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COVID-19 and global pandemics

Since mid-January, COVID-19, commonly called the novel coronavirus or just coronavirus, has been getting increased attention as the number of cases mount. The first officially confirmed case was identified on December 1 in Wuhan, China, and grew to 40 cases by December 31. According to the WHO (World Health Organization), through February 27, 2020, there have been a total of 82,294 reported infections with 2,804 fatalities, all but 57 of which occurred in China. As the virus spreads around the globe, including more than 600 confirmed cases on the Diamond Princess cruise ship, countries such as South Korea are now seeing an increase in the number of cases and are taking measures to reduce the outbreak. This has brought back into focus the dangers of pandemics and how prepared we are for them, especially in the insurance industry. The large spike on February 17 is due to a change in reporting, in which WHO reported both laboratory-confirmed and clinically diagnosed cases between February 13 and February 16.

Current situation

COVID-19 is a viral respiratory illness that can spread from person to person. At the moment, much is unknown exactly how the disease spreads other than from person to person, but it is believed to spread through contact with an infected person through coughs or sneezes. Based on research from the MRC Centre for Global Infectious Disease Analysis at Imperial College London, it was estimated the COVID-19 reproduction number, or infection rate, to be 2.6 people per case, with an uncertainty range of 1.5 to 3.5. Comparatively, the SARS coronavirus is calculated to have had a reproduction number of around 3. Currently, there is no known vaccine. However, multiple biotech companies such as Johnson & Johnson and Sanofi are working with the HHS on creating one. One example includes Moderna, which has recently announced that it has sent an experimental COVID-19 vaccine to U.S. officials for testing.

The virus is a coronavirus, similar to that of SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome), which saw similar outbreaks in 2003 and 2012, respectively. The WHO on January 30 announced COVID-19 as a public health emergency of international concern. The U.S. HHS Secretary, Alex Azar, on January 31, declared a public health emergency for the country. This allows state, tribal, and local health departments to request the HHS reassign resources to respond to the virus. According to the CDC (Centers for Disease Control), as of February 26, in the U.S., there are 59 confirmed cases of COVID-19, 45 of which have been persons repatriated to the U.S. from China or the Diamond Princess cruise ship.

The U.S. government has been active in the past few days regarding COVID-19. On February 24, the White House requested $2.5 billion in emergency funding to address the outbreak. In a joint press conference between multiple agencies in the HHS on February 25, Dr. Nancy Messonnier, the director of the National Center for Immunization and Respiratory Diseases within the CDC, stated “It’s not so much of a question of if this will happen in this country anymore but a question of when this will happen.” Dr. Messonnier went on further to say “we are asking the American public to prepare for the expectation that this might be bad.” The U.S. also has focused on travel to countries that have seen elevated cases. The CDC first issued its highest-level travel warning with China on February 3 at a Warning Level 3, which states that the outbreak is of high risk to travelers and they should avoid any nonessential travel to China. At publication, the CDC has since issued additional travel warnings, including Level 3 for South Korea, Alert Level 2 for Iran, Italy, and Japan, and Watch Level 1 for Hong Kong.

There have been many comparisons in the U.S. of COVID-19 to the flu. While influenza can reach pandemic levels, such as the 1918 Spanish flu that saw an estimated fatality rate of around 10% to 20%, the majority of flu years do not reach this level. The CDC estimates through February 15, 2020, that this year’s U.S. flu season has had at least 29 million illnesses and 16,000 fatalities. This is a fatality rate of 0.06%, compared to the 3.4% rate for COVID-19 and below the 0.14% estimated for the 2017-2018 U.S. flu season. The other major difference between the two is the number of unknowns for COVID-19. We know every year that there will be a flu season, we can prepare by receiving vaccines, and also that—once spring hits—the flu season will taper down again. With COVID-19 and other pandemics, there are too many unknowns such as how the virus started, how it spreads, how to prevent it, and when the outbreak will end.

Past coronaviruses

COVID-19 is not the first coronavirus to cause panic. In 2003 and then again in 2012, the world faced SARS and MERS. These viruses are zoonotic, which means they are transmitted from animals to humans. SARS can be traced to the civet, a small, cat-like animal, as the intermediary host, with a horseshoe bat as the original host. MERS was transmitted through camels as an intermediary host and can also trace back to bats as the original host.

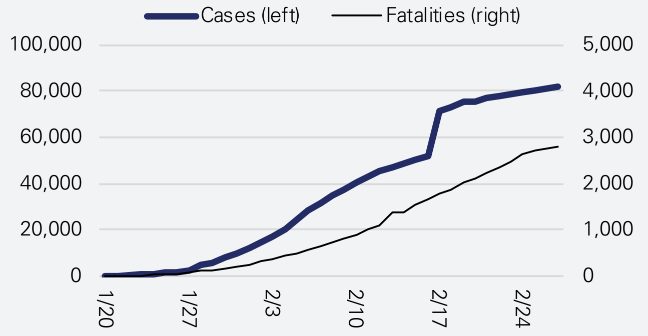
The SARS outbreak started in November 2002 in China and lasted until July 2003 when the WHO declared the outbreak to have been contained worldwide. Between September 2003 and May 2004, there were a few cases, some of which were due to laboratory accidents. In May 2004, the WHO declared the chain of human-to-human spread of the virus to be broken. Since 2004, there have been no known cases of SARS. Between November 2002 and July 2003, 8,096 cases were identified and 774 fatalities, a fatality rate of 9.6%.

The MERS coronavirus was first identified in 2012 in Saudi Arabia. MERS reached a peak in 2014, with more than 758 cases reported that year. The majority of cases were in the Middle East, but cases have been reported in 27 countries through 2019. Unlike SARS, the MERS virus has not been eradicated. Since 2014, there have been a few spikes in the number of reported cases over the years. Through December 2019, the WHO reports that there have been 2,499 reported cases of MERS with 861 fatalities. This is a fatality rate of 34.5%.

Insuring pandemic risks

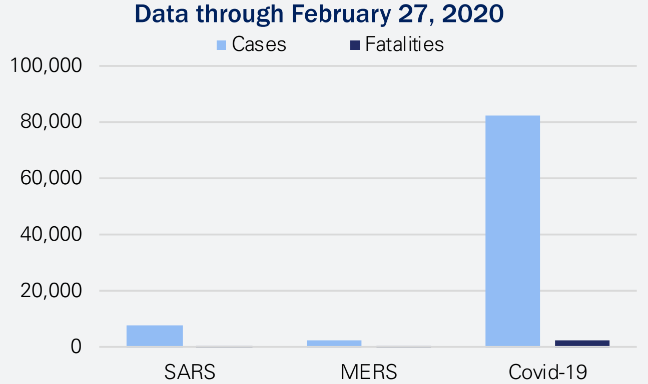
In July 2017, the World Bank launched the PEF (Pandemic Emergency Financing Facility) after the Ebola outbreak in Africa. The PEF is designed as a way to help some of the world's poorest countries finance the fight against pandemics. The PEF covers multiple disease outbreaks, including pandemic influenza, coronaviruses such as SARS, filoviruses including Ebola, and other zoonotic diseases. There are 76 countries that are currently a part of the World Bank's IDA (International Development Association) that are eligible to access PEF funds, as well as international organizations and NGOs (nongovernmental organizations) supporting response efforts in affected countries.

COVID-19 Number of Cases & Fatalities
Data through February 27, 2020



Prepared by Conning, Inc. Source: World Health Organization Coronavirus Disease Situation Reports (2020)

Coronavirus Outbreak Comparison & Fatality Rate
Data through February 27, 2020



Prepared by Conning, Inc. Source: World Health Organization (2020)

There are two ways an eligible country can receive funds from the PEF, through an "insurance window" and a "cash window." The insurance window is paid out using only the proceeds/funds made available through "a pandemic insurance or a pandemic bond" and received in the Trust Fund. The cash window is made from other applicable resources available to the trust fund for outbreaks that are not yet eligible for the insurance window (i.e., the pandemic bond).

To help finance the $500 million the PEF would provide to countries against outbreaks, the World Bank issued a pandemic bond, developed with Swiss Re and Munich Re. In July 2017, the $320 million bond was issued into two tranches, or windows, split into an insurance and cash payment. The first window is the insurance portion, which is a $250 million bond that covers flu and coronavirus. The bond has a coupon of the six-month LIBOR + 6.50%, and premiums are funded by Japan and Germany. The second window bond is the cash portion, which is a $95 million bond that covers coronavirus, filovirus, and other zoonotic diseases. This portion is funded by Germany, which put in an initial €50 million, and pays a coupon of the six-month LIBOR + 11.1%. The first period of the program is set to run from July 2017 to June 2020, with a second period expected to follow.

This bond has faced criticism with regard to the current payout structure. Set up after the Ebola outbreak in 2014, there are multiple requirements needed for either tranche to be triggered. According to the PEF Operations Manual, for a non-flu even such as coronavirus, they include:

- At least twelve weeks have passed from the date of the start of the event.
- The outbreak needs to be in more than one country (IDA or IBRD), with each such country having greater than or equal to 20 confirmed deaths.
- The growth rate needs to be greater than zero to ensure that the outbreak is growing at a specific statistical confidence level.
- The total confirmed death amount needs to be greater than or equal to 2,500 for the first tranche and 250 for the second tranche.
- The rolling total case amount needs to be greater than or equal to 250.
- The rolling confirmed case amount needs to be a minimum percentage of the rolling total case amount.
- Regional outbreaks affecting two to seven countries would activate payments of pandemic bond/insurance payout

amounts at three stages as the number of total confirmed deaths increases. Global outbreaks affecting eight or more countries also activate payments at three stages, but provide access to higher funding levels at the first two triggers.

At the time of publication, COVID-19 has not met all of the requirements to trigger the pandemic bond. As of February 27, 2020, according to the WHO, the number of fatalities in China was above the 2,500 threshold and the number of fatalities in Iran reached 20+. Requirements that still need to be met include a certain level of positive growth rate, as well as the completion of an 84-day period from the beginning of the outbreak. According to reports, this is estimated to end on March 23. At the end of February, media outlets reported the Class B World Bank pandemic bonds were trading in the 45-55 range, suggesting significant uncertainty as to whether they will be triggered. Updating through March 3, the price had dropped to the 5 cent range. China has already announced that it was spending $10 billion on its COVID-19 response, well above the potential $196 million that could be paid out for a coronavirus if the pandemic bond were triggered.

Ratings outlook for industry and economy

Due to the increased news coverage, analysts and rating agencies have come forward with commentary regarding how the insurance industry may fare during this COVID-19 outbreak. From a U.S. perspective, the exposure for major claims across property-casualty, life, and health insurers is relatively small. However, as the virus spreads, the risk of major event cancellations could mean large insurance payouts. As events are canceled or postponed, such as Formula 1's Shanghai Grand Prix in April or even talks of the Olympics in July, claims for insurers and reinsurers could rise.

Life reinsurance companies have made brief comments about their exposure. During the company's fourth-quarter earnings call, RGA's President and CEO, Anna Manning, stated "… we estimate that approximately 12% of our global pandemic exposure is in Asia. And of that, we have a very small operation in China. So of that 12%, we estimate 1% to 2% would be in China. The remainder of our global pandemic exposure, that would be just over 50% in the U.S., 35% between Canada and EMEA, and then the rest, the small residual in all of our other operations."

Hannover Re CEO, Jean-Jacques Henchoz, stated during a conference call on February 5 that "at this stage, we would feel that the coronavirus would not lead to very significant losses. But of course, we follow progress and hope this will be mitigated in the coming weeks." The company does expect businesses to be affected, but on its Chinese business interruption policies, infectious diseases are excluded from the covers. Scor also commented on its limited mortality and business interruption exposure during its earnings call in February.

In China, COVID-19 is expected to weaken profits for this year for both life and property-casualty insurers. Within the life industry, due to the current low fatality rate of the virus, overall claims are not expected to cause a major underwriting threat.

From a health insurance perspective, the virus is also forecast to have a small impact, due in part that the country covers most of its people with basic health coverage. While insurers do sell private coverage, the majority of coverage sold is for critical illness, medical expense reimbursement, and nursing care.

The global economic impact of COVID-19 is still yet to be determined, but it is expected to cause a global economic slowdown. The COVID-19 outbreak will have a large impact on the Chinese economy. With government quarantines on multiple cities, a decrease in travel and tourism, as well as business halts/interruptions across the country, analysts have lowered economic projections for China. According to reports, in China, hundreds of companies are seeking billions in bank loans to help cover losses due to the outbreak. Rating agencies have also lowered their forecast for China's GDP. S&P has lowered its 2020 forecast from 5.7% to 5.0%, and Moody's has decreased its estimate from 5.8% to 5.2%. According to the IMF (International Monetary Fund), China's GDP based on PPP (purchasing power parity) is just under 20% of the world's GDP. As the virus spreads globally, countries such as South Korea and Italy, which have seen large increases in infections, could also see slower economic growth in the first half of 2020.

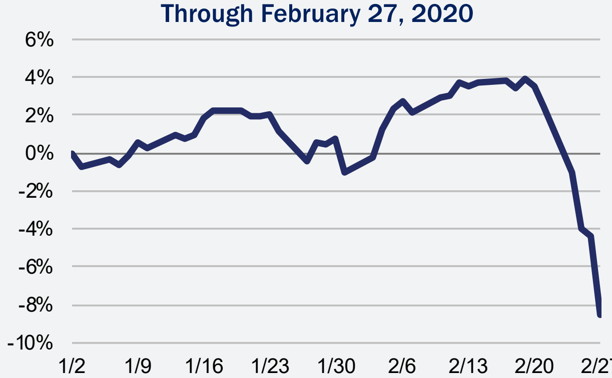
In the United States, the economic impact of COVID-19 is currently expected to be limited. Manufacturing and production could see a decline if Chinese exports decrease. During testimony to Congress, Federal Reserve Chairman Jerome Powell said that the bank was closely monitoring the coronavi-

Coronavirus Outbreak Comparison
Data through February 27, 2020

	SARS	MERS	COVID-19
Date	Nov. 2002 to July 2013	April 2012 to Present	Dec. 2019 to Present
# of Cases	8,096	2,506	82,294
Fatalities	774	862	2,804
Fatality Rate	9.6%	34.4%	3.4%
Transmission	zoonotic	zoonotic	zoonotic

Prepared by Conning, Inc. Source: World Health Organization (2020)

S&P 500 Performance Year-to-Date
Through February 27, 2020



Prepared by Conning, Inc. Source: St. Louis Federal Reserve FRED Economic Data rus and its impact on both the U.S. and the global economy. As the virus continues to spread globally, the risk of effects could increase on both GDP and the markets. From its peak on February 19, 2020, to February 28, The S&P 500 is down 12.8%% after a week of market sell-offs due largely to COVID-19.

Conclusion

Pandemics similar to COVID-19, SARS, and Ebola will continue to happen, with unknown economic and human impact. While past pandemics may help insurers prepare for the next one, there will always be uncertainty. Companies should consider stress-testing a range of scenarios as they prepare for not only the financial impact of the next pandemic, but also the possible impact on their own workforce. The insurance industry can play an important role in financing the effects of pandemic outbreaks. So far, these pandemics have been confined to lesser developed countries, where private insurance has relatively low penetration. In these circumstances, facilities such as the World Bank's pandemic bond can play a vital role in addition to local governments.

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