

Recurrence of a flu pandemic similar to infamous 1918 flu could kill 62 million

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In recent years, health professionals and the general public alike have been acutely aware of the potential ravages that could result from a flu pandemic. Although many people might still recall the pandemics of 1968 and 1957, it is the infamous 1918-1920 pandemic--and the possibility of a recurrence on that scale--that causes the most trepidation.

Strangely, researchers still don't know exactly how many people died from this particular strain of the flu virus in that pandemic, and they know even less about how mortality rates varied in different parts of the world. In fact, most historic information is based on eyewitness accounts and not on statistical analysis. Now, a team of researchers from Harvard School of Public Health (HSPH) and the University of Queensland in Australia have re-analyzed data from 27 countries around the world to estimate both the global mortality patterns of the 1918 pandemic and, based on 2004 population data, how a similar pandemic would affect the world today.

These findings, to be published in the December 23, 2006 issue of *The Lancet*, show that mortality rates for the 1918-1920 pandemic were disproportionately high in communities where per capita income was lowest. If the same pandemic were to occur today, approximately 96 percent of deaths would occur in developing countries.

"This is the first time there has been this sort of systematic analysis based on vital statistics, such as death registration data, from the 1918-1920 period," said lead author Christopher Murray, Professor of

Population Policy at HSPH and Director of the Harvard Initiative for Global Health. "These findings are particularly alarming when you consider that all the policy protection is aimed at the high income world. Very few strategies are being thought through that are primarily targeting poor countries."

For many decades, published epidemiological literature assumed that mortality rates from the 1918-20 pandemic were distributed fairly equally. A simple population count from that period would lead to the conclusion that about 20 percent of all fatalities occurred in the developed world. "But when you look at the data," said Murray, "that number shrinks to about three or four percent."

The disparities between the developed and developing worlds during this period are striking. For example, in Denmark 0.2 percent of the population succumbed to the flu. In the United States, that figure is 0.3 percent (based on data from 24 states). In the Philippines, the mortality rate was 2.8 percent, in the Bombay region of India, 6.2 percent, and in central India, 7.8 percent, which was the highest rate of the countries and regions analyzed. According to this data then, from Denmark to central India, death rates from the 1918-1920 flu pandemic varied more than 39-fold.

The researchers then took the relationship observed in 1918 between per capita income and mortality and extrapolated it to 2004 population data. After adjusting for global income and population changes, as well as changes in age structures within different populations, the research team estimated that if a similarly virulent strain of flu virus were to strike today, about 62 million people worldwide would die.

This could represent a devastating impact on global mortality, more than doubling deaths from all causes in a single year. However, only four percent of these fatalities would occur in the developed world. The

developing world would absorb the remaining 96 percent of deaths--an estimate that the researchers believe is actually conservative.

"We all know that the poor tend to have higher mortality," said Murray, "but we never expected that so much of the cross-country and cross-community variation would be related to economic status."

The researchers caution that per capita income only explains about half of the wide mortality range seen among--and in many cases within--particular countries. Other unique community attributes that influenced mortality are still unknown.

Nevertheless, Murray is clear about the study's implication: "Quite simply, much more of the international attention needs to focus on how we can protect the poorer countries should this virus reoccur."

Source: Harvard School of Public Health

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