

Endemic Covid: the end of the pandemic?



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Current landscape

Since the early days of the pandemic, the virus's fate has had two likely outcomes: endemic or extinction. Each major variant so far has been more transmissible than its predecessors and brings different symptoms and differing resistances and susceptibilities to vaccines or treatments. Resurgent waves of breakthrough infections, driven most recently by the Omicron variant, in vaccinated populations with waning immunity, remain an ongoing risk to economic recovery and healthcare.

At the start of 2022, it looks like we may be past the peak of the pandemic, but the potential rise of new, more transmissible or lethal variants cannot be discounted in susceptible human and animal populations that would still act as reservoirs of disease. Offsetting these risks are developments in therapeutics and vaccines.

There is no hard and fast definition of an epidemic, pandemic, or endemic disease. Individual countries will likely declare themselves out of the pandemic or having reached a state of endemicy, before there are wider global statements made by international public health bodies, such as the World Health Organization (WHO). There are already signs of countries such as Denmark and the UK approaching this stage in early 2022.

The road towards endemic COVID-19 has been bumpy over the last two years, and this is a virus that continues to surprise everyone. This report will discuss some of the many factors which will chart the future course of the pandemic, as *well* as outline some further considerations for insurers.



The emergence of new variants

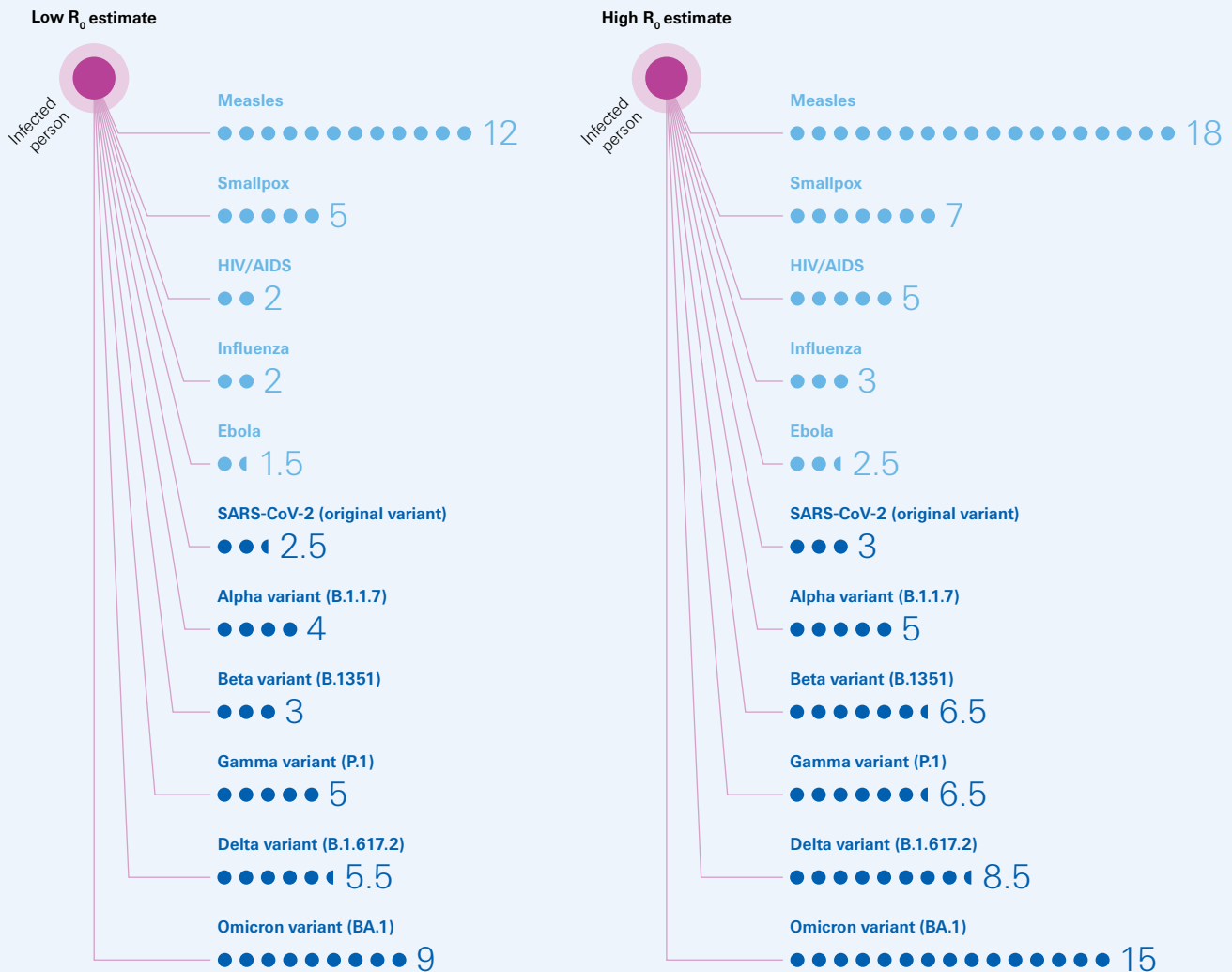
Since 2020, each new variant that has arisen has had advantages over its predecessor – some combination of increased transmissibility, immune system or vaccine evasion, or changes in disease severity. All viruses undergo mutations, and there is a trend for respiratory viruses such as influenzas or coronaviruses to favour greater transmissibility at the expense of more severe symptoms. The evolutionary drive of the virus is to spread to as many people as possible, not to get them as sick as possible.

Novel variants and mutations are expected and will remain a threat in countries with

endemic COVID-19. The risk of their emergence, or re-emergence, increases with the percentage of non-vaccinated and non-recovery immune individuals in the general population. This is of particular concern in population-rich yet vaccine-poor countries, which could provide ideal conditions for mutations that may lead to widespread global transmission. At the time of writing, the Omicron variant is globally dominant, and any subsequent variant would have to be at least as transmissible as Omicron to begin to take hold in any country. As variants evolve further away from the original virus first discovered in 2019, there has been a

trend of variants having a greater ability to escape the protection given by vaccines.

Figure 1
High and low range of estimates of infectious diseases in comparison to SARS-CoV-2 and its variants



Source: Swiss Re Institute (SRI)

Vaccination rates

However, it is clear that vaccination remains the cornerstone of the global effort against COVID-19, and through programmes like the COVAX scheme (the World Health Organization -backed effort to distribute vaccines to developing countries), 2022 is set to see a concerted effort to improve vaccination rates worldwide. Vaccine effectiveness will remain dependent on the emergence of any new variants which outcompete Omicron. Early data on vaccine effectiveness against the Omicron variant shows a decreased ability of vaccines to prevent symptomatic disease and hospitalisation, with protection decreasing much more rapidly over time. For countries relying on the COVAX scheme, the maximum vaccination rate is assumed to be between 75–85% of the population, and most are expected to achieve the bulk of this target by the beginning of 2023.

Globally, vaccine supply remains high, and few shortages have been reported. Current vaccine hesitancy numbers are expected to hold for the foreseeable future, subject to newer, more lethal, and transmissible variants. Over time, COVID-19 will be discussed less and

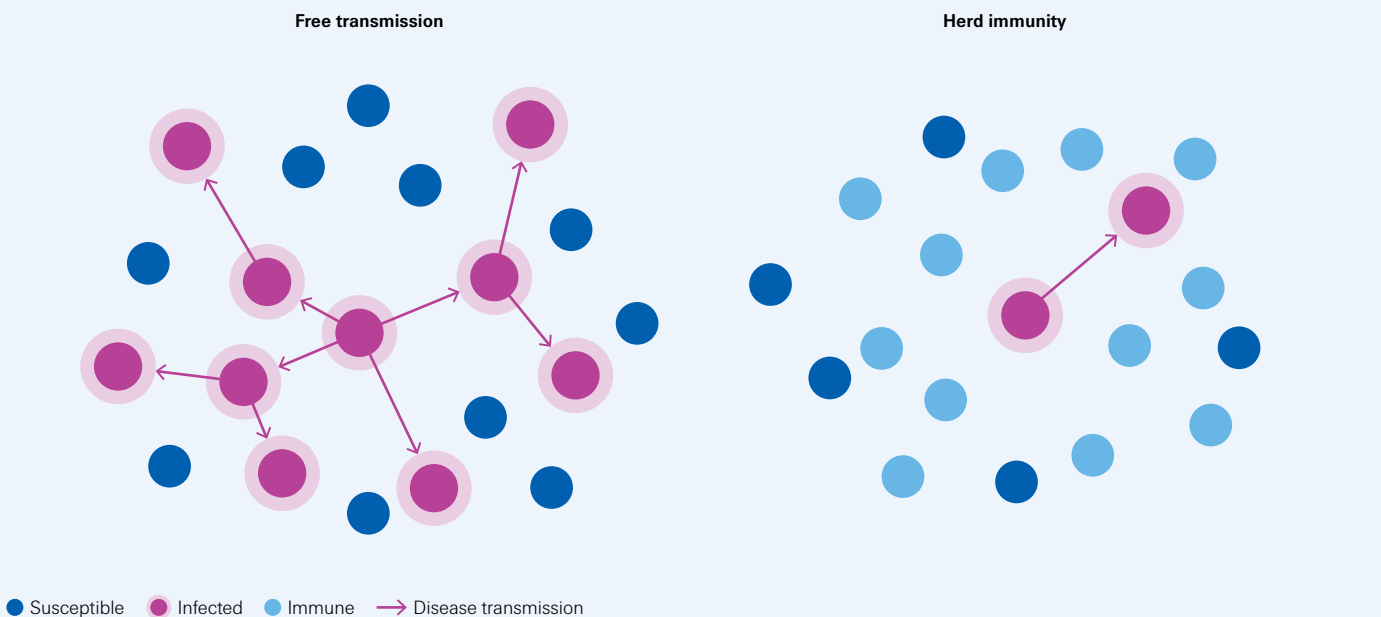
account for fewer deaths. This will likely lead to otherwise-healthy people being less willing to be vaccinated, potentially accounting for a similar percentage who receive an annual flu vaccine. While some people will refuse a vaccine no matter what, a large wave of cases will lead to this population developing antibodies anyway, after surviving infection. In the UK, over 98 % of the population had antibodies against COVID-19 by January 2022, despite less than 85% of the population having 2 or more vaccines. However, Omicron and Delta have both required much higher levels of antibodies than previous variants, suggesting that recent protection through vaccination is required to ensure high levels of resilience against severe disease. By the end of a widespread outbreak of recurrent COVID-19, it can be assumed that a very large proportion of the population would gain high levels of antibodies, one way or another.

Looking forward to 2023 and beyond, it is likely that only people who belong to at-risk groups would receive a new vaccine in many countries. These groups are likely to complete the full course of vaccination, as

society at large moves away from discussions around those individuals who are “fully vaccinated” or “partially vaccinated” against COVID-19. With vaccine manufacturers already suggesting that single-dose vaccines may be used by the end of 2022, it is quite likely that the vaccine would be given as a single dose. This would provide sufficient protection against death and transmission, with the assumption that people are also subsequently only infected with mild symptoms, which boosts their antibodies.

We assume that by 2023, vaccines will be used to protect against seasonal peaks over the winter, as opposed to year-round protection. After 2023, with COVID-19 probably in an endemic state, vaccines will likely be prioritised for those who are vulnerable or elderly, in a similar manner to regular annual influenza vaccines. Influenza vaccines are currently given to protect the at-risk groups from flu during flu season, when the risk is the highest. This invariably comes during Autumn and Winter, and it is possible the endemic COVID-19 would follow a similar pattern of seasonality.

Figure 2
Disease transmission in periods of free transmission compared to vaccinated and infected herd immunity



Source: Swiss Re Institute (SRI)

Present assumptions

- The emergence of Omicron will likely result in many countries speeding towards an endemic COVID-19 state, this year.
- The Omicron variant is expected to remain the most dominant, but may be subsumed by subsequent, more transmissible variants.
- With the further evolution of the virus, recent recovery immunity is likely to provide longer protection against severe disease and death. Vaccine immunity can help to boost underlying recovery immunity, particularly in vulnerable populations.
- In a post-vaccination and infection state, it is likely that the viral load among those who have been vaccinated or previously infected would be reduced, thereby reducing onward transmission.
- Vaccine protection against death continues to be very high, despite newer variants; however, this will

depend on factors such as underlying health and age.

- We expect that manufacturers will update booster dose formulations going forward, to account for the mutations and changed immunological features of variants, but this may be delayed up to 12 months from when variants first arise.

Immunity in the unvaccinated, under-16 population

Countries which procured vast amounts of vaccines in 2021 were able to successfully vaccinate large swathes of the adult population. They then turned their attention to vaccination for the young. The US and UK, for example, commenced vaccination of the 12–16 age group, with further approvals granted by the U.S Food and Drug Administration (FDA) for the use of the Pfizer vaccine in 5–11-year-olds. Across Europe, vaccines for 5–11-year-olds have been approved in many countries, and [the uptake has generally](#)

[been high](#). Current evidence points to children having milder symptoms with all variants of COVID-19. The greater transmissibility of Omicron has led to a higher absolute number of children being hospitalised with COVID-19, but a lower proportion than seen in other waves or with other variants. Globally, it is likely that vaccine priority groups will not include children, and that children will be among the last groups to be vaccinated. It can be assumed that a larger proportion of this under-16 population will derive immunity through infection rather than vaccination.



A growing arsenal of therapeutic treatments

To supplement our first line of defence, the COVID-19 vaccines, we now have a range of repurposed medications such as corticosteroids (dexamethasone) and newer monoclonal antibody treatments (mABs) as potential treatment options.

Monoclonal antibodies

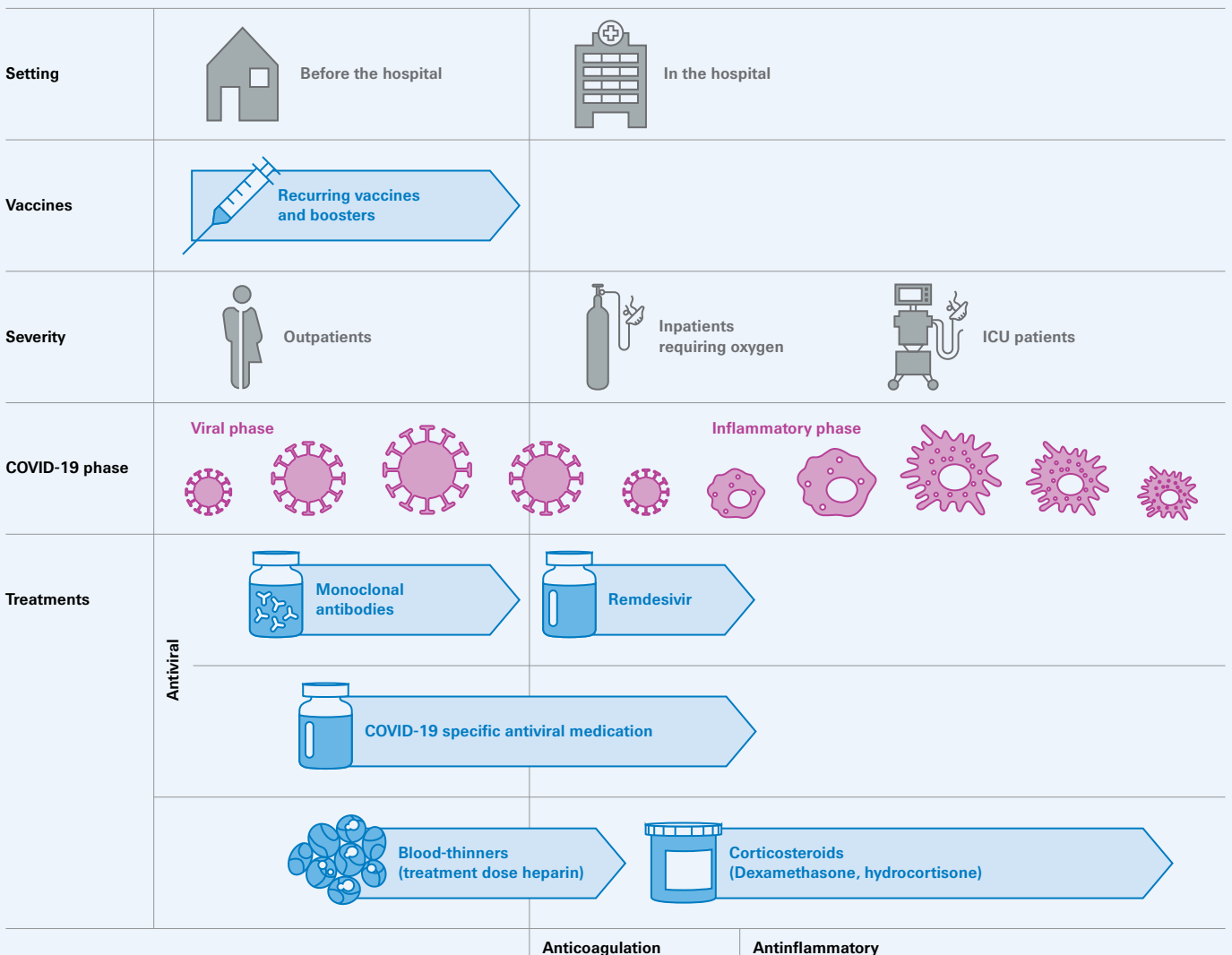
mABs are of particular interest in their ability to confer rapid protection to tackle active infection, which can last from weeks to months. Their use is currently varied across different markets. In many

countries mABs are only prescribed in hospital settings for severe disease to limit intensive care treatment, reduce the requirement for artificial ventilation and reduce risk to life. Previously, these were given more in outpatient settings to reduce hospitalisation. At the time of writing, the FDA has approved multiple mABs for emergency use in the US, however Sotrovimab™ appears to be the only mAB that remains effective against the Omicron variant, so its use is usually prioritised wherever possible. Due to the importance of this mAB, many hospitals are only receiving limited amounts of the

medication, to help ensure that sufficient stock would be available for those who need it the most. As supplies increase, it is possible that these quotas would be relaxed.

It is likely that vaccine hesitant or vaccine-ineligible individuals may opt to take monoclonal antibodies instead of vaccines, upon testing positive, which would confer protection for several months, and reduce hospitalisation, mortality risk and onward transmission by reducing viral load. As expected, pharmaceutical manufacturers will

Figure 3
Spectrum of COVID-19 treatments



Source: Swiss re Institute (SRI) and The Conversation

continue to explore updated vaccine formulations, in conjunction with new delivery mechanisms such as nasal sprays, for children and individuals who may have an aversion to needles.

Antivirals

The latter half of 2021 saw two new antiviral drugs introduced to the market. Clinical trials of molnupiravir (Merck) and Paxlovid™ (Pfizer) showed their efficacy in fighting severe disease and reducing risk of death from COVID-19. Phase 2/3

trials of molnupiravir suggested a **30% reduction in hospitalisation** and death for those treated outside hospital. Interim results of one of the Phase 2/3 trials for Paxlovid™ for high-risk patients outside hospital, suggest a **reduction of 90%** of severe disease and death.

At present, treatment protocols in the UK call for the antivirals to be prescribed to high-risk patients (irrespective of vaccination status) as early as possible, to prevent hospitalisation and death. Given the US stance on prescription protocols for monoclonal antibodies, it is likely that they

will allow for the prescription of these to a wider group of at-risk patients. However, just like with mABs above, supply and distribution issues remain, as patients, hospitals and governments continue to show interest in receiving as many supplies as possible. Although there are substantial costs associated with these drugs, it is likely that they will have a substantial effect in reducing both hospitalisation and deaths in the future as they did in the height of the Delta and Omicron waves.



Ongoing lethality and booster vaccinations

As COVID-19 enters a state of endemicity, acquired immunity from exposure and infection will be on par with immunity conferred by vaccination, including updated formulations targeting the most prevalent variants, in a similar way to seasonal flu vaccine surveillance. Existing variants will likely continue to evolve, as is expected in the life cycle of a virus and will likely have a relatively mild effect on healthy, non-elderly populations. COVID-19 vaccine boosters have been vital in combating in the Omicron variant, but repeated booster vaccinations for the entire population may be an unsustainable and perhaps unnecessary strategy in the coming years. Third doses administered towards the end of 2021 were effective in topping up waning immunity and providing extra protection against the new, highly transmissible variant. However, [Israeli data](#) points to waning

immunity and a decline in viral-load reduction effectiveness from a third mRNA booster, within months of inoculation, mirroring the pattern of previous doses.

As we entered 2022 and Omicron infectious cases began to skyrocket, multiple governments began considering the administration of a fourth dose. Early [studies from the Israeli Ministry of Health](#) demonstrated a reduction in the risk of severe disease and infection, following a fourth dose given to older and immunocompromised individuals and health workers. [Preliminary data](#) from the UK Health Security agency suggests that immunity from boosters may be less effective against Omicron, when compared against Delta.

Immunologists have expressed concern over the de-facto regime of using frequent

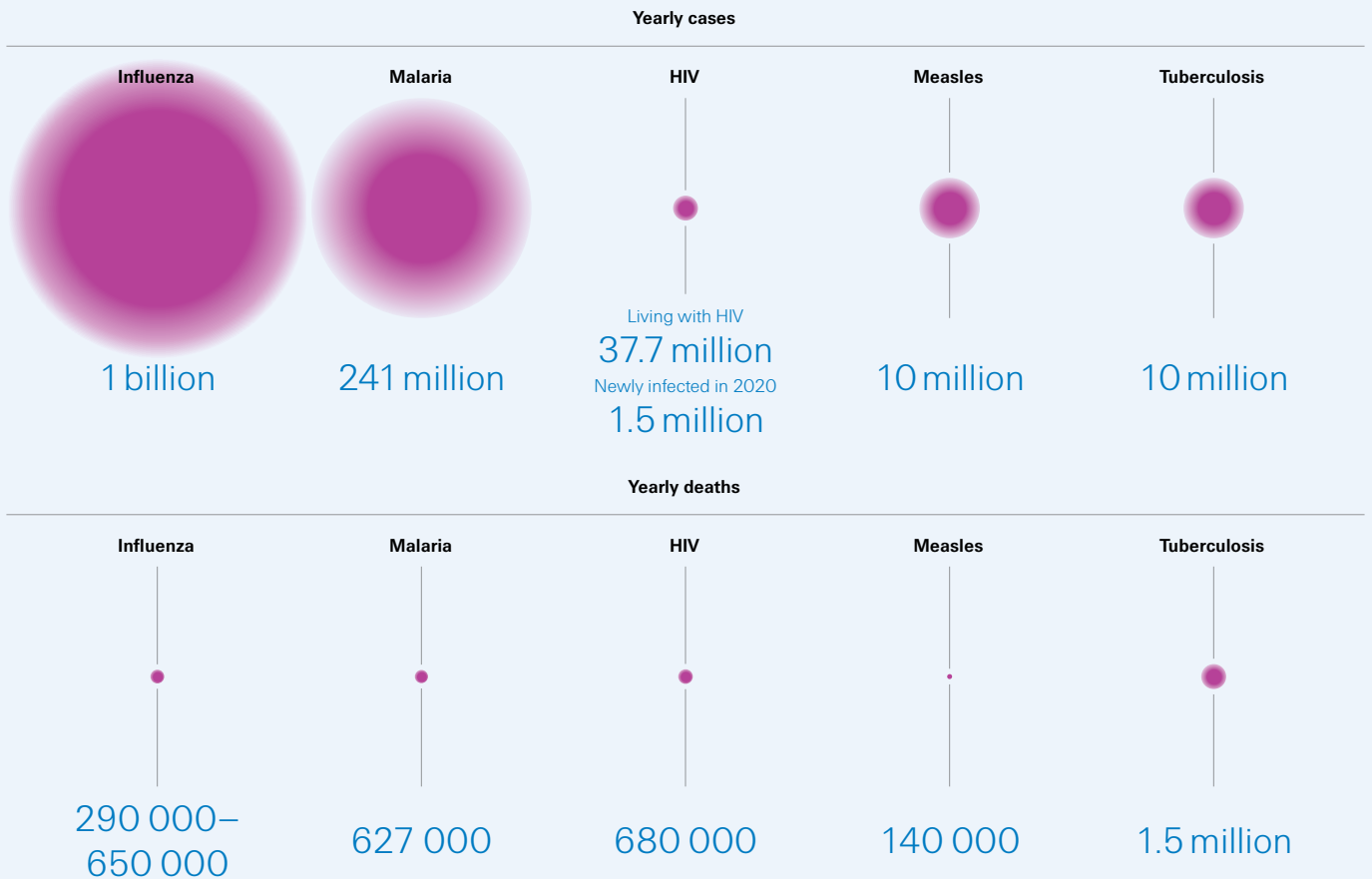
booster vaccines as an emergency measure. If protection from boosters is limited, vaccine hoarding, and further inoculation of heavily vaccinated populations also pose global problems in the terms of the strategies to vaccinate people in low-income countries.

Further clarity is needed on the purpose of these ongoing vaccinations, whether that be to reduce transmission and infection, or to prevent people needing hospitalisation and therefore reducing severity. In any case, new vaccines will be needed which offer broader protection against the inevitable, new variants.

Flu season

Annual flu seasons are expected to persist. The addition of COVID-19 infectious cases

Figure 4
Currently endemic diseases – annual cases vs deaths



Source: WHO & Swiss Re Institute (SRI)

will likely add to the existing burden with perhaps increased mortality in the vulnerable populations. As we have seen with the flu, COVID-19 deaths may overlap with deaths from other winter respiratory viruses in the general population.

We expect that the case-fatality rate associated with COVID-19, as it progresses into the endemic state, will likely mirror fatality rates currently seen with influenza. As healthcare systems have come to expect, endemic COVID-19 will likely add to the burden of hospitalisation capacity issues in many European countries during the winter, due to the combination of flu and other respiratory viruses. Endemic COVID-19 will likely produce ICU occupancy rates above previous levels, and potentially at elevated levels that strain capacity. However, we are hopeful that a

combination of flu and COVID-19 vaccines will likely be on the market by 2023.

Endemic controls in social mobility

Given that the world now has a roadmap derived from two years of lived experience in a pandemic, we are unlikely to see a repeat of the widespread, country-wide lockdowns of 2020. This assumption is of course subject to the emergence of newer, more lethal variants, which could cause a surge in mortality. Countries may opt for shorter, stringent lockdowns to break the chain of transmission and to ease pressure on healthcare systems, even when COVID-19 becomes endemic, if a potentially severe resurgence in the disease is detected. Whether relatively mild social measures such as mask

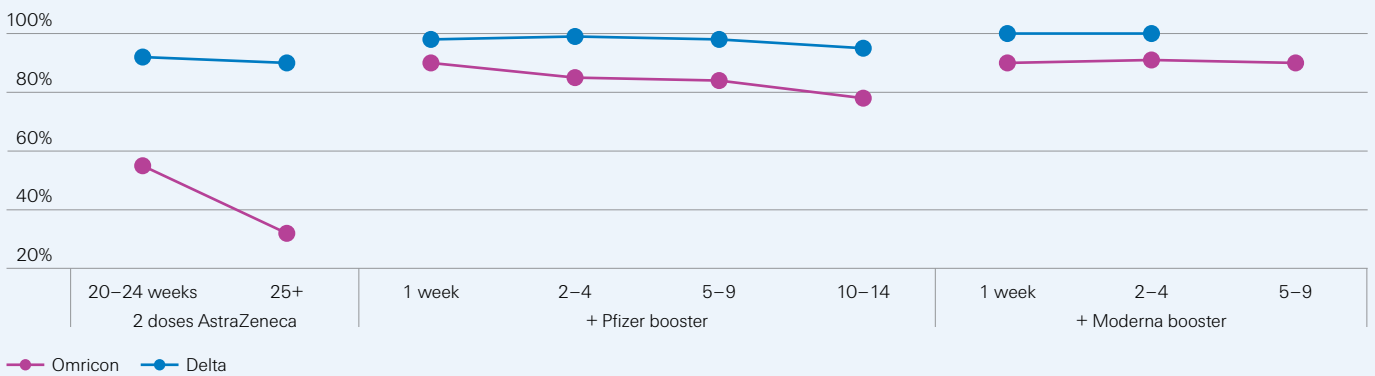
wearing continue, in countries where this was previously not common practice, remains to be seen. In many countries, mask wearing is unlikely to be mandated by law, but it's certainly possible that citizens adopt such measures voluntarily, as a result of changes to behaviour stemming from the pandemic. Monitoring of the global landscape of COVID-19 will likely persist, and as such sporadic travel restrictions are expected to remain in place for certain regions. Countries may not implement strict measures to restrict travel or require quarantine periods with the existing variants in circulation, but proof of testing or vaccination status on arrival, may be required.

Figure 5

Vaccine effectiveness against hospitalisation with Delta and Omicron variants after multiple vaccinations

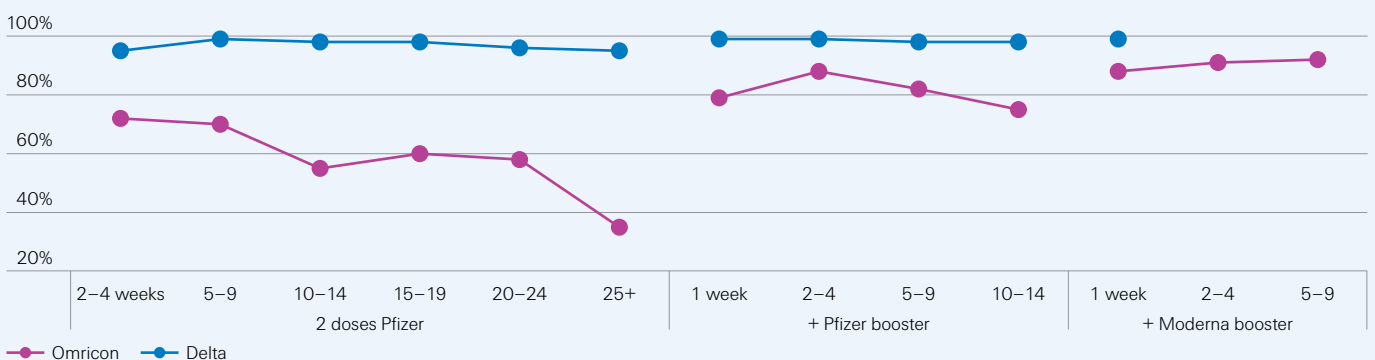
2X AstraZeneca + Pfizer or Moderna Booster

Vaccine % effectiveness at preventing hospitalisation (y-axis), time from vaccines (weeks, x-axis)



2X Pfizer + Pfizer or Moderna Booster

Vaccine % effectiveness at preventing hospitalisation (y-axis), time from vaccines (weeks, x-axis)



Source: COVID19- vaccine surveillance report – UK Health Security Agency (UKHSA)

Conclusion

COVID-19 is here to stay. As was the case with the Spanish flu of 1918, COVID-19 will become endemic in our society, affecting us for years (and perhaps decades) to come. At the time of writing, the governments of Europe are softening their stances by reducing restrictions and mandates, bringing us closer to operating at a pre-pandemic level. Currently, only China seems to be maintaining a strict zero-covid strategy. In one way or another, the world is starting to learn to “live with COVID-19” and what this really means, although uncertainty remains.

This expertise publication has shown that, as both global and insurance communities, there are reasons for us to be optimistic when we think about the long term. The strongest lockdowns and the harshest restrictions are, for the vast majority of the world, a fading memory. One day, finding

a face mask in an old-forgotten jacket may bring a moment’s confusion: a reminder of a more unsettled time. COVID-19, however, has consistently managed to surprise us: new variants gave rise to new symptoms, new ways of spreading and new record-breaking case numbers, but high levels of death are no longer a certainty, or perhaps no longer likely. No one can say for certain where the pandemic will go, but with vaccines, treatments and two years of experience – whatever our parameter may be, our chances of successfully handling it have never been greater.



Published by

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The editorial deadline for this study was 28 February 2022.

The internet version may contain slightly updated information.

Graphic design and production:
Corporate Real Estate & Logistics / Media Production, Zurich

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Order no: 1507720_0322_EN

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