

Pandemics can lead to severe economic losses and mortality with significant repercussions for the (re)insurance industries

## Pandemics

In contrast to an epidemic, which describes a disease affecting an exceptionally high proportion of the population in a localised area and over a limited period of time, it is understood that a pandemic is a cross-national or worldwide outbreak of a disease. In contrast to an epidemic, a pandemic is not limited in time or place.

Pandemics have occurred throughout history. In the Middle Ages devastating plague pandemics raged over Europe. In the last 300 years, seven pandemic outbreaks have been observed. Three outbreaks have occurred in the 20th century:

- Spanish flu, 1918, death cases: approx. 50 million
- Asian flu, 1957, death cases: approx. 2 million
- Hong Kong flu, 1968, death cases: approx. 1 million

With the spread of SARS-CoV-2, the sobering reality is that pandemics will become more frequent, in particular due to the increasing transmission of viral diseases by animals. Understanding this new reality will be the key to reducing the risk of future pandemics. As the world population swells, the number of outbreaks and the number of people affected is likely to increase. Trends like global travel, urbanization and climate change are driving the frequency of outbreaks even higher. There are ongoing scientific discussions about the future frequency of pandemic outbreaks. While pandemics have occurred every 30 to 40 years in past centuries, it seems reasonable to anticipate much shorter return periods in the future. Experience over the last 20 years tells us that we should expect pandemic outbreaks to occur somewhat every 10-15 years in the future.

In previous pandemics, a course of events could be observed in several waves. For example, the “Spanish flu” appeared in three waves. The “Swine flu” 2009-2010 also exhibited wave behaviour, with wave timing varying geographically. However, the mechanism responsible for the multiple waves of influenza or other acute infectious diseases are uncertain and in general not well understood. Influencing factors are transmission rates, infectiousness, virus mutations over time, or availability of drugs and/or vaccination.

A more globalized world makes it difficult to compare the latest Covid-19 outbreak with previous pandemics. Global interconnectedness means instead of coming in waves, new viruses are now more likely to spread and circulate until they

mutate or until a certain level of immunity is reached. Many experts have raised the possibility that Covid-19 could become an entrenched seasonal illness along with ordinary influenza.

The main risk for the population in a pandemic peak phase is from insufficient medical care due to capacity overload of the whole healthcare system (hospital care and outpatient care) and disturbances in public and private life with possible supply shortfall. All these risks materialized in the different phases of the Covid-19 outbreaks, even in economically highly developed countries where health system almost collapsed. This mismatch between the need for medical care and the existing medical infrastructure continued in the most severely affected countries. Within weeks, medical care was re-identified as part of the critical infrastructure and health security became a new national goal in many parts of the world.

The crucial factors in determining the extend of such disturbances, the endangerment to individuals and the economic consequences are the severity of a pandemic outbreak and whether medical science is able to mitigate the course of a pandemic by development of antiviral drugs and/or vaccines. The course of a pandemic outbreak can also be attenuated by effective infection control measures. All relevant national and international health authorities (e.g. World Health Organisation (WHO)) have prepared detailed plans for prophylaxis and control.

On the economic side, the Covid-19 pandemic quickly led to a global economic crisis, the consequences of which are not yet foreseeable. Among other things, it led to a massive increase in unemployment, a disruption of global supply chains and the collapse or massive imbalance of companies that until recently were still prospering. State and supranational aid and rescue programs are trying to avert the worst consequences of the crisis. The (re-)insurance industry is affected in several lines of business, especially business interruption, financial lines, and life & health policies. On the other hand, a consequence of the pandemic could be an increased worldwide demand for new insurance coverage for newly identified unmet needs related to pandemic risks.