Study suggests nonpharmaceutical interventions may be helpful in severe influenza outbreaks

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An analysis of non-pharmaceutical interventions used in the U.S. during the 1918-1919 influenza pandemic, such as closing schools and banning public gatherings, found an association between these interventions and reduced death rates, suggesting that non-pharmaceutical interventions may play a role in planning for future influenza pandemics, according to a study in the August 8 issue of JAMA.

The influenza pandemic of 1918-1919 is among the most deadly contagious events in human history, resulting in approximately 40 million deaths worldwide, including 550,000 in the United States, according to background information in the article.

“The historical record demonstrates that when faced with a devastating pandemic, many nations, communities, and individuals adopt what they perceive to be effective social distancing measures or nonpharmaceutical interventions including isolation of those who are ill, quarantine of those suspected of having contact with those who are ill, school and selected business closure, and public gathering cancellations. One compelling question emerges: can lessons from the 1918-1919 pandemic be applied to contemporary pandemic planning efforts to maximize public health benefit while minimizing the disruptive social consequences of the pandemic as well as those accompanying public health response measures?” the authors write.

Howard Markel, M.D., Ph.D., of the University of Michigan Medical School, Ann Arbor, and colleagues assessed the non-pharmaceutical interventions implemented in 43 cities in the continental United States from September 1918 through February 1919 to determine whether city-to-city variation in death rates were associated with the timing, duration, and combination of non-pharmaceutical interventions. The researchers conducted historical archival research and statistical and epidemiological analyses. Non-pharmaceutical interventions were grouped into three major categories: school closure; cancellation of public gatherings; and isolation and quarantine.

There were 115,340 excess pneumonia and influenza deaths (excess death rate [EDR], 500/100,000 population) in the 43 cities during the 24 weeks analyzed. Every city adopted at least one of the three major categories of non-pharmaceutical interventions. School closure and public gathering bans activated concurrently represented the most common combination implemented in 34 cities (79 percent); this combination had a median (midpoint) duration of four weeks (range, 1-10 weeks) and was significantly associated with reductions in weekly EDR. The cities that implemented non-pharmaceutical interventions earlier had greater delays in reaching peak rates of death, lower peak rates of death, and lower total number of deaths. There was a statistically significant association between increased duration of nonpharmaceutical interventions and a reduced total number of deaths.

“These findings contrast with the conventional wisdom that the 1918 pandemic rapidly spread through each community killing everyone in its path. Although these urban communities had neither effective vaccines nor antivirals, cities that were able to organize and execute a suite of classic public health interventions before the pandemic swept fully through the city appeared to have an associated mitigated epidemic experience,” the authors write.

Source: JAMA and Archives Journals