

Outbreaks, Epidemics, and Pandemics: Preparedness and Response Strategies



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Introduction

Just over a century ago, the Spanish flu spread across the world, killing as many as 100 million people and causing devastating economic losses. Since then, tens of millions of lives have been claimed by pandemics and epidemics that also wreaked havoc on businesses and damaged national economies. Despite advances in medicine and improved infection control practices, the novel coronavirus (2019-nCoV) outbreak originating in Wuhan, China — which the World Health Organization (WHO) has declared a public health emergency of international concern — along with the Zika pandemic and outbreaks of the Ebola virus and Middle East respiratory syndrome coronavirus in the last decade are stark reminders of the dangers posed by rapidly spreading disease.

Although public health officials must lead much of the preventive work needed to limit the effects of infectious diseases, organizations can manage their own risk by planning their response to protect their people and fiscal integrity.

To effectively respond to these threats, businesses should take a two-pronged approach, starting with establishing preparedness strategies that cover emergency response, business continuity, crisis management, and crisis communications. Aside from the ability to monitor the progress of emerging pandemics and epidemics and understanding their potential impact, plans should also be in place to continue operations in case of travel restrictions and if organizations are directly affected.

Secondly, businesses should understand how existing insurance coverages may respond to a pandemic, and make any necessary changes to their policies, keeping in mind the potentially global nature of various diseases.

We hope you find this report to be a useful tool to help you take steps to manage your pandemic and epidemic risk.



The Cost of Epidemics and Pandemics

The WHO defines an epidemic as “the occurrence in a community or region of cases of an illness, specific health-related behavior, or other health-related events clearly in excess of normal expectancy.” A pandemic is defined by the WHO as “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people.”

The global influenza pandemic of 1918 — known to history as the “Spanish flu” — infected an estimated 500 million people and killed as many as 100 million. In the century since, many pandemics and epidemics have emerged (see Figure 1).

Although recent pandemics and epidemics have been deadly, the mortality rates from these outbreaks are generally far lower than health crises of the past, owing in large part to advances in medicine and infrastructure. Yet the potential economic impacts of today’s health crises can be far greater in scope than earlier ones. The increasing reliance of businesses on technology, frequent and unrestricted travel, and far-reaching supply chains mean that an

outbreak in a single country can have global repercussions.

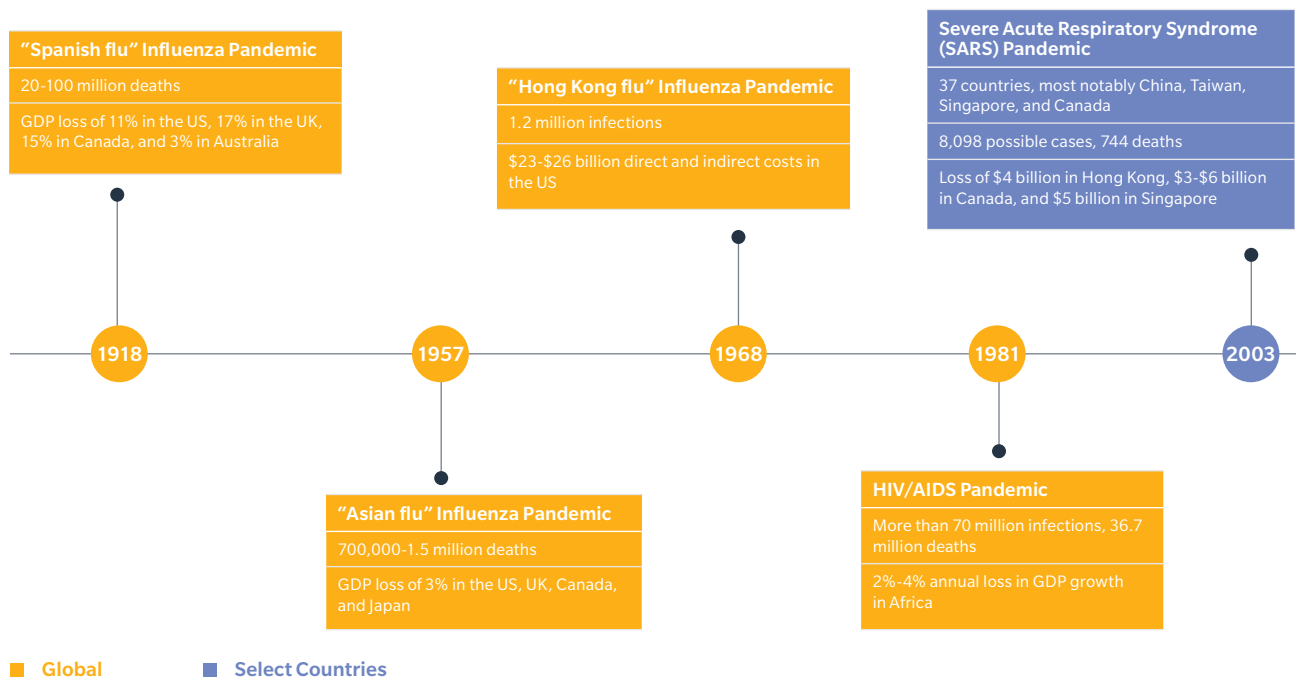
For businesses, potential risks include:

- Loss of workforce due to death and illness.
- Increased employee absenteeism and lower productivity due to family care obligations, social distancing, and fear of infection.
- Operational disruptions, including interruptions and delays in transportation networks and supply chains.
- Reduced customer demand.
- Reputational damage if an organization’s response to an outbreak is seen as ineffective or if its communications with internal and external stakeholders are seen as incomplete or misleading.

FIGURE 1

Notable epidemics, pandemics, and the impact on human and economic health

SOURCE: Madhav, N., Oppenheim, B., Gallivan, M., Mulembakani, P., Rubin, E., & Wolfe, N. (2018). Pandemics: risks, impacts, and mitigation. *Disease control priorities*, 9, 315-345



NOTE: List of events is illustrative rather than exhaustive. All US dollar amounts rounded to nearest billion.

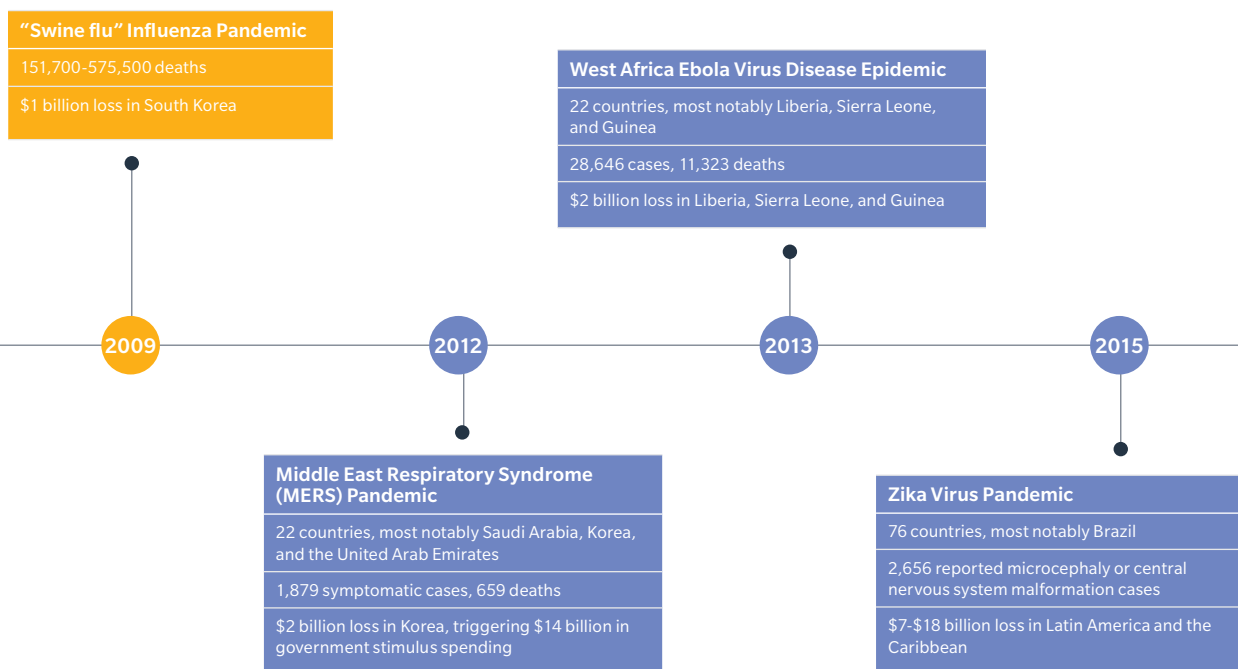


When public confidence is eroded by public health crises, the effects can be felt on a company's bottom line. The risks can be particularly acute for organizations in such areas as retail, hospitality, entertainment, and airlines. For example, during the 2013-14 Ebola outbreak, airline stocks fell as investors anticipated a sharp decrease in travel after an Ebola case was reported at a Texas hospital, while several hundred airline workers did not

report for work at LaGuardia Airport in New York due to concerns about their safety. And more than 80% of losses in the Caribbean from the 2015 Zika virus outbreak [have been tied to lower international tourism revenue](#), according to the United Nations Development Programme.

At the same time, health care providers may face patient overloads and illnesses among staff, which can adversely affect service delivery during critical times. Higher education institutions may also face a variety of risks stemming from their role in providing housing and other services to students and local communities, international travel by students and faculty, and more.

While still in its early days, similar economic and social consequences of the novel coronavirus (2019-nCoV) outbreak are materializing. We are already seeing drops in global stock markets, the curtailing of travel within and to/from China, the closing of factories and businesses in China, and health and safety concerns being raised by travelers and employees, which are indicative of the potential high costs should this outbreak persist. Though organizations can do little to prevent or limit the spread of outbreaks, they can be prepared to respond, remediate, and recover.



Response Planning

Organizational preparedness to manage a disease outbreak includes emergency response, business continuity, crisis management, and crisis communications. As they monitor the progress of emerging pandemics or epidemics, businesses should review, exercise, and update or otherwise adjust their response plans, including crisis management, crisis communications, and business continuity plans.

To remain resilient, organizations should seek to answer several critical questions. For example:

- Which products and/or services are of greatest value and how would revenue be affected by a disease outbreak?
- Will our plans work in the event of border closures, travel restrictions, or reduced exports of certain commodities?
- What if we lose critical people, or have staff working from remote locations?
- Will the fear of infection affect our key customer base?
- How should we engage with public health and government entities?
- Who should we involve in our response efforts?
- How can we position the organization to respond positively?

Businesses should consider developing clearly defined pandemic response escalation thresholds specific to their operations so that individual facilities, divisions, and regions can identify potential health threats early and act appropriately to protect the organization, employees, resources, and revenue streams. Organizations should also review critical suppliers and vendors and potential operational or sales impacts if they were to be affected by an outbreak, while also considering alternative and/or geographically dispersed suppliers and vendors.

FIGURE
2

2019 Novel Coronavirus

SOURCE: WHO

- 113,702 global cases reported
- 4,012 reported deaths

Declared a pandemic by WHO on March 11, 2020

Employee Well-Being

To effectively protect people, businesses should consider the nature of any disease — for example, its virulence, mortality rate, and public fears — and within that framework define the potential direct and indirect impacts on employees. Businesses should monitor guidance and updates from public health agencies, governments, industry groups, and other experts, and determine procedures, including notifications to health authorities, employees, and other stakeholders, in the event of a suspected case involving an employee, an employee's family member, or others visiting an area that is known to be affected by an outbreak.

Businesses should also:

- **Review or develop employee health procedures to minimize the potential for transmission of infectious diseases to other people, including employees, their families, and customers.** Among other actions, organizations should consider the need for individuals to be quarantined or isolated and define additional cleaning protocols that may need to be implemented.
- **Keep employees informed and educated about outbreaks and relevant health care precautions.** Consider the role of employee wellness programs, especially if an outbreak happens during cold and flu season. Encourage employees to remain home when sick and consider establishing a remote working policy to limit the spread of disease.



Insurance Considerations

Several forms of coverage may apply if an employee, employee's family member, or third party is infected, or if an insured property or a third party's property is contaminated or otherwise affected by an actual or perceived infectious disease threat. The insurance market has also developed parametric, indemnity-based insurance policies that can be triggered without direct property damage.

Ahead of an outbreak, risk professionals should understand the coverages they purchase and how each might be expected to respond to a pandemic.

Workers' Compensation and Employers Liability

The facts of individual workers' compensation cases will vary, as will state and federal laws and an individual policy's terms and conditions, which could provide for coverage beyond what is mandated by law. Depending on the language in each state's statute regarding individual incidents or exposures to occupational diseases, workers' compensation insurance could provide coverage for medical expenses and reimbursement of lost wages for infectious disease-related disability, as long as the exposure meets the jurisdictional compensability standard.

Exposure Outside of the US

If an employee of a US-based company contracts an infectious disease while on assignment outside the US in the course and scope of employment, his or her claim may be found compensable. Disability claims by employees on work assignments in geographic areas where the risk is identified should be filed under the appropriate policy. Many states extend benefits to those injured outside of their borders (whether in another state or outside of the country), provided that the contract of hire was made in the state or the principal location of employment is in the state.

Employers liability coverage may also apply. But many employers prefer to address this exposure by arranging for a foreign voluntary workers' compensation (FVWC) benefits endorsement, or a separate standalone policy. Although terms and conditions can vary, a FVWC policy typically provides voluntary coverage for the workers' compensation benefits of a given jurisdiction to employees not covered by state workers' compensation law. Such a policy also typically provides coverage for an injury or death arising out of endemic disease, even if the disease is not covered under the domestic workers' compensation or occupational disease law of the designated US state.

It is important to note, however, that the definition of an "endemic" disease must be met for coverage to apply. Workers' compensation policies generally define endemic disease as any disease that is:

- Infectious and generally recognized as a public health hazard.
- Restricted or peculiar to a locality or region.
- Not caused or aggravated by the conditions of employment.

FVWC policies generally provide coverage for the cost of bringing an employee or his/her remains back to the US. Use of a medical helicopter can cost more than \$60,000. If an employee is brought back to the US via chartered plane with the proper isolation systems and medical supplies, the costs can also be high.



RISK FOCUS: TRAVEL PRECAUTIONS

In response to the novel coronavirus outbreak, the US State Department has urged Americans not to travel to China and those who are in China to consider leaving the country. Other countries have issued similar warnings, mainly to avoid China's Hubei province and any nonessential travel to China; some countries have also banned travelers from China.

Organizations should review such warnings and consider potential changes to business travel approval procedures. If travel to an affected region is deemed necessary, organizations should educate employees about disease transmission and infection-control measures. Specifically, travelers to affected regions should:

- Avoid high-risk activities.
- Pay strict attention to hygiene.
- Monitor their health and seek medical attention if exhibiting any symptoms commonly associated with the disease.
- Carry emergency medical assistance numbers.

Before traveling, employees should be familiar with any policies regarding emergency medical evacuations and understand what medical care (if any) may be available via company resources, in addition to or instead of those provided by local health facilities. Organizations may also wish to recommend that employees who travel regularly be immunized against the flu and high-risk pathogens for which vaccines are available.

Finally, travelers should be mindful of the possibility that screening and isolation measures may be put into place at airports, seaports, and land crossings. As the number of novel coronavirus cases rises, passengers arriving from the Wuhan area are being screened for elevated temperature and other symptoms at airports around the world, including in North America, Europe, and Australia. Many airlines have also chosen to reduce flights or completely cease flying to China.

General Liability and Umbrella/Excess

Insurers generally take the position that a general liability policy extends only to actual injuries. They are likely to look closely at the nature of injuries alleged by third parties, and, while “bodily injury” may trigger coverage, insurers may reject claims based on fear of exposure, exposure without actual symptoms, or other mental or emotional injuries unless resulting from actual bodily injury.

A general liability policy typically also responds to claims by third parties that an insured has caused property damage, but the policy will likely require a showing of physical injury to or loss of use of tangible property. Insurers may take the position that certain types of claimed damage are not covered or that the mere presence of the virus in or on a property does not constitute physical injury. General liability policies typically do not cover damage to the insured's own property.

General liability policies also typically provide coverage for “personal injury” — a number of specified wrongs, including wrongful eviction by an owner or landlord. Policy language and applicable law can vary, but in some circumstances it may be possible to argue that closure of a building or evacuation of premises fall within this definition.

Most liability policies contain broadly worded pollution exclusions. Among other things, these exclusions may apply to all solid, liquid, or gaseous contaminants, irritants, and waste. It is possible that some insurers will contend that viruses constitute a “contaminant” within the meaning of the exclusion, or that other consequences of an event constitute “waste,” and deny claims on that basis. But the definition of “pollutants” does not usually include “virus,” and jurisdictions differ as to what is considered a “pollutant” and the type of damage that falls within a policy's pollution exclusion.

Because of varied wording and legal interpretations of policy language, potential claims should be reported to both primary and excess insurers. Umbrella policies are generally broader than primary coverage; as such, all umbrella and excess carriers should be placed on notice for all liability claims, including employers liability.

Most lead umbrella policies include, by endorsement, crisis response coverage to reimburse policyholders for supplementary expenses to manage or contain a crisis. In order for the endorsement to apply, a crisis — for example, an outbreak at an insured's location where third parties might be infected — would need to trigger bodily injury, property damage, or personal and advertising injury covered by the umbrella policy. The typical limit offered by this endorsement is \$250,000, in addition to the lead umbrella policy limit, and is intended to cover expenses incurred by crisis management firms, which may include media expenses, public relations fees, and travel expenses for directors and officers.

Directors and Officers Liability

Public companies and their directors and officers have become increasingly concerned in recent years about event-driven litigation that could be prompted by a variety of circumstances. During or following an outbreak, epidemic, or pandemic, shareholders may file litigation alleging, among other things, a lack of preparedness for the potential effects on corporate operations and revenues.

Directors and officers liability (D&O) policies typically include certain limitations on coverage for illnesses and bodily injury, but depending on the specific language of the policies, those exclusions might be narrowly tailored and thus may not affect coverage for epidemic- and pandemic-related shareholder claims. Risk professionals should review their policy language and consult with insurance advisors about potential coverage considerations.

Employment Practices Liability

Employers are permitted to implement and enforce specific corporate and human resources policies to address outbreaks, epidemics, and pandemics, but should balance their response against potential liability risks. For example, the coronavirus outbreak could affect members of protected classes on a disproportionate basis, particularly individuals whose race or nationality is associated with regions where the outbreak is most pronounced. Employers should be mindful about taking any action that could result in discrimination claims by these individuals. Employers should also carefully consider any decision to isolate or quarantine employees who are disabled or perceived to be disabled because they are exhibiting symptoms, lest they run afoul of disability discrimination, medical privacy, and wage and hour laws.

Where possible, corporate and HR policies bearing on the outbreak — such as travel restrictions, quarantines, employee leave, and return-to-work authorizations — should address all communicable illnesses rather than focusing on a specific outbreak such as coronavirus, and should be enforced impartially to avoid employment practices liability and wage and hour claims.

Stop-Loss

Many employees' family members are covered under self-insured medical plans sponsored by their employers. If an infection spreads from an employee to a covered family member, the family member's medical expenses would likely be covered under the employer-sponsored plan. If the employer has purchased a stop-loss insurance policy, it may apply if expenses exceed the policy's deductible.

Contract Frustration

Countries affected by the spread of infectious disease could see ancillary economic effects, including employee absences or closures of major ports. This could increase the risk that businesses in these countries cancel contracts with or default on payments or deliveries to their foreign counterparties.



INDUSTRY FOCUS: HEALTH CARE

Treating infectious diseases can put the health care industry and its employees — including doctors, nurses, assistants, technicians, lab personnel, students, and maintenance workers — at risk. The first line of defense for medical professionals is to follow infection control protocols set forth by public health officials; in the US, these include those published by the Centers for Disease Control and Prevention (CDC), which have been adopted by most local and state health departments. Health providers should also refer to guidance from other independent organizations, such as The Joint Commission and the WHO.

If a health care worker contracts an infectious disease during the course of employment, workers' compensation insurance would likely provide coverage for costs related to treatment of the illness, lost wages, and, in a worst-case scenario, death benefits.

A health care organization that is forced to shut down or restrict access to its facilities due to an actual or suspected case of infectious disease or contamination will likely suffer a loss of revenue. Health care organizations may also face additional operating expenses — for example, to purchase additional personal protective equipment for staff, or to hire additional staff to replace workers who are out sick, or for the handling of increased patient flow resulting from other nearby facilities being forced to close. As noted elsewhere, traditional property and business interruption (BI) policies may not always respond, which is why many health care organizations' policies contain communicable disease contamination sublimits with specific trigger wording.

On the crisis management front, health care providers should make necessary updates to procedures based on evolving health authority requirements. Providers should update employees, provide ongoing training, and regularly review and test pandemic response plans and infection control protocols. All employees should be made aware of the measures to treat potentially infected patients and ensure their safety and that of all others in the hospital or provider environs.



Innovations in Modeling and Insuring Pandemic Risk

The risk of disease outbreaks will increase as the world becomes more connected through trade and travel; climate change alters disease ranges; and as the population grows and interacts with animals that may harbor new disease risks. Constant traditional and social media coverage means the fear associated with outbreaks spreads widely and rapidly.

While insurance is usually a central part of preparing for known risks, insurers have been reluctant to cover pandemic risk since little research existed on the associated costs. Insurers have had particular difficulty in quantifying the indirect effects of infectious diseases, including the loss of business because of public fear of travel or congregating in crowded spaces.

That, however, is changing as modeling firms study the historical record and use advanced analytics to quantify the impact of past events and forecast the potential effects of future outbreaks. This analysis involves evaluating such variables as country-level preparedness, population density, and population movement and transportation patterns.

NEW SIMULATIONS

Computer simulation models assess the likelihood of loss by projecting plausible disease transmission events on a local or global scale. For example, simulations can depict the potential spread of flu-like pandemics or outbreaks akin to the 2003 SARS and 2014 West Africa Ebola events. Probabilistic models show disease emergence, rate of spread, number of people infected, and the resulting rates of health care utilization and mortality. Organizations are often interested in costs, so disease spread models can be coupled with financial models that quantify the economic impact and insurance claims related to outbreaks. Altogether, an extremely large set of simulated events allows for the estimation of potential financial and human losses.

Such models use the probability of individuals moving across travel networks and the probability of their transmitting disease within each network node to simulate differing scenarios of disease transmission and spread. Millions of calculations occur in a single epidemic simulation.






QUANTIFYING DISEASE IMPACTS

In addition to developing such simulation engines, Metabiota, a leading risk modeling firm, has specifically quantified the “fear factor” by creating a sentiment index that measures the emotional response and potential behavioral changes among populations facing deadly diseases (see Figure 3). This index scores each pathogen — such as Nipah, Ebola, and yellow fever — based on a range of fear-inducing characteristics including disease symptoms, mortality risk, type of transmission, and other factors.

FIGURE
3

Understanding a disease’s “fear factor” can help in response planning

SOURCE: Metabiota

	GERMANY	JAPAN	MEXICO	UNITED STATES	CHINA
					
FEAR RANK					
1	Nipah virus	Nipah virus	Nipah virus	Marburg virus	Marburg virus
2	Lujo virus	Marburg virus	Marburg virus	Lujo virus	Lujo virus
3	Marburg virus	Lujo virus	Lujo virus	Nipah Virus	Nipah virus
4	Ebola viruses	Ebola viruses	Ebola viruses	Chandipura virus	Ebola virus
5	Hendra virus	Hendra virus	Hendra virus	Ebola viruses	Chandipura virus

By better understanding how the public responds to various outbreaks, organizations of all types — businesses, nonprofits, and governments — may be able to better direct their responses. For example, the 2014 Ebola outbreak was largely confined to West Africa, yet [researchers from the Netherlands](#) found that people’s level of “psychological fear” increased when they heard about isolated cases in countries that were “socially closer.” Specifically, people in the Netherlands showed greater fear of the disease when reading about the few Ebola cases in North America than in Sierra Leone.

And for the communities where Ebola did the most harm, evidence suggests that certain types of media reports and other communications and behaviors [increased the level of fear among some people](#). This in turn helped to perpetuate behaviors that increase the spread of the disease. Among other steps, researchers recommend “[devising] communication and awareness-raising strategies, behavioral interventions, risk governance, and community engagement approaches that can diminish the disease impact of FRBs [fear-related behaviors] in the future pandemics.”



INDUSTRY FOCUS: EDUCATION

Educational institutions — especially those that provide food, lodging, and social activities, such as colleges and universities — can be particularly hard-hit by pandemic outbreaks. Among their unique concerns are the significant numbers of students and faculty who travel internationally as part of their education, research, or career.

Depending upon the timing and circumstances of an outbreak, foreign students, faculty, or staff may leave school to return to their home countries or choose not to attend or return to an institution if a disease threat has the potential to affect them or their families. Similarly, those participating in overseas programs may be exposed to disease, or refused (re)entry if travel bans are enacted.

Campus environments can place students, faculty, and staff in close proximity to one another, while also drawing in larger communities for sporting events, lectures, concerts, and other activities. Administrators must therefore balance potential revenue loss and reputational damage against the possibility of contributing further to the spread of a pandemic. And, of course, many larger universities run teaching hospitals, which are subject to the risks and concerns of a health care services organization.

Educational institutions should develop crisis management and crisis communication plans around pandemic risk and engage in careful analysis to quantify and estimate those risks. For instance, many institutions could find research funding at risk if activity is interrupted due to a pandemic. Similarly, crisis planning should also address the possible need to undertake a large-scale disinfection of affected facilities and provide isolated housing, food, and medical services to students and other individuals who may be quarantined on campus for extended periods of time.

frustration insurance policies can provide coverage for these counterparties if policyholders can meet certain financial criteria. Such policies can be designed to cover nonpayment, non-delivery, or contract cancellation for any reason, including the potential economic effects of an outbreak. Coverage may become more expensive or unavailable in the immediate aftermath of a crisis, so policyholders should consider purchasing such coverage before a pandemic or epidemic arises.



Property and Business Interruption

Under standard property policies, insured physical damage is necessary to trigger a covered loss. If the novel coronavirus were to manifest at an insured's premises, through people becoming ill, insurers could contend that contamination is not physical damage and also may maintain that possible contamination, proximity to other contaminated premises, or fear on the part of the public do not amount to physical damage. Property forms also typically contain "contamination" exclusions that insurers may seek to invoke.

Most property forms include some coverage extensions, including ingress/egress, civil or military authority, and decontamination. Such coverage typically is only provided due to insured physical loss or damage that follows a covered cause of loss. The presence or suspected presence of the virus alone is unlikely to trigger

these coverages. Similarly, absent insured physical loss or damage, reduced demand for goods and services and supply chain disruptions are unlikely to be covered.

Property policy forms may include one or more of the following clauses that could respond to losses related to the coronavirus:

- 1. Decontamination costs.** Coverage may be provided as a result of enforcement of either a law or ordinance or by the action of a governmental authority due to the actual presence of contaminants following insured physical loss or damage to insured property by a covered cause of loss. A sublimit may apply.
- 2. Communicable disease cleanup.** Coverage may be provided for reasonable and necessary costs for the cleanup, removal, and disposal of covered property due to the actual, and not suspected, presence of a communicable disease on premises. Coverage may be triggered through the limitation or prohibition of access to an insured's premises by order of an authorized governmental agency due to a communicable disease. This coverage is usually subject to an annual aggregate sublimit that will be combined with similar time element coverage, if it exists.
- 3. Interruption by communicable disease.** This extension, similar to the above, extends time element coverage provided within the policy resulting from an authorized governmental agency's order pertaining to a communicable disease occurring at an insured's premises that limits or prohibits access to the premises. This coverage is usually subject to an annual aggregate sublimit that will be combined with the cost of cleanup coverage, if it exists.

Standalone Options

Few insurers currently offer standalone pandemic insurance coverage to transfer nonphysical losses — such as business interruption — resulting from the coronavirus outbreak not directly occurring at an insured's premises and caused by reduced demand for goods and services or disruption of supply. The limited options that are available can be expensive and include significant attachment/coinsurance points. Pricing is driven by modeling, which can also be used to set the parameters for self-insured retentions.

If an insured believes it may have sustained an insured loss, it should immediately begin the process of gathering documentation to support a potential claim. This should include details of the specific incident to the extent that information is available to the public, including:

- Where the case was diagnosed.
- Where the infected individual is in relation to insured property.
- What authorities have been or are required to be notified and what authorities require of insureds locally.
- The specific date of the occurrence.

INDUSTRY FOCUS: HOSPITALITY AND RESTAURANTS

Generally, industries with the highest level of in-person customer contact stand to suffer the most damage in a pandemic. Hospitality and airline companies may find themselves effectively shut down and may need to draw down cash reserves to stay in business. Restaurant chains, entertainment companies (such as movie theaters), cruise lines, and other leisure-oriented companies face similar risks.

Hospitality and restaurant companies must have specific crisis and communication plans — in place and regularly tested — to address an outbreak. Planning should also address business continuity needs should the organization encounter large-scale absenteeism, whether from employee illness, their need to care for sick relatives, or decisions to avoid potential contagion.

Hospitality and restaurant firms should juggle conflicting demands: ensuring that there is staff on hand to keep facilities running, while protecting employees from the spread of communicable disease. Organizations that encourage employees to come to work and then see these employees fall ill may find themselves the targets of litigation and/or liability claims.

The major risk to hospitality and restaurant companies in a pandemic situation typically is not physical damage, but a sudden and dramatic loss of customer traffic and revenue. Yet traditional property and business interruption policies are usually triggered only by events causing physical damage or property loss. Policies should be reviewed to determine what, if any, pandemic-related losses might be covered and how they may be triggered. In addition to insurance, the company should assemble cash and credit resources to draw upon in the event of a steep and sudden fall-off in customer traffic.



INDUSTRY FOCUS: MARINE

Commercial vessels and seaports [carry more than 80% of global trade by volume](#) according to the United Nations Conference on Trade Development's Annual Report 2017, making the maritime community particularly vulnerable to communicable disease outbreaks. For example:

- Port closures due to pandemics could frustrate voyages and threaten contractual obligations if goods are unable to be delivered or loaded.
- Because some diseases can be spread via cargo and crew members, vessels and crew that leave areas affected by pandemics may be barred from entering other ports. Infections to crew may only become apparent while vessels are at sea, where treatment or evacuation may be difficult.
- In countries where other infrastructure is limited, vessels and seaports may be the most effective way of transporting medical supplies to respond to a pandemic, which could inadvertently accelerate disease transmission.

Several forms of insurance coverage could respond to these risks. These include protection and indemnity insurance (specifically for vessel owners), maritime employers liability insurance, charterer's legal liability policies, and delay in startup coverage for projects that may be affected by pandemics. Maritime companies — and others that rely on marine transport — should review their insurance programs to ensure they have adequate protection from the potential effects of pandemics.

Beyond insurance, owners and operators of ships and seaports can take other actions to reduce pandemics' potential impact on people and operations. Crisis management and response plans should be tested ahead of an event to ensure they will be effective in a crisis; among other items, these plans should address how to impose quarantines, if necessary. Ship owners and charterers should also be prepared to choose backup ports in the event that preferred ports are closed because of a pandemic.

- Any tracking costs incurred by insureds, in addition to effects on receipts.

Insurance policies that can provide coverage for pandemic risk without physical damage triggers are now available and can help businesses fill some of the coverage gaps that are present in current BI policies.

Environmental Liability

Depending on the virulence of an infectious disease or how it is transmitted, organizations may need to clean up or remove waste or other materials at an infected individual's workplace or home. A government authority could order a property to be closed while such activities are completed. Whether coverage exists under a pollution legal liability (PLL) policy will depend on the facts of the claim and any specific wording contained within the policy. This includes, but is not limited to, policy definitions and exclusions related to viruses and bacteria.

A number of insurers offer environmental policies for the health care industry that may contain language providing a degree of coverage for disinfection, cleanup, and emergency response costs related to "pollution conditions" that may include, among other things, viruses and bacteria. But policyholders should carefully review their PLL policies for specific language or terminology that may limit or exclude coverage. Policy language may, for example, restrict coverage to "facility-borne illnesses," and it is unclear how carriers will interpret this language as it relates to specific diseases. The existence of relevant environmental laws or cleanup standards may also play a role in determining whether the policy is triggered. And coverage may be conditional upon a written recommendation by a certified industrial hygienist or written requirement from a local health authority, such as the CDC.

Insureds outside of the health care industry may also receive claims for cleanup costs and loss of income as a result of contamination following an infectious disease case. If this occurs, any PLL policies that are available should be reviewed carefully for potential coverage. The availability of coverage under a PLL policy may depend on the policy's definitions of "pollution condition" and "government orders."

A PLL policy's definition of pollution typically refers to solid contaminants and waste, but does not specify viruses. The question of coverage may therefore depend on state law. Many policies drafted to take into account mold or legionella contain language referring to "microbial matter," fungi, or bacteria, but insurers may argue that viruses do not fit within these definitions. Some policies contain specific language dealing with infectious diseases, which might exclude or limit coverage, require coinsurance, set sublimits, or impose other terms and conditions that could limit an insured's recovery.

PLL policies also typically restrict coverage to cleanup undertaken in response to a government order, and some policies further specify that such orders must be issued under governing environmental laws. It is unclear whether an insurer would accept a decontamination or disposal order issued by a health authority, but policies that provide coverage for mold frequently expand beyond

environmental laws to include health laws and regulations. PLL terms and conditions will likely include a requirement of prompt reporting to relevant local, state, or federal government agencies in addition to timely written notification to the insurer, and will typically exclude coverage for actions taken and expenses incurred without the insurer's consent.

Claims Considerations

Before the occurrence of any losses related to infectious disease outbreaks, organizations should develop claim management protocols that establish clear roles and responsibilities for personnel inside and outside of the organization. Such personnel should include insurers' claims representatives, brokers, and any other insurance advisors who can assist with a claim.

To plan for the worst-case scenario that headquarters and other key locations become inaccessible because of a contamination event, government order, or other factor, organizations should ensure that insurance policies, contact lists, financial and property records, and other key documents are accessible in hard copy and electronic formats at alternative location sources.

In the event of a loss, organizations should begin to gather data for a potential claim filing. Organizations should capture potential loss information and other costs, including those related to medical treatment of employees and cleanup of contaminated surfaces. Businesses should also record photographic and/or video evidence of any environmental contamination, and document any government orders in the event of a partial or full shutdown.

Conclusion

The battle against pandemics is taking place on multiple fronts. The global public health community seeks to identify emerging pathogens, control their spread, and develop effective vaccines and courses of treatment. National and local governments refine their public health policies and cooperate with international organizations such as the WHO to develop effective protocols for outbreak detection and response. And businesses and other organizations hope to mitigate the economic and other effects of pandemics through risk management, business continuity, and contingency planning. Modeling and analysis of pandemic risk — supporting pricing and placement of pandemic-specific insurance coverage — can give organizations another important tool in preparing for the unpleasant but inevitable reality of a pandemic outbreak.

About This Report

This report was prepared by Marsh with support from Metabiota, a leading risk modeling firm.

For more information on how you can manage pandemic risk, visit marsh.com, or contact your Marsh representative.

TALAL Y.DARRAS
Business & Cyber Resilience Leader - MENA
+971 56 174 0379
talal.darras@marsh.com

CRAIG PATERSON
DAC Specialty Leader - MENA
craig.paterson@marsh.com

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