Covid - due Beijing trying to cover it up**' - and it is now **'reasonable to believe that the virus was artificially engineered in China**', Harvard scientist tells MPs

https://www.dailymail.co.uk/news/article-10313053/Covid-19-UK-Wuhan-lab-leak-likely-origin-Covid-MPs-told.html

Note: If above article fails to open and you still wish to view, please email the following address and request a copy:

info@aviation-erp.com



18 December 2021

Will Omicron Stall the Airline Sector Recovery in 2022?

BBC - by Sameer Hashmi - Middle East business correspondent-

The spread of the new coronavirus variant, Omicron, will slow the recovery for the airline industry, but has not yet dented overall demand for tickets during the busy winter travel season - according to Emirates airline president, Tim Clark. "Omicron slowed our momentum somewhat, but we are still seeing positive demand recovery overall" he tells the BBC

For people travelling internationally, the spread of Omicron is ushering in new testing rules, border closures and the rapid reintroduction of quarantine measures. This shift raised concerns for many airlines just ahead of their significant Christmas and New Year travel season, which generates big revenues due to higher ticket sales. This period is crucial for the industry, with flights operating at high capacity as millions across the globe travel for holidays, to visit families etc.

Immediately after the emergence of Omicron, Mr Clark initially expressed greater concern that a major hit to the peak December month would cause "significant traumas" in the global aviation business. Like many airlines across the globe, Emirates suspended flights to countries in Southern Africa and had to stop flights to Morocco due to the border closure

But Mr Clark says that the airline has now been able to "compensate for that shortfall" due to strong demand on other flight routes - adding flights to Australia, parts of Europe and the UK. "So far, the impact hasn't been as significant on the business as Emirates had initially anticipated," he says

United Arab Emirates-based airlines say that despite Omicron, flights to the country have been operating at full capacity. High levels of vaccination uptake in the country and low Covid-19 infection rates have been instrumental in attracting travellers e.g. the World Expo 2020, still underway in Dubai, has drawn tens of thousands of foreign visitors since the six-month event started in October

Abu Dhabi based Etihad Airways' chief executive, Tony Douglas, does not expect Omicron to have as "big an impact" on the global airline recovery as earlier variants such as Delta had. "There is a huge hunger to travel, driven by visiting friends and family," he says

Qatar Airways' boss, Akbar Al Baker, has said he hopes that the new coronavirus variant "will have a limited overall impact" on the industry's recovery

Turbulence for Other Regions

Whilst airline bosses in the Middle East say they're not too perturbed by the spread of Omicron, executives in other regions are feeling jittery. Apart from travel restrictions, navigating new testing rules as more details about the new variant emerge is also proving to be challenging

Top European airlines such as British Airways, Ryanair and easyJet pushed back against the introduction of new testing rules for vaccinated travellers brought in by the UK government - and have asked for immediate financial support to sustain the sector through this latest crisis



After an 18-month slump, European carriers had started to see an uptick in international air traffic during their summer 2021 season - driven in part by higher vaccination rates and the easing of travel curbs

In November, commercial and defence deals for new aircraft worth \$78bn (£59bn) were signed at the Dubai Air-show, in a signal that some people read as "the worst was over" for the industry - after enduring a turbulent period since the outbreak of the pandemic

Aircraft manufacturers swiftly signed multibillion dollars deals, with Airbus amassing orders for over 400 jets during the course of the five-day event. While the airlines at the show expressed (at the time) confidence of a bounce back in 2022, things have changed since the emergence of the new variant

Orkun Altintas, director for aerospace and defence at consultancy 'Frost and Sullivan', says it is too early to gauge the full extent of the impact of Omicron. But he expects the recent developments to set back the sector recovery in the near term. "Airlines were expecting substantially higher revenues compared to last year during the holiday season, but now they are not certain about it"

Earlier in December, 'Fitch Ratings' modified its outlook for global air traffic for 2021, lowering it to just over 50% of 2019 levels, versus a previous forecast of a 35% drop. It also slashed its outlook for 2022 and 2023, on the basis that 'additional waves of infections and policy responses could lead to travel restrictions and stalled or temporary declines in traffic'

Some countries, including Japan, Israel and Morocco, have temporarily barred non-resident foreigners altogether. At time of writing, travellers entering Singapore must now be tested daily for seven days after their arrival, while the United States requires a negative Covid test 24 hours before flying. Flights from South Africa, Lesotho, Eswatini, Botswana, Namibia, Malawi, Mozambique and Zimbabwe remain suspended by many, including the EU and the US

The International Air Transport Association (IATA) in the meantime has warned that the imposition of travel bans by various governments, against the advice of the World Health Organisation, could threaten the sector's recovery

IATA had reported a marked improvement in domestic and international travel in recent months ahead of the discovery of the latest variant. "Unfortunately, government responses to the emergence of Omicron are putting at risk the global connectivity it has taken so long to rebuild," Willie Walsh (IATA's Director General) said in a statement

Despite tighter travel rules, experts say they are not yet seeing the same level of cancellations and dropoffs in new bookings that occurred when entry rules were tightened previously. Orkun Altintas says he is confident that if existing vaccines prove to be effective against the new variant, then the sector could rebound quickly. "There is a lot of pent-up demand. Once there is more clarity about the vaccines and also about rules and restrictions, travel will pick up. But, for now, there are a lot of unknowns"



22 December 2021

Israel could become the First Country to give 4 Covid-19 Vaccine Doses

BBC / UK

An expert panel has recommended giving a 4th COVID-19 vaccine dose to health workers and those over 60. Israel says it plans to become the first country to roll this out as it prepares for a wave of infections driven by the new Omicron variant

Israeli Prime Minister Naftali Bennett welcomed the plan and told officials to 'start preparing'. It comes as Israel confirmed the first known death of a patient with the Omicron strain on 21 December. The health ministry said there were at least 340 known cases of the variant in the country

Covid vaccines: How fast is worldwide progress?

The decision to roll out a 4th booster is still pending approval by senior health officials. However, Mr Bennett's office told the BBC that it was hoping to administer the dose to people at least four months after their 3rd dose. "This is wonderful news that will assist us in getting through the Omicron wave that is engulfing the world" Mr Bennett said - as he urged people to take up the offer as soon as possible

When Covid-19 vaccination programmes were first launched, Israel's jabs were rolled out quickly and there was a relatively high take-up. However, despite this, only about 63% of its population of 9.3 million has had two doses. This is partly to do with Israel being a relatively young country - about a third of its population is under the age of 14

To help combat this, Israel announced in November 2021 that children aged from five years old could also get the jab. On 20 December Mr Bennett said he wanted every eligible child to get the vaccine within the next two weeks to help "delay, slow and diminish" the strength of another wave of infections. The country has already widened a travel ban to countries including the US, Germany, Italy and Canada - to try to curb the spread of the virus

Israel has confirmed more than 1.36 million Covid-19 infections since the start of the pandemic, with some 8,200 deaths, according to data from Johns Hopkins University



27 December 2021

Airlines cancel more flights after scrapping 8,000 over the Christmas Weekend

By Euronews with AFP

COVID-related flight disruption continued today as airlines across the world cancelled almost 8,000 flights over the three-day Christmas weekend - due largely to a shortage of staff caused by the spread of the COVID-19 Omicron variant and, in some parts of the word, bad weather

According to 'Flightaware.com' - which tracks flight departures, delays and cancellations - just under a third of the cancellations affected the USA - with a significant number also impacting on China

The cancellations caused major disruption to the return to Christmas travel this year, causing further anxiety and uncertainty after the 2020 holiday season was also severely affected by the same pandemic

At Minneapolis-Saint Paul airport (in the US state of Minnesota) travellers voiced their frustrations e.g. "I booked this trip in February 2020 and we had no idea we'd still be dealing with COVID now, it's crazy," Tamera Robinson said of her cancelled flight

Flight delays and cancellations related to *staff shortages* have been a persistent problem for the US airline industry this year. After air travel collapsed last year (2020), US airlines had 'encouraged' workers to quit. But this year air travel has mostly recovered and so the same airlines now find themselves short-staffed

United Airlines explained in a statement that the spike in Omicron cases "has had a direct and adverse impact" on their flight crews and the people who run their operations. "As a result, we've unfortunately had to cancel some flights and are notifying impacted customers in advance of them coming to the airport"

Other airlines e.g. Lufthansa, are also suffering staff shortages as more and more pilots and cabin crew report in sick with 'omicron' or are forced to quarantine on arrival in certain countries

Chinese airlines, particularly China Eastern and Air China, cancelled more than 2,000 flights alone over the three-day Christmas weekend, many of them to Xi'an, where 13 million people are currently under associated lockdown



11 January 2022

Half of Western Europe could be infected with Covid-19 in next Six Weeks

AP

'There were more than **7 million new cases of the Covid-19 Omicron variant across Europe** in the first week of January 2022 - with 50% of its population liable to be infected in the next six to eight weeks' - the World Health Organisation (WHO) has said

WHO Europe director Dr Hans Kluge stated (at a media briefing on Tuesday, 10 Jan 2022) that 26 countries in its (European) region had reported more than 1% of their populations being infected with Covid-19 each week, warning that there was a "closing window of opportunity" for said countries to prevent their health systems being overwhelmed

He cited estimates (from the Institute of Health Metrics at the University of Washington - USA) projecting that 50% of Western Europe's population would be so infected in the next 6 to 8 weeks

"Omicron moves faster and wider than any (previous) variant we have seen" he said

Dr Kluge called for said countries to mandate the use of mask wearing indoors and to prioritise vaccination, including booster doses, of at-risk populations - including health workers and older people

The latter is in stark contrast with the WHO's previously pleaded case for rich countries <u>not</u> to offer **booster** doses (in their own countries) and (instead) to donate them to poorer countries - where vulnerable groups were yet to be initially immunised / receive a first vaccine dose

He (Dr Kluge) also stated that 'he was greatly concerned that, as Omicron moves east across Europe, the variant will take a much higher toll on countries with lower vaccination coverage rates'

In Denmark, he noted, hospital admissions were 6 times higher in non-vaccinated people - compared with those who had been so vaccinated



OMICRON - 8

19 January 2022

COVID-19 WILL CONTINUE - BUT THE END OF THE PANDEMIC IS NEAR

THE LANCET

DOI: https://doi.org/10.1016/S0140-6736(22)00100-3 / Copyright / © 2022 Published by Elsevier Ltd. / ScienceDirect

Note to 'Interested' Readers:

The 'screen shot' on the next page relates to the above, referred to article. For copyright etc. reasons - the complete / entire article cannot be reproduced directly herein

However, for the 'interested' reader, what is essentially stated and / or otherwise implied therein was that (as at 19 January 2022) the end of the COVID-19 pandemic (which was at that time still in its 'pandemic' status i.e. in contrast to being e.g. a much less adversely impacting 'epidemic') was probably 'in sight'

More definitively, this was expected to be the situation after the Omicron wave of COVID-19 had effectively 'run its course'. Understandably, no projected date for the latter was provided but logically (and given the manner in which COVID-19 had 'behaved' up to that point in time) a 'matter of months' might not have been too bad a guess!

The full article can be accessed by following the above link:

IMPORTANT NOTE: From author / owner of this document (Guideline - [Airline etc.] 'Pandemic Plan' / CRPM Part 4 - Volume 1 / Reviewed April 2023) being read right now:

With the passing of time since the above (LANCET) article was written, it eventuated *in reality* that the COVID-19 pandemic was still 'going strong' as at April 2023. However, (and this is a BIG 'however') its ability to cause associated death and serious illness had (at that same time) been drastically reduced, as a result of the very successful COVID-19 vaccine programmes, which had been implemented (and were still ongoing at this time) around the world

Furthermore, a 'new' strain of COVID-19 was beginning to develop rapidly around the world as at April 2023 (see page **234**). Initial indications at the time were that this new strain was quite infectious but that the various vaccination programmes around the world were still preventing large numbers of deaths



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<	Christopher J L Murray ⊠ Published: January 19, 2022 • DOI: https://doi.org/10.1016/S0140-6736(22)00100-3 • (R) Check for updates				•¥ Plu	mX Metri	> cs
References Article Info Figures	The world is experiencing a huge wave of infection with the omicron variant of SARS-CoV-2. Estimates based on Institute for Metrics and Evaluation (IHME) models ¹ suggest that on around Jan 17, 2022 there were 125 million omicron infections a day world, which is more than ten times the peak of the delta wave in April, 2021. ¹ The omicron wave is inexorably reaching ever continent with only a few countries in eastern Europe, North Africa, southeast Asia, and Oceania yet to start their wave of the CoV-2 variant. ^{1, 2} The unprecedented level of infection suggests that more than 50% of the world will have been infected with omicron between the end of November, 2021 and the end of March, 2022. ¹ Although IHME models suggest that global daily CoV-2 infections have increased by more than 30 times from the end of November, 2021 to Jan 17, 2022, reported COVID-19 this period have only increased by six times. ^{1, 2} Because the proportion of cases that are asymptomatic or mild has increase compared with previous SARS-CoV-2 variants, ^{3, 4} the global infection-detection rate has declined globally from 20% to 5%.	r Health y in the ery his SARS- ith SARS- cases in ed	To read link s	d this article hown on th	Rec Institut in full, f	uest Your ional Acce ollow ti us page	he
	Understanding the burden of omicron depends crucially on the proportion of asymptomatic infections. A systematic review on previous SARS-CoV-2 variants suggested that 40% of infections were asymptomatic. ³ Evidence suggests that the proport asymptomatic infections is much higher for omicron, perhaps as high as 80–90%. Garrett and colleagues found that among individuals in South Africa enrolling in a clinical trial. 71 (31%) were PCR positive for SARS-CoV-2 and had the omicron varia	v based tion of ; 230 int and no)				12:15

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3 February 2022

EUROPE NOW ENTERING A 'PLAUSIBLE ENDGAME' TO PANDEMIC - says WHO

Jane Kirby - PA Media - Health Editor

A director at the World Health Organisation (WHO) has said that *Europe* is now entering a "plausible endgame" period to the Covid-19 pandemic

Dr Hans Kluge, WHO regional director for Europe, said *the region* had recorded 12 million new Covid cases 'in the past week' - with 30% of all cases (since the pandemic began) reported (so far) this year alone. He added "but for now, the number of deaths across the region is starting to plateau" - adding that several factors are 'on Europe's side'. There is now an "opportunity to take control of transmission as many people are immune to Omicron, either via natural infection or vaccination. There is also a favourable, seasonal pause as we move out of winter - and the lower severity of Omicron also helps

Dr Kluge said "Europe must continue to preserve immunity by keeping vaccinating and boosting, protecting the most vulnerable, promoting self-protecting behaviour / individual responsibility and intensifying surveillance to detect new variants. The latter are inevitable but I suggest that previous lockdown measures will not be needed"

"Furthermore, I believe that it will be possible to respond to new (COVID-19) variants (which will inevitably emerge) without reinstating the kind of disruptive measures we required before. And, it is because we see such opportunity, that the top priority is now to bring <u>all</u> countries (in the world) to a level of protection which will allow them to equally grasp that same opportunity - and look ahead towards more stable times. But the latter demands a drastic, uncompromising and rapid increase in vaccine-sharing across borders. We cannot accept vaccine inequity for one more day - vaccines must be universally available for everyone"

He then went on to say that the strategy in Europe now "shifts from minimising transmission to minimising disruption" and "doing whatever it takes" to boost vaccine uptake

Ahead of World Cancer Day on Friday, he also said that "there is a *deadly interplay* between cancer treatment / care backlogs and the delays to diagnosis caused by the pandemic. Spring and summer (2022) must, therefore, be used to help health workers to resume other, important healthcare functions"

At the World Health Organisation's Geneva HQ, Director-general (Tedros Adhanom Ghebreyesus) warned that the *wider world* is still far from seeing an end to the pandemic. "We are concerned that a narrative has taken hold in some countries that, because of vaccines and because of Omicron's high transmissibility and lower severity, preventing transmission is no longer possible and no longer necessary. *Nothing could be further from the truth*"




Taken From: THE LANCET

ARTICLES / ON-LINE FIRST

Estimating Excess Mortality due COVID-19 Pandemic: A Systematic Analysis of Related Deaths for the years 2020 and 2021

Open Access - Published: 10 March 2022 - https://doi.org/10.1016/S0140-6736(21)02796-3

Summary

Background

Mortality statistics are fundamental to public health decision making. Mortality varies by time and location. Its measurement is affected by well-known biases (which have been exacerbated during the COVID-19 pandemic)

This paper aims to estimate *excess mortality* from the COVID-19 pandemic in 191 countries and territories + 252 subnational units for selected countries, over the period 1 Jan 20 to 31 Dec 21 i.e. 2 years

Methods

All-cause mortality reports were collected for 74 countries and territories + 266 subnational locations (including 31 locations in low-income and middle-income countries) which had reported either 'weekly or monthly deaths' from all causes during the pandemic in 2020 and 2021 - and also for up to the *previous* 11 years. Additionally, excess mortality data for 12 States in India were obtained

Excess mortality over time was calculated as '*observed* mortality' (after excluding data from periods affected by late registration and anomalies such as heat waves) - *minus* '*expected* mortality'

6 models were used to estimate expected mortality, with final estimates being based on an ensemble of these models. Ensemble weights were based on root mean squared errors derived from an out-of-sample predictive validity test

As mortality records are incomplete worldwide, we built a statistical model which predicted the excess mortality rate for locations and periods - where all-cause mortality data were not available

We also used 'least absolute shrinkage and selection operator' (LASSO) regression as a variable selection mechanism and selected 15 covariates, including both covariates pertaining to the COVID-19 pandemic e.g. seroprevalence - and also to background population health metrics e.g. the 'Healthcare Access and Quality Index' - with direction of effects on excess mortality concordant with a meta-analysis by the USA's 'Centers for Disease Control and Prevention' (CDC)

With the selected best model, we ran a prediction process using 100 draws for each covariate - and 100 draws of estimated coefficients and residuals, estimated from the regressions run at the draw level - using draw-level input data on both excess mortality and covariates



Mean values and 95% uncertainty intervals were then generated at national, regional and global levels. Out-of-sample predictive validity testing was done on the basis of our final model specification

Findings

Although *reported COVID-19 deaths* between 1 Jan 2020 and 31 Dec 2021 totalled *5·94 million <u>worldwide</u>*, we estimate that in fact *18·2 million* (95% uncertainty interval *17·1 - 19·6* million) people *actually died* due to the COVID-19 pandemic (as measured by *excess mortality*) over that period

The *global all-age rate* of excess mortality due to the COVID-19 pandemic was $120\cdot3$ deaths ($113\cdot1 - 129\cdot3$) per 100 000 of population - with this rate exceeding 300 deaths per 100 000 of population in 21 countries

The largest numbers of *excess deaths* occurred in the regions of *South Asia*, *North Africa*, the *Middle East* and *Eastern Europe*

At *country level*, the highest numbers of cumulative *excess deaths* were estimated to be in *India* (4·07 *million* [3·71 - 4·36]), the USA (1·13 million [1·08 - 1·18]), *Russia* (1·07 million [1·06 - 1·08]), *Mexico* (798,000 [741,000 - 867,000]), *Brazil* (792,000 [730,000 - 847,000]), *Indonesia* (736,000 [594,000 - 955,000]) and *Pakistan* (664,000 [498,000 - 847,000])

Amongst these latter countries, *the excess mortality rates were highest in Russia* (374·6 deaths [369·7 - 378·4] per 100 000) and *Mexico* (325·1 [301·6 - 353·3] per 100 000) and were similar in Brazil (186·9 [172·2 - 199·8] per 100 000) and the USA (179·3 [170·7 - 187·5] per 100 000)

Interpretation

The full impact of the pandemic had been much greater than that indicated by reported deaths (over the specified time period [2 years]) due to COVID-19 alone. Strengthening death registration systems around the world, long understood to be crucial to global public health strategy, is necessary for improved monitoring of this pandemic and future pandemics. Furthermore, additional research is warranted to help distinguish the proportion of excess mortality directly caused by SARS-CoV-2 (COVID-19 pandemic) and the changes in causes of death as an *indirect consequence* of same

Funding - Bill & Melinda Gates Foundation, J Stanton, T Gillespie, and J and E Nordstrom

Note from author / owner of this guideline document i.e. the one you are reading right now (i.e. what you now read just below is not part of the last article immediately above):

China's fatality figure for COVID-19 has 'officially' remained at around 4650 persons since March 2020 (i.e. up to January 2022 there had been no increase in this figure, as notified by China). Contrast this to the estimated figure given for India in the article above (*excess* deaths probably around 4.1 million) as at January 2022 and, considering that the population of India in early 2022 was roughly the same as that of China, there is a huge disconnect' somewhere here (4,650 vs 4.1 million). The below article might explain why this is so?

https://www.forbes.com/sites/georgecalhoun/2022/01/25/chinas-covid-data-gaps-and-inaccuracies-new-reportsfrom-science-and-nature/





Global Excess Deaths associated with COVID-19 - January 2020 to December 2021



World Health Organisation (WHO) - May 2022

https://www.who.int/data/stories/global-excess-deaths-associated-with-covid-19-january-2020-december-2021

Contains equivalent information to that produced in the previous article (starting page 218) - but with (relatively) different conclusions (i.e. 18.2 million excess deaths [previous article] vs 14.3 million deaths [this article])

The former number (18.2 million) is around 3 times higher than total, reported COVID-19 deaths (as at around end of December 2021) and the latter number (14.3 million) almost 2.5 times higher



Americans Hoping for European Vacations Summer 2022 - Prepare for Chaos

CNBC - 4 July 2022 - by Silvia Amaro

It's a messy picture in many European travel hotspots right now as airlines and airports struggle to cope with a surge in travel demand post Covid lockdowns. Thousands of flights have been cancelled and travellers have queued for hours at passport control and luggage collection at airports across Europe. This situation is expected to 'drag on'

"The pace at which passengers have returned to the skies since the springtime has caught airlines by surprise - and airports too," Alexander Irving, European transport analyst at AB Bernstein, told CNBC

On 4 July - Scandinavian Airlines (SAS) cancelled 173 flights, more than 50% of its schedule, as a breakdown in pay talks set off a pilot strike. The airline said the strike would force it to cancel half of its scheduled flights and adversely affect about 30,000 passengers per day

"Air travel this summer is fraught with uncertainty, both for passengers and airlines," Laura Hoy, equity analyst at Hargreaves Lansdown, told CNBC via email. "Long delays and cancellations are likely grating on consumers' desire to travel - whilst airlines toe a fine line between trying to grasp hold of the postpandemic travel boom and preparing for the likely slowdown ahead - as economic conditions deteriorate"

According to aviation data firm Cirium, 400 flights were cancelled at U.K. airports between 24 - 30 June, an increase of 158% from the same period in 2019 - and that's outside of the peak summer season in Europe!

London's busiest airport, Heathrow, asked airlines last week to cut flights, as passenger numbers were above what it could cope with. Some arriving passengers were unaware that their flights had been cancelled, while others complained about long queues etc.

Meanwhile, low-cost airline easyJet has cut thousands of flights in the coming summer period in an attempt to minimize the risk of disruption. Its chief operating officer, Peter Bellew, resigned Monday - after associated disruptions. The carrier said it is "absolutely focused on our daily operation" and that it has "taken pre-emptive action to build further resilience for the rest of the summer - due to the current operating environment"

Many have also faced travel issues in the U.S. as they looked to go away for the July 4 weekend, with more than 12,000 flights delayed and hundreds cancelled, though disruptions eased significantly on the associated Monday

And it's unlikely that travel chaos will unwind in the coming months, according to Stephen Furlong, senior industry analyst at wealth manager 'Davy'. "There will be disruption continuing into summer whether ATC, cargo, ground handling, security related etc. - or self-inflicted labour issues from the airlines," he added

In France in June, a quarter of flights were cancelled at Paris' Charles de Gaulle airport due a workers strike. And more strike-induced disruption could be on the way. British Airways is preparing for a staff strike in the coming weeks as workers demand that a 10% pay cut initiated during the pandemic gets reversed - and Ryanair workers in Spain said over the weekend that they would be striking for 12 days in July, pushing for better work conditions



What is causing this Disruption?

There are several reasons for the travel chaos being mostly industry-wide problems, rather than country, airline, airport etc. specific issues. "The pace at which passengers have returned to the skies since May has caught many airlines and airports etc. by surprise. They simply don't have enough staff right now to run a full summer schedule" - Alexander Irving, European transport analyst at AB Bernstein, told CNBC's 'Squawk Box Europe' last week

Many airlines, airports etc. and other companies within the travel sector laid-off workers during the pandemic as their businesses ground to a halt. Many such workers then looked for opportunities elsewhere and have not returned to the sector, while others had been pushed into early retirement. "Ultimately, they need more staff" Irving said.

Furthermore, it's hard to attract new talent right now given changes in the labour market e.g. the so-called 'Great Resignation' - when workers chose to quit their jobs, often without another job lined up, in search of a better work / lifestyle balance etc.

Hiring new people can also be a medium to long-term solution only as, in many travel-related jobs, there's a significant amount of compulsory training to complete before workers can start their jobs (e.g. security staff). At the same time, many of those who stayed in the sector do not feel sufficiently compensated and have complained about their work conditions. It "probably / ultimately means paying people more and treating them better" Irving said about the labour issues and strikes

At Amsterdam's Schiphol airport, a group of cleaners, baggage handlers and security staff will be paid an additional 5.25 euros (\$5.55) per hour this summer, according to Reuters. That same airport announced limiting its volume of passengers this summer to reduce disruption

Other countries are also scrambling to improve associated airport situations - e.g. in Spain, police are hiring more staff at some of the busiest airports; Portugal is increasing the number of its border control staff etc.

"The response by most companies as the pandemic hit was to reduce capacity on the expectation of a sustained period of lower growth. However, the pandemic delivered a different outcome i.e. one where the global economy was virtually switched off then switched back on within a short period of time - Roger Jones, head of equities at London & Capital, told CNBC. He said that on top of the labour market shortages, inflation is also an issue. "Cost inflation, especially fuel and wages, is aggravating the situation - resulting in difficult operating environment, thus impacting on profitability"

Many airlines, including British Airways and Air France-KLM, received financial support (to avoid collapse) from 'parent' governments during the pandemic. However, a number of associated unions, airlines etc. are now demanding more help from governments to support revival of the sector

Despite the strikes, cancellations, disruptions etc. - some analysts are still positive about the sector and argue that the recent situation has been exaggerated. "I do feel it's been overplayed by the media and the vast majority of flights are operating and on time. Ryanair, for example, while operating 115% of pre-Covid capacity have planned for this and have largely avoided disruption so far" - said Davys Furlong via email





Emirates Agrees to Restrict Ticket Sales

BBC - 15 July 2022

https://www.bbc.co.uk/news/business-62182881

Further to the previous article (see pages 223 - 224 above) the information found at the end of the above link provides a further example of how the 'fallout' from / of aviation related consequences of the COVID-19 pandemic - were still significantly problematic as at 'Summer Season' 2022





QANTAS Bosses asked to Work as Baggage Handlers etc.

August 2022

Senior staff at Australian airline QANTAS have been asked to work as baggage handlers for three months in order to tackle staff shortages - amid ongoing global disruption to travel. Top executives and managers were contacted about volunteering at Melbourne and Sydney airports to carry out tasks such as handling luggage and driving vehicles, as the related travel chaos (which has already plagued Europe) spreads

The flag carrier's chief operating officer, Colin Hughes, wrote to managers asking for 100 people to 'leave the offices and step in'. He wrote: "The high levels of winter flu and a COVID spike across the community, coupled with the ongoing tight labour market, make personnel resourcing a challenge across our industry. There is no expectation that you will opt into this role on top of your full-time position."

Those contacted were asked to load and unload luggage, drive baggage vehicles between planes and terminals etc. - and to work for three or five days a week doing shifts of four or six hours a day. 'Applicants' were advised that they must be capable of moving suitcases weighing as much as 32 kg.

(Note: QANTAS sacked more than 1,600 luggage handlers during the coronavirus pandemic. In June 2022, it cancelled more than 8% of its flights, amidst the ensuing crisis)

The request comes as the aviation sector grapples with widespread staff shortages as airlines and airports struggle to cope with a sharp rebound in demand for travel. Last week, British Airways announced it would suspend short haul ticket sales from London's Heathrow airport up to and including 8 August - and possibly for longer. This was due (it said) to the passenger cap introduced by Heathrow airport in July

A Qantas spokesperson, said: "We've been clear that our operational performance has not been meeting customer expectations and the standards that we set. We are consequently pulling out all stops to improve our performance. As we have done in the past during busy periods, around 200 head office personnel have helped at airports during peak travel periods since Easter 2022. While we manage the impacts of a record flu season and ongoing COVID cases, coupled with the tightest labour market in decades, we're continuing that contingency planning across our airport operations for the next three months."

Meanwhile, the boss of (US airline) JetBlue has said that the US budget airline needs to 'over-hire' workers in an effort to overcome an exodus from the industry. Robin Hayes said: "I now need to over-hire just to keep the numbers we need. With COVID, we lost a lot of experienced people"





China Records World's First Human Death from H3N8 Bird Flu (WHO)

12 April 2023

Reuters - 12 April 2023 - by Dominique Patton (as edited by Christopher Cushing)

The World Health Organisation (WHO) reports that a Chinese woman has become the first person to die from a type of bird flu rare in humans. For now, the strain does not appear to spread between people

The 56-year-old woman, from the southern province of Guangdong, was the 3rd person known to have been infected with the H3N8 subtype of avian influenza. All of the cases have been in China, with the first two cases reported last year

The Guangdong Provincial Centre for Disease Control and Prevention reported this latest infection late last month - but did not provide details of the woman's death. She had multiple underlying conditions and a history of exposure to live poultry

(Sporadic infections of bird flu in people are relatively common in China, where avian flu viruses constantly circulate in huge poultry and wild bird populations)

Samples collected from a wet market visited by the woman before she became ill were positive for influenza A (H3) - suggesting that this may have been the source of infection. Though rare in people, H3N8 is common in birds in which it causes little to no sign of disease. It has also infected other mammals

There were no other cases found among close contacts of the infected woman

"Based on available information, it appears that this virus does not have the ability to spread easily from person to person, and therefore the risk of it spreading among humans at the national, regional, and international levels is considered to be low," the WHO said in the statement

Monitoring of all avian influenza viruses is considered important given their ability to evolve and potentially cause a pandemic





Update on COVID-19 Pandemic Death Stats - April 2023

Whilst the WHO *still* considered the COVID-19 *pandemic* to be active as of 29 March 2023, some countries were (at that same time) transitioning their public health approach towards regarding it as being '<u>endemic</u>'

Deaths Attributed to COVID-19 (from Wikipedia)

As of 10 March 2023, more than 6.88 million deaths had been attributed to COVID-19. These numbers vary by region and over time, influenced by e.g. testing volume, healthcare system quality, treatment options, government response, time since initial outbreak, population characteristics e.g. age, sex, health etc.

Multiple measures were used to quantify mortality

Official death counts typically included people who died after testing positive. Such counts excluded deaths without a (COVID-19) test. Conversely, deaths of people who died from underlying conditions following a positive test *might* have been included. Note also that some countries (e.g. Belgium) included deaths from suspected cases, including those without a test, thereby increasing counts

Official death counts have been claimed to under-report the actual death toll, as <u>excess mortality</u> (the number of deaths in a period compared to a long-term average) data showed an increase not explained by COVID-19 alone

Using such data, various estimates of the true number of deaths from COVID-19 worldwide have included:

- A range from 16.5 to 26.8 million (~20.2 million) by 3 February 2023 'The Economist'
- 18.5 million+ by 1 April 2023 by the 'Institute for Health Metrics and Evaluation' and
- ≈18.2 million deaths between 1 Jan 2020 31 Dec 2021 by a comprehensive international study

Such deaths included those due to healthcare capacity constraints and priorities, as well as reluctance by some to seek care (e.g. to avoid possible infection). Further research may help distinguish the proportions directly caused by COVID-19 from those caused by such indirect consequences

In May 2022, the WHO estimated the number of *excess* deaths (as at end of 2021) to be around 14.9 million compared to 5.4 million *reported* COVID-19 deaths, with the majority of the *unreported* 9.5 million deaths believed to be direct deaths due COVID-19 - rather than indirect deaths. Some deaths resulted as people with other conditions could not access medical services due the pandemic crisis

Further to the last para above - a December 2022 study by the WHO again estimated excess (COVID-19) pandemic deaths during 2020 - 2021, and again concluding ≈14.8 million excess early deaths, reaffirming and detailing their prior calculations from May 2022 - as well as updating them





Arcturus Covid Variant Causing Cases to Surge in India

(Omicron Variant XBB.1.1 - 'Arcturus')

13 April 2023

A new Covid-19 sub-variant, responsible for a huge surge in infections in India, has driven health officials to re-introduce mandatory mask wearing and begin mock-testing drills. Two Indian States, Haryana and Kerala, have reintroduced mask wearing in public due to 'Arcturus', an Omicron (COVID-19) sub-variant, which has prompted the biggest rise in weekly cases in seven months

The country (India) is asking its States to identify emergency hotspots and increase testing (in contrast [and for means of comparison only] the UK Office of National Statistics has said testing in the UK has reached its lowest point since peaking in December 2021)

India's Ministry of Health recorded more than 3,000 new cases in a single day and 40,215 active Covid infections across the country as at April 12. First detected in January 2023, this new strain is currently being monitored by the WHO - *which has noted that some mutations are of concern*

The WHO has warned that 'Arcturus' (XBB.1.16 as it clinically referred to) is spreading rapidly across India

Is it more transmissible?

In short, yes. Experts believe that Arcturus has the potential to be more transmissible than previous Omicron sub-variants, including <u>'the Kraken'</u> which caused a rapid increase in US Covid cases earlier this year

Dr Maria Van Kerkhove, the WHO's Covid technical lead, said: "It's been in circulation for a few months now and has one additional mutation in the spike protein which, in lab studies, shows increased infectivity as well as potential increased pathogenicity" Dr Van Kerkhove added that while XBB.1.16 had been detected in other countries, most sequences were from India, where it had replaced other variants

Are cases of 'Arcturus' more severe than previous versions?

Dr Van Kerkhove said: "We haven't seen a change in severity in individuals or populations - but that's why we have these systems in place i.e. to track the variants, globally collaborate to assess transmissibility, immune escape, severity and the impact of any of our interventions - including diagnostics, therapeutics and vaccines

So, we have to remain vigilant, and will continue to work with our Member States as we transition all of the pillars of the response - because everything that we are doing for Covid-19 is pandemic preparedness for the future"

How has covid affected India?

At the end of 2021, the WHO estimated 4.7 million deaths were attributable to Covid-19 in India, more than any other country in the world. The majority of said deaths came from a devastating wave of the Delta variant, in March 2021



Now, a return to mask wearing in several states, the first time since March 2022, has led to understandable concerns. However, India's Health Minister said there is "No need to worry. Currently, Arcturus hasn't led to an increase in the rate of hospitalisations"

Is Arcturus exhibiting any New Symptoms?

Symptoms remain the same as other variants, including shortness of breath and a cough. However, some infected individuals are reporting conjunctivitis and sticky eyes





COVID-19 - December 2019 to May 2023

WHO Director-General's Opening Remarks - Media Briefing - 5 May 2023

One thousand two hundred and twenty one days ago, the World Health Organisation (WHO) learned of a cluster of cases of pneumonia, of unknown cause, in the Chinese city of Wuhan

On the 30th January 2020, on the advice of an Emergency Committee convened under the International Health Regulations, I declared a *public health emergency of international concern* (PHEIC) over the global outbreak of *COVID-19* - the highest level of alarm under international law. At that time, outside China there were fewer than 100 reported cases - and no reported deaths

In the three years since then, COVID-19 has turned our world upside down. Almost 7 million deaths have been reported to World Health Organisation - <u>but we know the toll is several times higher</u> - <u>at least</u> <u>20</u> *million*

Health systems have been severely disrupted, with millions of people missing out on essential health services, including lifesaving vaccinations for children. But COVID-19 has been so much more than a health crisis. It has caused severe economic upheaval, erasing trillions from GDP, disrupting travel and trade, shuttering / shattering businesses and plunging millions into poverty

It has caused severe social upheaval, with borders closed, movement restricted, schools shut and millions of people experiencing loneliness, isolation, anxiety and depression. It has also exposed and exacerbated political fault lines, within and between nations and eroded trust between people, governments and institutions - fuelled by a torrent of misinformation and disinformation. And it has laid bare the searing inequalities of our world, with the poorest and most vulnerable communities being the hardest hit and the last to receive access to vaccines and other associated 'tools'

For more than a year now the pandemic has been on a downward trend, with population immunity increasing due vaccination and actual infection, mortality decreasing and the pressure on health systems easing. This trend has allowed most countries to now generally return to life as we knew it before COVID-19

For the past year, the Emergency Committee and the WHO have been analysing the data carefully and considering when the time would be right to lower the level of alarm

Yesterday, the Emergency Committee met for the 15th time and recommended to me that I declare an *end to the public health emergency of international concern*. I have accepted that advice. It is therefore with great hope that I declare COVID-19 finished as a global health emergency. However, that does not mean it is over as a global health threat

Last week, COVID-19 claimed a life every 3 minutes - and that's just the deaths we know about As I speak, thousands of people around the world are fighting for their lives in intensive care units and millions more continue to live with the debilitating effects of post-COVID-19 conditions. This virus is here to stay. It is still killing and it's still changing. The risk remains of new variants emerging that might cause new surges in cases and deaths

The worst thing any country could do now is to use this news as a reason to let down its guard, to dismantle the systems it has built or to send the message to its people that COVID-19 is nothing to worry about



What this news means is that it is time for countries to transition from emergency mode to managing COVID-19 alongside other infectious diseases. I emphasise that this is not a snap decision but has been considered carefully for some time, planned for and made on the basis of a careful analysis of the data. If need be, I will not hesitate to convene another Emergency Committee should COVID-19 once again put our world in peril

Whilst the current Emergency Committee will now cease its work, it has sent a clear message that countries must not cease theirs. On the Committee's advice, I have decided to use a provision in the International Health Regulations that has never been used before - i.e. to establish a Review Committee to develop long-term, standing recommendations for countries on how to manage COVID-19 on an ongoing basis

Furthermore, the WHO has just published the 4th edition of the Global Strategic Preparedness & Response Plan for COVID-19, outlining critical actions for countries in five core areas: *collaborative surveillance, community protection, safe and scalable care, access to countermeasures* and *emergency coordination*

For more than 3 years, the experts on the Emergency Committee have devoted their time, experience and expertise - not just to advise me on whether COVID-19 continues to represent a global health emergency, but to also advise on recommendations for countries. I would like to express my deep gratitude to all the members of the Emergency Committee for their thoughtful consideration and wise advice

I thank especially Professor Didier Houssin for his leadership as Chair over the past three years. He has led the committee with a calm demeanour and a steady hand through turbulent times. I also wish to thank the incredible people who I have the privilege to call my colleagues

For those 3 years+, the people of the WHO have laboured day and night, under intense pressure and intense scrutiny. They have brought together partners and experts from around the world to generate evidenced study and translate it into guidance and actions for the world

In individual countries, the WHO has worked closely with governments to translate that guidance into policies / actions to save lives. My colleagues have worked tirelessly to get vaccines and other supplies to more people faster - and they have countered disinformation etc. with accurate and reliable facts. I do not have the words to express my gratitude to those who, like me, are proud to be part of the WHO

At one level, this is a moment for celebration. We have arrived at this moment thanks to the incredible skill and selfless dedication of health and care workers; the innovation of vaccine researchers and developers; the tough decisions governments have had to make in the face of changing evidence - and the sacrifices that all of us have made as individuals, families and communities to keep ourselves and each other safe

At another level this is a moment for reflection. COVID-19 has left, and continues to leave deep scars on our world. Those scars must serve as a permanent reminder of the potential for new viruses to emerge, with devastating consequences

As a global community, the suffering we have endured, the painful lessons we have learned, the investments we have made and the capacities we have built must not go to waste. We owe it to those we have lost to leverage those investments, to build on those capacities, to learn those lessons and to transform that suffering into meaningful and lasting change



One of the greatest tragedies of COVID-19 is that it need not have been this way. We had the tools and the technologies to prepare for pandemics better, to detect them earlier, to respond to them faster and to mitigate their impact. But globally, a lack of coordination, a lack of equity and a lack of solidarity meant that those tools were not used as effectively as they could have been. Lives were lost that should not have been

We must promise ourselves and our children and grandchildren that we will never make those mistakes again. That's what the pandemic accord and the amendments to the International Health Regulations that countries are now negotiating are about. A commitment to future generations that we will not go back to the old cycle of panic and neglect that left our world vulnerable, but move forward with a shared commitment to meet shared threats with a shared response

In 1948, the nations of the world came together in the aftermath of the bloodiest war in history to commit to working together for a healthier world, recognising that diseases have no regard for the lines humans draw on maps. They forged an agreement - a treaty i.e. the Constitution of the World Health Organization

Three-quarters of a century later, nations are once again coming together to forge an agreement to ensure we never repeat the same mistakes again. If we don't make these changes, then who will? This is the right generation to make those changes. And if we don't make them now, then when will we?

Like countries, communities and public health institutions around the world, the WHO has learned an enormous amount from this pandemic. COVID has changed our world, and it has changed us. That's the way it should be. If we all go back to how things were before COVID-19, we will have failed to learn our lessons, and we will have failed future generations

This experience must change us all for the better. It must make us more determined to fulfil the vision that nations had when they founded WHO in 1948 i.e. the highest possible standard of health for all people





Scientists Warn - Next Pandemic Likely to be Caused by * Influenza Virus

The Guardian - Adapted and Updated to 30 April 2024

* In contrast with e.g. Coronavirus (one such coronavirus caused the 'deadly' [2020-22] COVID-19 Pandemic)

An 'Influenza' (flu) virus will probably be the source (pathogen) of triggering a 'new' pandemic, in the relatively near future - according to leading scientists

An international survey revealed that **57% of senior**, **disease experts** believe that a strain of 'flu' virus will cause the next global epidemic / pandemic of a high fatality, infectious illness

Survey details (inputs from 187 such experts) were revealed at the 'European Society of Clinical Microbiology and Infectious Diseases' (ESCMID) congress in Barcelona (27-30 April 2024)

"The belief that an influenza virus will be (as at April 2024) the world's greatest (potential) pandemic threat, is based on long-term research showing it / same is continually evolving and mutating" - said Cologne University's Jon Salmanton-García, who carried out the study / survey

"During winter, 'normal' influenza occurrence increases - with some outbreaks (informally and incorrectly) being termed by some as 'little pandemics'. Said outbreaks are (April 2024) typically 'controllable' to a degree - as the differing, causal flu strains are *not* 'virulent enough' to become uncontrollable. This latter situation will probably not prevail" he said

The next, most likely source / cause of a pandemic following on from the above (according to **21%** of said participating experts) is likely to be a virus (temporarily termed 'Disease X') which (as at late April 2024) is probably still unknown. Said experts believe that same will be caused by an 'as-yet-to-be-identified' (virus) micro-organism 'appearing 'out of the blue' / from nowhere etc.'

The latter situation *was the actual case with the Sars-CoV-2 virus* (the cause of the *Covid-19* pandemic) when it started to infect humans in China, in late 2019 - with some scientists believing that Sars-CoV-2 *still* remains a viable threat, with *15%* of those surveyed (as per further above) rating same as the most likely pandemic cause in the relatively near future

Other deadly micro-organisms - e.g. Lassa, Nipah, Ebola and Zika viruses - were rated as serious global threats by only 1% to 2% of respondents

Very recently, the <u>World Health Organization raised fears</u> about the alarming spread of the H5N1 strain of influenza, which had caused millions of cases of <u>avian flu</u> across the globe

The latest outbreak began in 2020 - leading to the deaths / slaughtering of tens of millions of poultry birds and deaths of millions of wild birds

Most recently, the virus has spread to a small number of *mammal* species, including domestic cattle - now infected in 12 USA States - further increasing fears about the potential risk to humans

That is, the more mammalian species the virus infects, the more the chance that it will eventually evolve (mutate) into a strain which spreads rapidly and is dangerous to humans

The appearance of the H5N1 virus in cattle was something of a surprise. Pigs can (and have) get (got) avian flu, but until recently cattle did not - the latter being infected with their own disease strains.

So, the appearance of H5N1 in cows 'came as a shock' as this exacerbates the risk of it infecting more and more farm animals - and thus (eventually) humans. That is, the more the virus spreads amongst animals, the more the chance of it mutating to a human form

To date, there has been no indication that H5N1 is spreading between humans. **BUT** in the hundreds of cases where humans *have* been so infected (via direct / relatively direct contact with animals [typically domestic poultry] over the past 20 years or so), the impact has been extremely grim in terms of 'survivability' ratio

"The mortality rate is extraordinarily high because humans have no natural immunity to the virus" said Jeremy Farrar, chief scientist of the World Health Organisation

The prospect of a flu pandemic is alarming, although scientists point out that vaccines against many strains, including H5N1, have already been developed

If there was an avian flu pandemic it would be a *massive logistical challenge* to produce vaccines at the scale and speed that would be required. However, 'we' would be much further down that road than we were with Covid-19 - when a vaccine had to be developed from scratch

Nevertheless, some lessons of preventing disease spread have been forgotten since the end of the Covid pandemic, said Salmanton-García:

"People have gone back to coughing into their hands and then shaking hands with other people. Maskwearing, social distancing etc. have disappeared. We are going back to our old bad habits. We may come to regret it" he said



USA TODAY - Eduardo Cuevas (23 April 2024)

Bird Flu Alert Issued by CDC after Outbreak

(CDC = Centres for Disease Control and Prevention - USA)

The CDC is issuing (April 2024) a new health alert after recent *bird* flu outbreaks amongst *cattle* in parts of the USA. It comes as officials say the risk to the public remains low

The World Health Organisation's (WHO) top scientist said this week that the <u>recent bird flu outbreak</u> is of "great concern" to public health - and also that "vaccine development to halt the virus is <u>NOT</u> up to where we need it to be at this time"

The virus, ('Type A - H5N1' - typically circulated amongst poultry and wild birds in the past) has now spread to mammals, including cows, cats and at least two people in the U.S. - in recent years.

The new development, which experts are now assessing, is that the virus is passing 'mammal to mammal'

Bird flu has had a very high mortality rate in the hundreds of people who've contracted it to date, Dr. Jeremy Farrar, chief scientist at the WHO said

U.S. health officials say the country is ready to ramp up vaccine production if the risk of bird flu rises. The <u>Center for Disease Control and Prevention</u> says the current risk to public health remains low

"It's too early to press the panic button," Lawrence Gostin, a professor of public health law at Georgetown University and a leading expert in global health, told USA TODAY

The nightmare scenario, he stated, would be if the virus makes a genetic leap to human-to-human transmission. *This would / could be worse than the COVID-19 pandemic - given how infectious and deadly this virus is*

Whilst no human-to-human transmission has yet occurred, Farrar expressed concern about recent bird flu cases among cattle in several US States and also a Texas dairy worker. The infection has started to become a *pandemic among animal species*, he said at a <u>news conference</u> (18 April 2024)

"The great concern, of course, is that in doing so - and infecting ducks and chickens, but now increasingly mammals - *that that virus evolves and develops the ability to infect humans - and then critically, the ability to go from human-to-human transmission*"

So far, there is no evidence that H5N1 is spreading between humans. But in the hundreds of cases where humans have been so infected through contact with (mainly domestic poultry) animals over the past 20 years, "the mortality rate is extraordinarily high", Farrar said, "because humans have as yet no natural immunity to the associated virus:

From 2003-2024, 889 cases and 463 deaths caused by H5N1 had been reported worldwide from 23 countries, according to the WHO, *putting the case fatality rate (CFR) at an extremely high* <u>52%</u>

And to reiterate a comment already documented a little further above, the associated vaccine development is **NOT** "where it needs to be right now"



In a statement to USA TODAY, the U.S. Department of 'Health and Human Services' Administration for Strategic Preparedness and Response' said its *National Pre-Pandemic Influenza Vaccine Stockpile* (NPIVS) programme is equipped to respond rapidly to influenza strains as they evolve

"NPIVS works closely with industry partners to make and test updated vaccines that match new strains of influenza viruses with pandemic potential as they emerge, whilst at the same time supporting manufacturing capacity to allow for large-scale vaccine production if needed," the statement said

There are two antigens that are "well-matched" to the circulating strain of H5N1, the federal agency stated - meaning that hundreds of thousands of vaccine doses could be deployed within weeks, pending regulatory action by the Food and Drug Administration (FDA). Within months, federal officials could deploy more than 100 million doses

But Gostin doubts that the latter is realistic. Whilst the U.S. is comparatively better-off re this matter, **the world as a whole lacks the capacity to ramp up hundreds of millions or even billions** of vaccines for a potential bird flu H5N1 pandemic - **and even if the vaccine initially matches virus strains, the virus will almost certainly mutate** (and go on mutating) **at a relatively rapid rate**

He also noted that public health systems around the world currently lack the ability for early detection and testing of *bird flu*. "For many, many decades these avian and swine influenzas have remained within the animal kingdom

The hope and expectation is that they will continue to do so - but one day, this virus will mutate and go to a human - and then spread to a global pandemic very very quickly

We have to be ready for that day"



Leading Health Agencies Outline Updated Terminology for Pathogens Transmissible via the Air

April 2024 / World Health Organisation / News release

Leading health agencies outline updated terminology for pathogens that transmit through the air (who.int)