

# The Mystery of Increased Hospitalizations of Elderly Patients

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[Dan Rutz] Hello, I'm Dan Rutz speaking today with Dr. Martin Meltzer, Senior Health Economist and Distinguished Consultant in the Division of Emerging Infections and Surveillance Services here at CDC. We're here to talk about two articles in the May 2008 issue of Emerging Infectious Diseases reporting increased pneumonia-related hospitalizations of elderly patients in England. Martin, you wrote a commentary about these articles. Talk a little bit please about why you think these articles are so important.

[Martin Meltzer] Well, Dan, pneumonia is a common illness that affects millions of people in the United States each and every year. In some people, particularly the elderly and those who are ill from pre-existing conditions, bacterial pneumonia may follow influenza or even a common cold. Pneumonia is a major killer of the elderly and other vulnerable people the world over, and it's information in the two articles that we are talking about that may help us better understand, control, and prevent this disease. And it's always a public health priority.

[Dan Rutz] Let's get into these articles a bit. Tell us a little bit about what's in them that's so important or helpful.

[Martin Meltzer] Yes. Well, both of these articles are from England. In the first one, Trotter and colleagues found a 20 to 39 percent increase in pneumonia-related hospitalizations in people older than 65 years of age. In the other article, also set in England, Hayward and colleagues measured a 600 percent increase in hospitalizations for staphylococcal pneumonia and an approximately 400 percent increase in hospitalizations for abscesses or cellulitis for patients greater than 65 years of age.

[Dan Rutz] Now since you took a pretty close look at both of these studies, do you think the increases are real and are they significant?

[Martin Meltzer] Yes, absolutely. Both surveys used the same dataset, the British National Health Services hospital admissions database, and both found a very real increase in hospitalizations in the elderly over the time studied.

[Dan Rutz] Okay, what's going on here? What do think accounts for these increases?

[Martin Meltzer] You know, Dan, we just don't know. The data used in these studies doesn't record all the ins and outs of every patient. We only know the administrative details such as how many people were admitted, what type of disease they were admitted for, and when they were released. We don't know why or how they become ill. We would need separate studies to determine why these increases occurred over a relatively short period of time. You know, it's really hard to believe that the increases occurred just because we have more elderly and frail people in the population.

[Dan Rutz] Well, but that is a point, a lot of people know that the general population is getting older. Is it possible that the increase in the number of people over 65 years of age has contributed to this increase in hospitalizations?

[Martin Meltzer] Dan, you bring up a very good point. The age structures of any population change all the time. And to adjust for this, epidemiologists convert data into standardized rates—in this case, rates of illness per 100,000 population. And this conversion allows for a direct comparison of the impact of a disease over time. So, any statistically significant changes per 100,000 persons over time should be real and actual.

[Dan Rutz] What about this point—people are living longer with more diseases. Can the fact that people tend to have a number of diseases at one time contribute to the increase in hospitalizations in the elderly?

[Martin Meltzer] Well, the authors of the study on pneumonia did adjust for pre-existing medical conditions by using a severity-of-illness scale, called the Charlson Comorbidity Index. The adjustment, however, made no notable difference in the overall conclusion that rates of hospitalization for pneumonia have increased over time.

[Dan Rutz] Well, then based on these inquiries, it really looks like the increases are real and they aren't affected by other diseases or increases in the number of elderly. So, then why haven't there been floods of people being admitted to hospitals for pneumonia and staph infections?

[Martin Meltzer] Well, Dan, although the percentage of elderly people being admitted to the hospital for these conditions has increased, the number of elderly people hospitalized with either pneumonia or staph infection is relatively small in comparison to overall hospital admissions. For example, in England, the equivalent of 1 in 4 people are hospitalized each and every year. But only two tenths of one percent of the entire population is ever admitted for pneumonia. The percentage rises with age naturally, and approximately 2 percent of those 65 years and older are admitted for pneumonia.

[Dan Rutz] Is there a way we can relate these data to our own country? Should we be worried about increased hospitalizations in the elderly in the United States?

[Martin Meltzer] Well, in the U.S., compared to the numbers reported in the U.K., the rates of admissions for pneumonia are similar and slightly lower for those admitted for staph. I think these rates, whether for the U.S. or the U.K., are reasons for concern.

[Dan Rutz] What would you say is the public health importance of these studies?

[Martin Meltzer] Well, these studies have found real and meaningful increases in hospitalizations for diseases that can be life threatening. But, before we design and implement interventions, we need to understand why these increases are happening. If we don't understand the underlying

causes of these increases, we're just guessing as to what may prevent additional increases and reverse the already measured increases. We have to first solve the mystery of the increases.

[Dan Rutz] Thanks much. Our discussion with Dr. Meltzer was prompted by two articles, each reporting increased hospitalizations in the elderly and published in the May 2008 issue of Emerging Infectious Diseases. These articles, and others on emerging bacterial and viral diseases, can be read online at [www.cdc.gov/eid](http://www.cdc.gov/eid). Once more, that's [www.cdc.gov/eid](http://www.cdc.gov/eid). And you can submit your comments on this interview to [eideditor@cdc.gov](mailto:eideditor@cdc.gov). Again that's eideditor, one word, at cdc dot gov. For Emerging Infectious Diseases, I'm Dan Rutz.

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