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Preparing for Tomorrow: Tools, Skills, and Sensors in Forecasting Climate Change's Health Consequences

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KEY MESSAGES

1. Climate change significantly impacts human health through rising temperatures and ecosystem changes.
2. New sensors, tools, and skills are essential to predict and mitigate health consequences of climate change.
3. The ClimateSense model promotes proactive strategies to enhance preparedness and resilience against climate-related health risks.

ABSTRACT

Introduction. Climate change has important implications for human health. Temperatures continue to rise and extreme weather conditions become more frequent. Resulting changes in ecosystems will impact health in general and more specifically, distribution of communicable, vector-borne and heat-related diseases. It is imperative to adopt proactive measures to anticipate and mitigate the health impact of climate change. New sensors, skills and tools are required to predict impact on human health and conceptualise proactive measures against adverse consequences of rising temperatures.

Materials and methods. A search of the current literature on anticipatory research specific to sensors, skills and tools for prediction was employed. A design thinking model, the ClimateSense Model was conceptualised based on the analysis.

Results. Sensors include physical sensors and information technology such as remote sensing with satellites, aircrafts and drones, biological sensors like RNA and DNA sequencing technologies, and chemical sensors for greenhouse gases. Tools include mobile applications and artificial intelligence, internet-of-things technology, and crowdsourcing. Skills involve digital skills to interpret and communicate sensor-derived data using interactive maps, plots, time series, and analysis of big data with statistical skills or artificial intelligence.

Conclusion. Synergistic combination of tools, skills and sensors, as conceptualised in the ClimateSense model, are essential to anticipate consequences of climate change for health. By promoting anticipatory preparedness, policymakers, healthcare professionals and communities can better mitigate the adverse health impacts of climate change, build resilience to its effects and define a planetary health strategy.

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KEY FIGURE



The ClimateSense Model demonstrates a balance between vulnerability and resilience which can be changed with the right tools based on sensory input. The output is a change of policy which steers climate change into the right direction.

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