# International experts train for pandemic threats from ancient pathogens



International experts recently participated in a training exercise aimed at addressing potential pandemic threats arising from ancient pathogens hidden within frozen remains. This event, dubbed Exercise Polaris, was organised by the World Health Organisation (WHO) and involved specialists from 15 different countries. The exercise centred on a fictional virus named 'Mammothpox,' which was believed to have emerged from the thawing carcass of a mammoth, subsequently infecting researchers and a film crew at the discovery site.

While the scenario is purely fictional, scientists express concern about the real possibility of so-called ‘zombie viruses’ that might emerge due to climate change-induced permafrost thawing. Experts, including Dr Khaled Abass, an environmental health sciences expert at the University of Sharjah in the UAE, noted that climate change is creating opportunities for pathogens, which have remained dormant in frozen specimens for millennia, to leap into living ecosystems. Dr Abass stated, "Climate change is not only melting ice—it's melting the barriers between ecosystems, animals, and people."

The WHO documents associated with Exercise Polaris highlighted that ancient viruses could remain viable in permafrost for thousands of years. They warned that thawing permafrost could potentially liberate pathogens previously unknown to modern medicine. The hypothetical Mammothpox was characterised as a dangerous pathogen closely linked to smallpox and related to monkeypox (also known as mpox), with an estimated mortality rate that fell between these two viruses.

The timing of the exercise coincided with a recent warning from an international team of scientists concerning the increased risks linked to rising global temperatures, which may facilitate the emergence of these ancient microbes. In terms of the exercise logistics, participating countries included Denmark, Somalia, Qatar, Germany, Saudi Arabia, and Ukraine.

During the event, each country was equipped with different segments of information about the outbreak, which allowed facilitators to assess their collaborative capabilities. For instance, one scenario involved an infected researcher aboard a cruise ship, providing a controlled environment to study the virus’s transmission dynamics. Other groups received narratives of outbreaks occurring in large gatherings or confined household settings.

The simulation spanned two days, intending to echo the complexities of a three-week outbreak. On the second day, the challenge intensified as participants faced complications stemming from political disagreements and varying national responses to the outbreak. Some regions instituted lockdowns while others maintained open borders; this divergence necessitated adaptive strategies from each team to effectively manage the outbreak. Ultimately, the participants successfully succeeded in controlling the spread of the fictional Mammothpox, though the WHO acknowledged that real-world scenarios would likely present far more intricate challenges regarding international cooperation.

Exercise Polaris highlighted increased concerns surrounding frozen pathogens, particularly as warming climates encourage scientific expeditions to recover and study ancient animal remains, alongside exploitative pursuits like ivory hunting for mammoth tusks.

Research conducted over the past decade has demonstrated that microorganisms preserved in Arctic permafrost can still infect living hosts; previous discoveries include successfully isolating ancient viruses like the 30,000-year-old Pithovirus sibericum that remained infectious after thousands of years of being frozen. In 2023, an amoeba virus was revived after being trapped for 48,500 years.

Scientific estimates suggest that approximately four sextillion (4 followed by 21 zeros) cells are released from permafrost annually, with researchers cautioning that these ancient organisms could impact the current ecosystem. Previous alarming incidents, such as the 2016 outbreak of anthrax caused by spores from an animal carcass frozen for 75 years, underline the potential dangers associated with thawing permafrost, highlighting the importance of preparedness for potential future pandemics sparked by these ancient pathogens.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.iflscience.com/exercise-polaris-the-who-just-ran-a-2-day-pandemic-preparedness-exercise-78708> - This article provides details about Exercise Polaris, a pandemic preparedness exercise conducted by the WHO involving over 15 countries. It highlights the importance of global coordination in responding to health emergencies.
* <https://www.telegraph.co.uk/global-health/science-and-disease/mammoth-pox-pandemic-response-world-health-organization/> - This article discusses Exercise Polaris specifically, detailing the fictional 'Mammothpox' scenario and how different countries responded with varying strategies during the simulation.
* <https://www.utmb.edu/spectre/news-events/all-news/article/relevant-articles/2025/04/04/who-brings-countries-together-to-test-collective-pandemic-response> - It describes Exercise Polaris as a simulation focused on testing WHO's Global Health Emergency Corps (GHEC) framework, enhancing international collaboration and emergency response capabilities.
* <https://www.manoramayearbook.in/current-affairs/world/2025/04/05/who-exercise-polaris.html> - This article explains the purpose and setup of Exercise Polaris, including its focus on global coordination and the significance of the Global Health Emergency Corps.
* <https://www.scientificamerican.com/article/thawing-permafrost-releases-ancient-viruses-and-could-cause-new-diseases/> - This source provides background information on the risks associated with thawing permafrost, including the release of ancient pathogens that could potentially cause new diseases.