

They could also occur when a new strain of virus emerges for which people have no previous exposure. Although medical advances and population characteristics have substantially improved the ability of epidemiologists and health care providers to cope with pandemics, they can still strike with unpredictable severity.

Think of the Spanish Flu, which emerged a century ago. It was possibly the most significant

Notwithstanding their unpredictability, populations can be protected against the possibility of a pandemic and the impact of an outbreak mitigated. Factors today that might predict a less-severe impact from pandemic include:

- The speed at which a new pathogen can be identified and studied including use of artificial intelligence and machine learning
- The ability of governments to establish precautionary measures (e.g., quarantines, curfews)
- Instantaneous global communication sharing information as gathered
- Antivirals to treat influenza itself and antibiotics to treat complications such as pneumonia
- Better general population health compared to a century ago

Currently, there is no single model for assessing infectious disease pandemic risk. The three best-known university-developed models – The Imperial College Model, University of Washington Model, and Virginia Bioinformatics Institute Model – as well as others developed by specialized private companies, all primarily base their calculations upon Spanish Flu experience and data. The emergence of the highly pathogenic

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