Life Insurers Face New Health Threats

Dangers include antimicrobial resistance, pandemics and health problems linked to climate change.

by Dr. Daniel Zimmerman

New health risks have been presenting clear challenges for life insurers as they seek to analyze, understand and assess the potential impact of these risks on mortality and morbidity and then develop strategies for mitigation.

Several emerging risks bear watching. They include antimicrobial resistance, pandemics and health problems linked to climate change.

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Antimicrobial Resistance

Antimicrobial resistance is a matter of substantial concern

Key Points

What's Coming: Antimicrobial resistance, pandemics and health problems linked to climate change require close scrutiny from every life insurer.

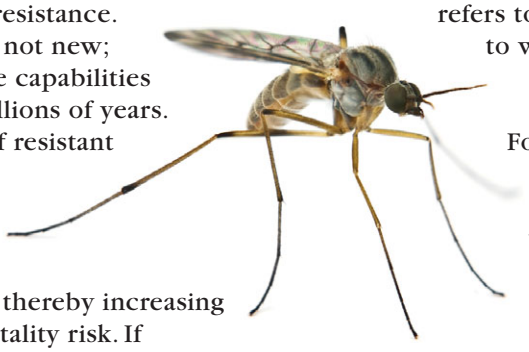
What's Wrong: The interconnectedness of travel, and the rapid pace of global change, are causing unprecedented challenges to mortality and morbidity outcomes.

What's Next: The NAIC, CDC, various foundations and research centers need the industry's involvement to develop solutions to these growing problems.

for public and economic health. As resistance continues to develop to antimicrobial drugs by the very microorganisms they were intended to treat, the global health community is seeing the need for increasing attention and vigilance.

Antimicrobial drugs are a diverse class of medications, which launched with the discovery of penicillin in 1928. Since then, these drugs have been used to combat and prevent a broad range of infections in humans and animals. Considered one of the key successes of 20th century medicine, antimicrobials, which include antibiotics, antifungal, antiviral and antiparasitic drugs, have let doctors treat a range of formerly life-threatening diseases, including sepsis, pneumonia, tuberculosis and malaria. These drugs have also saved lives by treating and preventing the infectious complications of medical interventions such as cancer chemotherapy and surgical procedures such as organ transplantation.

Today, however, the efficacy of antimicrobials is being compromised by the growing problem of antimicrobial resistance. This particular problem is not new; microorganisms' resistance capabilities have been evolving for millions of years. The newest populations of resistant microorganisms, however, are sparking concerns worldwide, as resistant microorganisms result in clinical treatment failures, thereby increasing human morbidity and mortality risk. If resistance continues to grow, not only could it become more difficult medically to treat many conditions, but some of the past century's most noted medical advances could also be negated.



The report *Antibiotic Resistance Threats in the United States, 2013*, from the Centers for Disease Control and Prevention, states that antimicrobial resistance is currently responsible for at least 23,000 deaths annually and that more than two million people are sickened each year by antibiotic-resistant bacteria. Additionally, the December 2014 report *Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations*, published by the U.K.'s Review on Antimicrobial Resistance team, states that by 2050, antimicrobial resistance could generate a potential loss of 300 million cumulative lives and cost the global economy up to $100 trillion.

Through concerted global efforts, it is hoped that this risk can be managed carefully and thereby reduced significantly. One of the most recent efforts, from the U.S. government, is the National Action Plan for Combating Antibiotic-Resistant Bacteria. This five-year road map, released in March, focuses on global collaboration and cooperation toward the goal of slowing the pace of evolution of resistant microorganisms. Tactics outlined include improving ways to identify and diagnose resistant strains and curtail their spread; strengthening prescribing practices for humans and livestock; and increasing infection prevention efforts.

Pandemics

Pandemics tend to be relatively infrequent: Historically, they have occurred about once every 50 years. Over the past century, however, society has become far more mobile. Cross-border and cross-ocean transmission times are now measured in days as opposed to the many months it took in 1918 for the Spanish Flu pandemic to spread. This means the scope and nature today of pandemic risk, as well as its accompanying morbidity and mortality risk, may be substantially different from what it was in the past. Pandemics are measured in terms of transmissibility and lethality. Transmissibility refers to the average number of people to whom an infection can be spread, which is known as the basic reproduction number, or R0. For a disease to be sustainable, it needs an R0 greater than 1. The higher the R0, the more difficult that disease will be to control. Measles, for example, which spreads through the air, is one of the most transmissible diseases, with an R0 of 12 to 18. Ebola, by comparison, has a low R0 of 1.5 to 2.5, due primarily to the fact it spreads only via direct contact.

Lethality refers to what is known as the "spectrum of disease," or the range of symptom severity, experienced by those with the condition. The spectrum can range from no symptoms to death.

For a pandemic to develop, certain events must occur, either sequentially or simultaneously. First, a new infectious agent, usually a virus or a modification of an existing infectious agent, must emerge. The agent must then successfully infect humans and transmit sustainably from human to human. The World Health Organization, in its Phases of Pandemic Risk list, identifies two additional events needed for a pandemic to reach the highest level of risk: the infectious agent causes disease outbreaks in two or more countries in one WHO region, and then causes an outbreak in an additional country in a different region.

Factors such as environmental conditions, population size and demographics, and the

specific characteristics of the infectious agent also determine whether a disease outbreak might become a pandemic. Additionally, pandemics tend to occur in multiple waves, with the infection circling the globe two, or sometimes three, times. Each wave can potentially affect a different population group, depending on each one's vulnerability.

A portion of the risk can be reduced by rapid identification of an infection's source and type, and then implementation of public health countermeasures such as social distancing and travel restrictions. Determining which medications or vaccines might be developed quickly and be useful to provide can also benefit. In recent years, such measures mitigated disease outbreaks with pandemic potential, such as severe acute respiratory syndrome in the early 2000s and the more recent Ebola outbreak.

For insurers, pandemics present mortality, morbidity and financial risk. Although pandemic risk can be modeled and assessed to allow short- and long-term planning for health, wellness and business purposes, it can still be unpredictable, as new and unexpected infectious agents can and do emerge.

Many researchers believe that the countermeasures cited above could make a "worst case" pandemic scenario less likely. However, these measures might not reliably slow or prevent a pandemic. Increased global travel, larger populations and greater population concentration in cities, larger pools of more vulnerable populations in developing countries and the global nature of world commerce, are all sparking higher potential pandemic risk.

Strengthening global epidemic preparedness and response capacity—that is, the ability to speedily identify, contain and treat disease outbreaks with the potential to become pandemics—is a need that Bill Gates, co-founder and co-chair of the Bill and Melinda Gates Foundation, in a recent column in the New England Journal of Medicine, recommended become a global priority. Much global work is already in place, for insurers as well as the medical community, for influenza risk, but substantial work still needs to be done for diseases with lower R0 rates that can also pose such risks.

Climate Change

Climate change is a risk that would clearly benefit from increased insurer focus. The WHO recently estimated that between the years 2030 and 2050, climate change could cause approximately 250,000 additional deaths per year from malnutrition, heat stress, and increases in vector-borne diseases such as malaria, dengue fever and encephalitis and water-borne diseases such as cholera.

Some already measurable changes in weather activity that might be due to climate change include multiple episodes of extreme heat, snow and drought. These events, as well as the environmental ramifications of current rapid industrialization and urbanization of the developing world, will impact long-term mortality and morbidity outcomes for many populations, most notably the young, the elderly and the poor.

Climate change's causative agents could further decrease the atmosphere's ozone content, as well as increase concentrations of particulate matter and pollens, both of which might negatively impact those with respiratory and cardiovascular conditions. In addition, heat, rain and drought pattern changes might generate demographic changes, social disruptions and shifts in the geographic distribution of certain diseases.

For insurers, recognizing and grasping the risks that are currently emerging is increasingly urgent.

The National Association of Insurance Commissioners has recently taken a more active role on climate change. The NAIC's Climate Change and Global Warming Working Group periodically conducts a Climate Risk Disclosure Survey of U.S. insurers, based on questions that assess a company's plans regarding operational emissions and actions to mitigate business risks and investment portfolio risks that might be associated with climate change. As the global discussion on climate change moves forward, it will be essential for insurers of all types to assume leadership roles. The degree and extent of the potential risks posed by climate change are still being determined, but only through continued research, modeling and discussion can those risks be thoroughly assessed.

The world's fast-increasing complexity, interconnectedness and speed of social and economic evolution are trends that are not going to slow any time soon. For insurers, recognizing and grasping the risks that are currently emerging is increasingly urgent. The efforts of experts in multiple disciplines, including economics, business, data research and medicine, will be needed in order to assess and predict the challenges these trends could pose for mortality and morbidity outcomes. BR