Climate Change

A Matter of Life & Health

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The notion of climate change is usually associated with the melting of ice caps, rising sea levels and the increased intensity and frequency of natural catastrophe events. Most recently, however, this perspective has been shifting to encompass the impact climate change has on human lives. The 70 000 XS mortality in France during the 2018 heatwave, the advent of the first native Zika cases in Europe in 2019 and the wildfire-triggered increase in respiratory diseases due to air pollution in Singapore are some examples. If no action is taken, healthcare costs as well as mortality rates are bound to soar, bearing significant consequences for life, health and workers' compensation lines of business as pointed out in Swiss Re's recent special issue on Climate Change & Health[1].

The most pronounced climate risks affecting human health stem from heatwaves, floods, droughts, fires and vector-borne diseases. Changes in mortality are likely to be driven by several of these changes occurring simultaneously. Firstly, heatwaves are expected to become more severe, spanning areas previously not impacted where a large proportion of the world population lives. A related increase in the transmission season and geographical range for many infectious diseases will enable vector-borne diseases to conquer new ground.

The West Nile and Zika epidemics were the first warning signs. Lyme disease, avian influenza, meningitis, dengue fever and tropical bacterial and viral infections are projected to become more frequent and severe, too.

Moreover, severe drought is the breeding ground for scorching blazes, like the one in Northern California's wine country in 2017, that lead to air pollution, even in areas far away from any conflagration. The impact of air pollution related to climate change is a number one concern for the World Health Organization[2].

Rapidly ageing populations add to this concern. Future events are expected to have a disproportionate impact on the vulnerable populations, such as the elderly and the economically disadvantaged.

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Knock-on effects

The secondary impact of climate change will amplify the above. In focus here are migration urbanisation, food security, nutrition, and water scarcity.

The availability of clean water is a prerequisite for public health. Already today, more than 2 billion people live in regions of water stress, i.e. areas where access to clean water for drinking, sanitation and personal hygiene is limited. The number of regions affected by water stress is likely to increase, as temperatures rise.

If water stress does hit large metropolitan areas, its impact will be further enlarged – especially in combination with extreme weather events. With continued sea level rise, storm surges may reach further inland exposing mega-cities to flooding and destroying public health infrastructure. Hospitals may not be able to operate when flood-related epidemics start – for which we would need clean water to contain in the first place.

In the Polar region and areas where permafrost has long been the environmental norm, another possible consequence of warmer temperatures could be the release of ancient bacteria and viruses, as the ice thaws. Under the predicament that the world will not have been exposed to these strains for thousands of years, the immunity of the population to such threats is likely to be low. Combined with the opening of Arctic Sea routes – and the ensuing development of new harbors to accommodate this increasing marine traffic – such primal viruses and bacteria will be thus granted a safe-passage vector from remote areas to distant metropolitan areas, thus raising the likelihood of epidemics or pandemic outbreaks. Such events may be even further aggravated by antibiotic-resistant bacteria (see SONAR 2017 Antibiotic resistance[3]).

Reliable data – the key to climate resilient life and health

For insurers it is paramount to have reliable data to project future outcomes in mortality and morbidity. Swiss Re's first review of the modelling developed so far has shown that the Intergovernmental Panel on Climate Change (IPCC) only modelled a limited number of health outcomes in 2014. A more detailed review indicated that even this limited set of numbers has become meanwhile outdated. Health impacts are most likely significantly underestimated. The scientific community must come together to build more comprehensive models that can supply a more reliable outlook into the impact of climate change on life and health resilience. With this data the insurance industry can develop affordable products adapted to respond to these upcoming challenges.

Data is also necessary to update public health infrastructure to make it climate resilient. Health care facilities are the operational heart of service delivery, protecting health and treating patients, both during and after weather and climate-related events (e.g. for heat stroke during heatwaves) or in response to other environmental risks to health (such as asthma due to poor air quality).

The current outlook for these necessary upgrades is bleak, though. Currently less than 3% of the reserves in the United Nations Green Climate Fund[4] for climate change adaptation are earmarked for public health. This underfunding makes it more likely that some of the negative scenarios described before in this article become a reality in the future. If this happens it will in turn impact the Life & Health insurance industry.

It is paramount that health care infrastructures, both in poor and rich countries alike, be able to deliver services at par with the future changing climate conditions described above. Upgraded cooling systems during heat days, flood security for hospitals in flood prone areas, emergency power and water supplies are but a few examples. Such facilities must become basic standards in health care infrastructure worldwide to respond adequately to the threats climate change is bringing upon human life and health on the blue planet. ●

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Available at

1 https://www.swissre.com/institute/research/sonar/sonar2019.html
2 https://www.who.int/health-topics/climate-change#tab=tab_1
3 www.swissre.com/institute/research/sonar/swiss-re-sonar-new-emerging-risks-insights-2017.html
4 https://www.greenclimate.fund/home

Bernd Wilke is a Senior Emerging Risk Manager at Swiss Re, responsible for monitoring future risks that are likely to impact the insurance industry. He is an expert on environmental issues, the human factor and sustainability, and is currently part of a team of four individuals at Swiss Re who monitor top sustainability risks. Bernd worked for over twelve years at Swiss Re as a Risk Engineer. He's developed risk assessment methodologies for different industries, including the oil and chemical sectors, assisted in the environmental liability area of emerging risks, collaborated in the development of forward-looking modeling in casualty and provided support to the company's claims units. In addition, he's worked extensively on sustainability issues worldwide. After leaving Swiss Re on a short sabbatical across South America, Bernd rejoined the company, this time as a Top Topic Manager in Communications, thus combining his experience with science journalism and risk communication. Prior to Swiss Re Bernd worked for Geotech, Inc. in Japan. He holds a Master's Degree in Physical Geography from the University of Basel in Switzerland and a Certificate in Science Journalism from the Swiss Journalism School in Luzern.