# More than property is at stake

## Climate change's impacts on life, health and long-term insurance liabilities

pwc

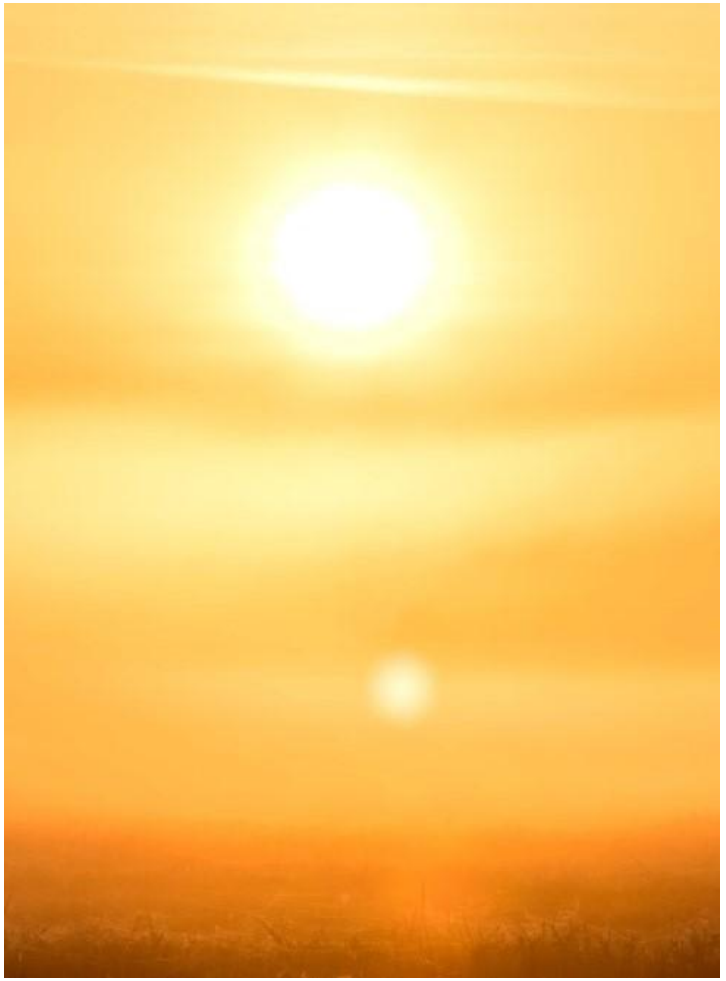
# More than property is at stake: Climate change's impacts on life, health and long-term insurance liabilities

*The changing climate is poised to increase human mortality and morbidity and increasingly acute heat stress is challenging even well-prepared places.*

Consideration of climate change's effects on insurance has focused primarily on physical impacts, namely property and crop damage. However, there's also reason for concern about life and long-term carrier liabilities. The changing climate is poised to increase human mortality and morbidity, particularly in a high greenhouse gas emissions scenario. Chronic changes like elevated temperatures and prolonged drought — as well as acute events like increasingly frequent and severe hurricanes and wildfires — can significantly affect health and longevity.

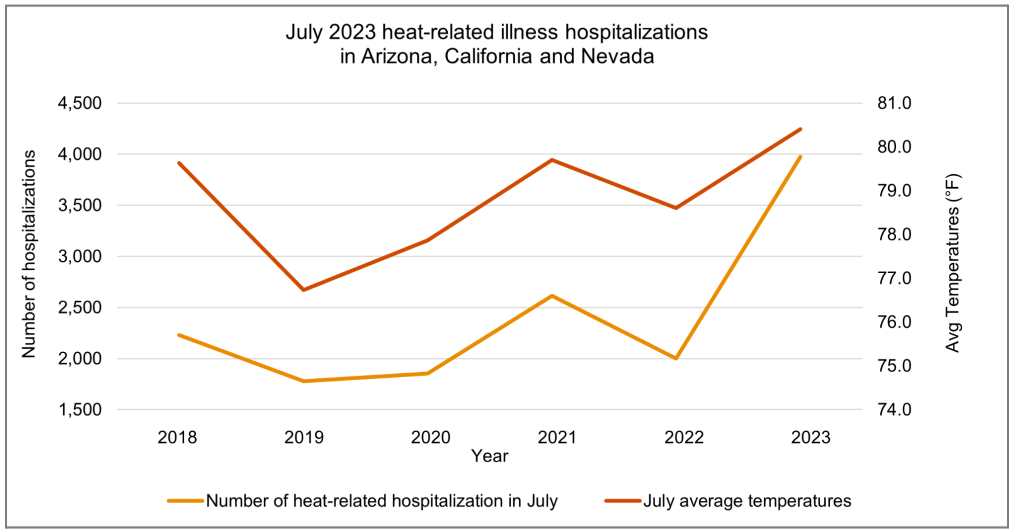
Until recently, life and health insurers in developed economies limited their climate change focus to governance and disclosure. Now other dynamics are increasingly coming into play. We've experienced another summer of extremes, with record heat, flooding in places not considered flood zones and large scale wildfires. All have negatively affected health and cost lives. Moreover, while climate-related migration and food security may not yet be industry concerns in the United States, the global nature of supply chains and the worldwide impacts of diseases like COVID-19 have demonstrated our international interdependence. It's not far-fetched to envision what's happened elsewhere happening here.

In fact, we're already witnessing unwelcome change. Water scarcity and shifting precipitation patterns have led to cascading health risks. Notably, drought-fueled wildfires have caused death and disablement and even destroyed entire communities, limiting access to healthcare when it's been needed most. In addition, these fires have compromised water quality by causing erosion and flooding that have contaminated water systems locally and downstream. They've also significantly affected air quality far beyond the fires' physical boundaries. Last but not least, climate-induced anxiety and depression over personal trauma and loss, as well as existential concerns about the future, have had serious mental health implications for affected communities and beyond.



# Morbidity and mortality impacts of heat stress

Prolonged higher temperatures create additional problems. Many regions, including the southwestern US, have a long history of dealing with chronic heat stress — but the acute manifestation of extreme heat can overwhelm even these well-prepared places. According to the CDC's Environmental Public Health tracking website, heat-related illness and hospitalizations increased 88% in California, Arizona and Nevada in July 2023, compared to the 5-year average of 2018-2022. Moreover, extreme heat is increasingly affecting communities with less adaptive capacity. This extends beyond socioeconomically disadvantaged populations to other, often insured segments that have limited access to air conditioning (which can be very expensive to retrofit), most commonly along the Pacific and New England seaboards.




Source: CDC data

Regardless of where people live, as global temperatures rise, the frequency and intensity of heatwaves are expected to escalate. This poses a significant health risk to individuals. Prolonged exposure to extreme heat leads to heat-related illnesses such as potentially fatal heat exhaustion and heatstroke. Of note, outdoor laborers are 14 times more likely to die from heat stress and have elevated rates of nephropathy and cardiovascular damage.

Furthermore, elevated temperatures facilitate the formation of ground-level ozone and other pollutants, exacerbating respiratory ailments like asthma and chronic obstructive pulmonary disease (COPD). Air quality degradation from wildfires also aggravates chronic conditions and diminishes overall quality of life. One study addressing the impact of air quality on mortality found that fine particulate matter (PM2.5) exposure can increase the risk of cardiovascular mortality by 8% to 18% for adults over 30. While we don't yet know the ultimate hospitalization statistics and death toll from recent air quality degradation, we do know that lung cancer deaths from smoking can be decades in arrears and that smoke inhalation-related emergency room visits, along with PM2.5 levels, increase significantly during wildfires.

Vulnerable populations, including the elderly and those with preexisting medical conditions, are particularly at risk. One UK study found that as temperature increases by 1℃ in a heat wave, mortality may increase by 1.8%. This means that on a day when maximum temperatures reach 40℃, we would anticipate mortality rates for individuals 65 and older to increase by nearly 10%. Another study linked a 1℃ rise in temperature to increases in cardiovascular mortality of 3.4%, respiratory mortality of 3.6% and cerebrovascular mortality of 1.4%.

# Preparing for a challenging future

*Heat-related health issues, compromised air quality and the increasing climate risks to people — not just physical assets — are combining to create a multidimensional challenge for insurers.*

These situations aren't one-offs or relevant to only small segments of society. They're becoming increasingly common and are affecting more people each year. Accordingly, life and health insurers need to prepare for the worsening impact of climate change on human health and longevity. Heat-related health issues, compromised air quality and the increasing climate risks to people — not just physical assets — are combining to create a multidimensional challenge.

Moreover, with so many related physical and transition risks coalescing under a tipping-point scenario, this challenge has become increasingly urgent. To prepare and respond appropriately, life and health insurers should increase their focus on:

- Quantifying key risks using a climate scenario analysis approach. While changes may be less significant in the near-term, the long-term nature of life portfolios show potential vulnerabilities in cash flows. By employing climate scenario modeling, carriers can transition from a reactive to a proactive stance, facilitating the formulation of measures that safeguard both individual health and financial well-being.
- Tracking metrics to monitor climate-related risks over time. Metrics will vary based on the type of insurance sold but can include data points such as the number of heat-related deaths or claims per year or number of climate events (such as wildfires or hurricanes) that take place in areas where policyholders reside.
- Developing a thorough internal understanding of the potential climate-related risks facing both assets and liability portfolios. This can be done qualitatively at first, using frameworks such as TCFD/ISSB already in place in day-to-day risk management practices.

Because no one can or should go it alone, the Intergovernmental Panel on Climate Change (IPCC) has created a range of climate scenarios, known as SSPs, to help governments, insurers and other concerned parties with these analyses. The scenarios use CMIP6 models that vary according to carbon emission levels, and examining the low and high ends of this spectrum can help insurers estimate a range of potential assumptions and assess how these changes might affect their operations. Other stakeholders also are creating solutions, like PwC's Geospatial Climate Intelligence tool which, together with impact pathways, help insurers tie policyholder footprints to downstream liability impacts from heat stress and other hazards.

# Opportunities for insurers to do well by doing good

*There are meaningful opportunities for insurers to grow their business by helping individuals and society better manage health and longevity in a changing global climate.*

Although climate-related mortality and morbidity risks may be increasing in line with more frequent and acute climate events, not everything is gloom and doom. There are meaningful opportunities for insurers to grow their business by helping individuals and society better manage health and longevity. If you prepare as we've described here, the resulting data insights and understanding of risk can help your business offer products and services relevant to changing circumstances. Here are some areas that show particular promise for insurers' and their stakeholders' continuing viability.

- Carriers can create coverages and product enhancements for at-risk individuals and groups, including tailoring policies to certain geographic areas where acute heat stress is most likely. We've already seen this on the property and casualty side with resiliency services and parametric coverage that correlates directly to event magnitude.
- Sensors and wearables can help carriers collect and assess data in a real-time feedback loop to better assess, mitigate and price risk at both an ecological and human level, as well as protect policyholders from the worst effects of climate-related events. Many life and health insurers already offer similar services as part of standard coverages and tailoring them specifically for climate-related circumstances could be a quick win for proactive companies.
- There are increasing opportunities for insurers, insurtechs and industry-adjacent enterprises to explore and enter into partnerships and ecosystems that address the need for climate-related protection. This includes:
  - Establishing partnerships that provide customers holistic (life/health/property/specialty) coverages that meet the full range of climate-related protection needs.
  - Offering embedded insurance to better reach customers who have climate-related purchasing needs (e.g., retrofitting air conditioning at a warehouse) but may not otherwise consider coverage.
  - Providing climate risk management services and long-term mitigation strategies.
  - Entering new markets like climate tech.
- Both independently and with governments, NGOs, health organizations and educators, insurers have a vital role to play in raising awareness, protecting people and devising ways to counter climate change's ecological and human impacts (e.g., via sharing related data and claims trends). On a commercial level, this would include working with agents and brokers on informing customers about climate-related health and wellness considerations and providing them appropriate, personalized advice.

**Contributors**

PwC's Rich de Haan, Steve Bochanski, Sara Goldberg and Hannah Clouser contributed to this report.