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Global Impacts of Anthropogenic Climate Change on Human Health and Adaptability

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ABSTRACT Climate change is a normal consequence of terrestrial and solar processes that act on the earth. Over the past century, however, human activity has produced a form of climate change that is qualitatively different from past patterns. This anthropogenic climate change has resulted from exponential human population growth and support of this ever-expanding population. Industrialization, consumption of fossil fuels, extensive agriculture, deforestation, and pollution all contribute to or are by-products of this support. The two primary components of anthropogenic climate change are (1) global warming and (2) increased ultraviolet radiation. In the first case, global warming has resulted from increased human production of greenhouse gases, such as CO₂, which have led to a net heat gain at the surface of the earth. In other words the earth is heating up, and there are both predictable and unpredictable consequences of this thermal imbalance. In the second case, the escape of chlorofluorocarbons (CFCs) and other volatile organic chemicals have led to the partial destruction of ozone in the stratosphere, which acts as an effective filter to screen ultraviolet (UV) radiation. Global warming has far-reaching implications for human health and well being, and can affect food production, land availability, fresh water resources, disease transmission, earth's biodiversity, and a host of other factors. Increased UV radiation also threatens human health through skin damage, cancer, and immune function impairment. In this review, climate change is discussed in the context of human health and adaptability at both the individual and the population levels. There are likely to be major threats to human health from climate change, and many of these are beyond our immediate or long-range control.