



SOCIETY OF ACTUARIES

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Avian Influenza— A Note on Reinsurance for Small Companies

By Howell Pugh

Why is there concern?

There is one fact that keeps me concerned about the spread of avian influenza and the possibility of conversion into human influenza. It appears to have the same mortality pattern that is associated with pandemic influenza.

Normal seasonal flu is deadly to infants and elderly. Pandemic influenza is deadly to young adults in the prime of life. Ironically, it is those with the strongest immune systems who have the higher relative death rates. Doctors believe

that the new strain of flu causes the immune system to kick into overdrive in an attempt to expel the virus. This is called a “cytokine storm,” which can lead to immune cells attacking body systems and flooding the lungs with blood.

The two graphs on below point to this as a possible concern.

What are the options for small companies?

Larger insurance enterprises that are looking at their risk management can take some credit against their overall capital needs by relying on a diversification of the risk elements. Smaller companies do not have as much leeway because they are generally relying on fewer lines of business.

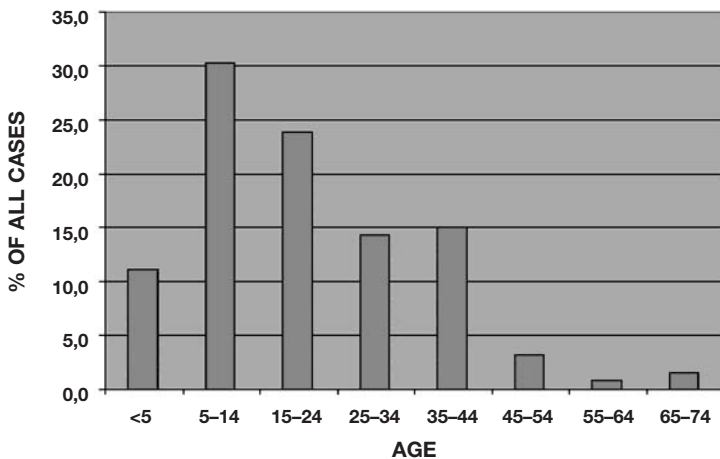
Instead they are reliant on reinsurers who take on the role of aggregating risks to achieve the law of large numbers. I think that small companies need to begin a dialogue with their reinsurers about



Data from Today

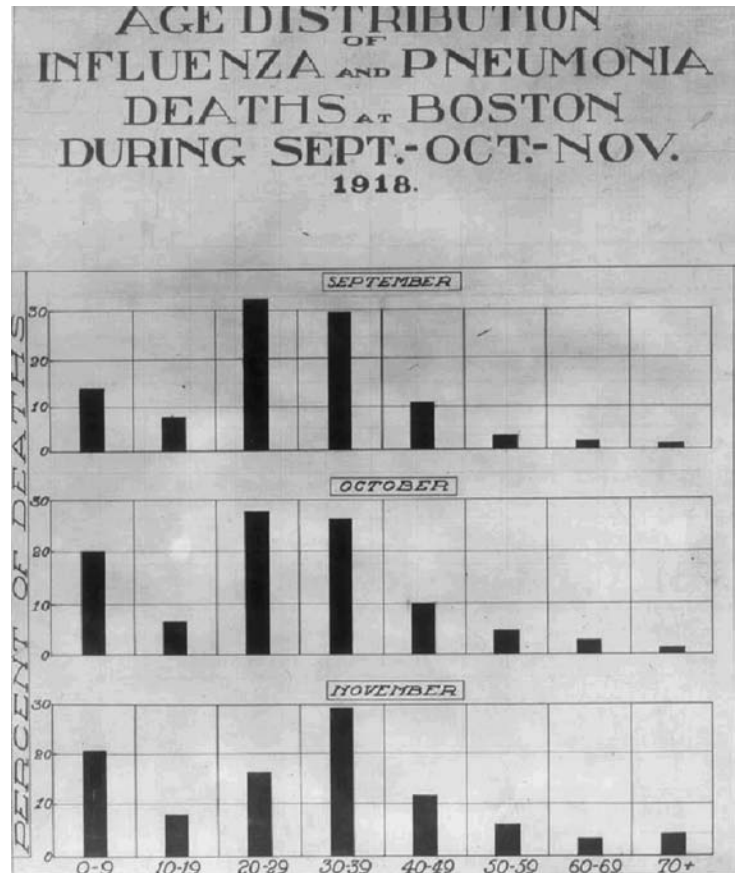
An analysis of demographic data published by WHO shows the following age distribution of human H5N1 influenza cases ($n=126$). Fifty percent of cases were 17 years or younger; 75 percent of cases were 29 years or younger; 90 percent of cases were 39 years or younger. Most patients were born after 1968.

**AGE DISTRIBUTION OF HUMAN H5N1 CASES
MARCH 8, 2006**



Source: influenzareports.com/ir/figures/ad060310.htm

Data from Yesterday



the level of safety versus risk that the reinsurers are providing in the case of avian influenza pandemic.

I suggest that the small company actuary begin with a letter to each of their reinsurers:

Dear Reinsurer,

I would like to open a dialogue with you regarding your company's ability to provide an assured payment of death and health claims in the event of an avian influenza pandemic. The World Health Organization reports that avian influenza H5N1 has now been found on three continents, over 35 countries, and has caused over 100 human deaths since 1996. There is concern that the flu virus will acquire the ability to transmit from human to human, which will lead to an influenza epidemic, and some believe a worldwide pandemic.

There were two major flu epidemics in the twentieth century—1918 and 1957—along with a milder episode in 1968. Excess mortality per 1000 has been estimated as follows:

	1918	1957
Below age 65	5.46	0.15
Age 65 and up	1.66	2.73

Source: *Simenson, L, Clarke, M, et al, "Pandemic versus Epidemic Influenza Mortality: a Pattern of Changing Age Distribution" Jour. of Infectious Diseases, 1998; 178:53–60.*

The CDC reports in the Federal Government Pandemic Plan that estimated deaths will be 1, 903,000 Americans based on 1918 mortality.

My concern is whether your company will be able to meet its obligations if we see an outbreak at a level equal to the 1918–19 pandemic. This is due to the heavy concentration of term insurance that the reinsurance industry has taken on in the recent past.

I know that your corporate risk people have already taken a look at this possibility. What are their conclusions? How much of 1918 excess mortality can your company withstand?

As I am assessing my company's ability to withstand shock mortality, I would like to know how much reliance I can put on the expected payoff from reinsurance that I should put into my model.

Your Reinsurance Client Actuary. ●



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Articles needed for *Small Talk*

Your help and participation is needed and welcomed. All articles will include a byline to give you full credit for your effort. *Small Talk* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working on *Small Talk*, several associate editors are also needed to handle various specialty areas such as meetings, seminars, symposia and continuing education meetings.

If you would like to submit an article or be an associate editor, please call James R. Thompson at 815.459.2083

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In order to efficiently handle articles, please use the following format when submitting articles:

Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 10-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

If you must submit articles in another manner, please call Joe Adduci, 847.706.3548, at the Society of Actuaries for assistance.

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Thank you for your help.