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# Age-specific Incidence Rate in Severe or Symptomatic Infection due to Pandemic H1N1 2009 Influenza Virus

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Figure 1a

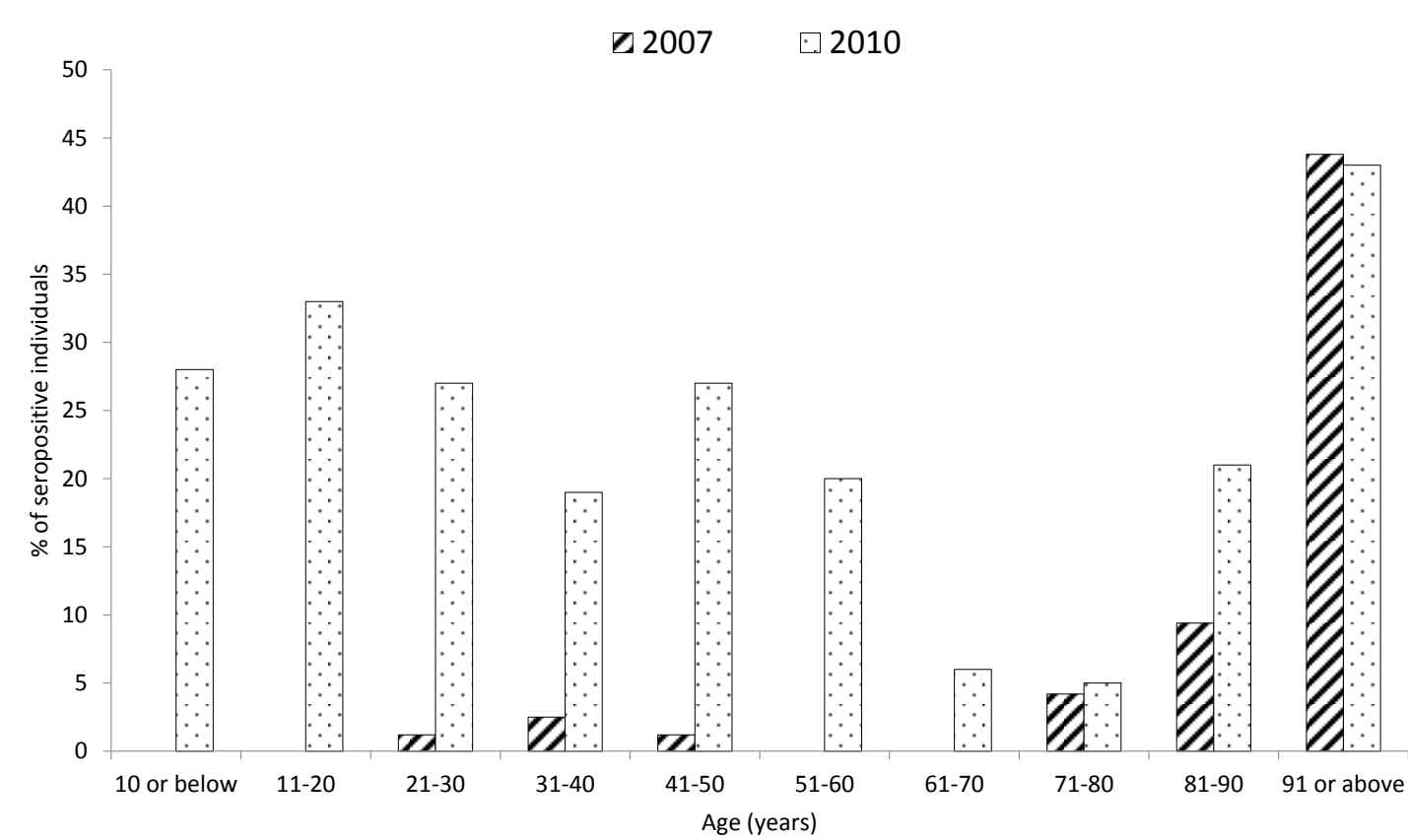


Figure 1. Prevalence of seropositive individuals  
a) hemagglutination inhibition titer  $\geq 40$

Figure 1b

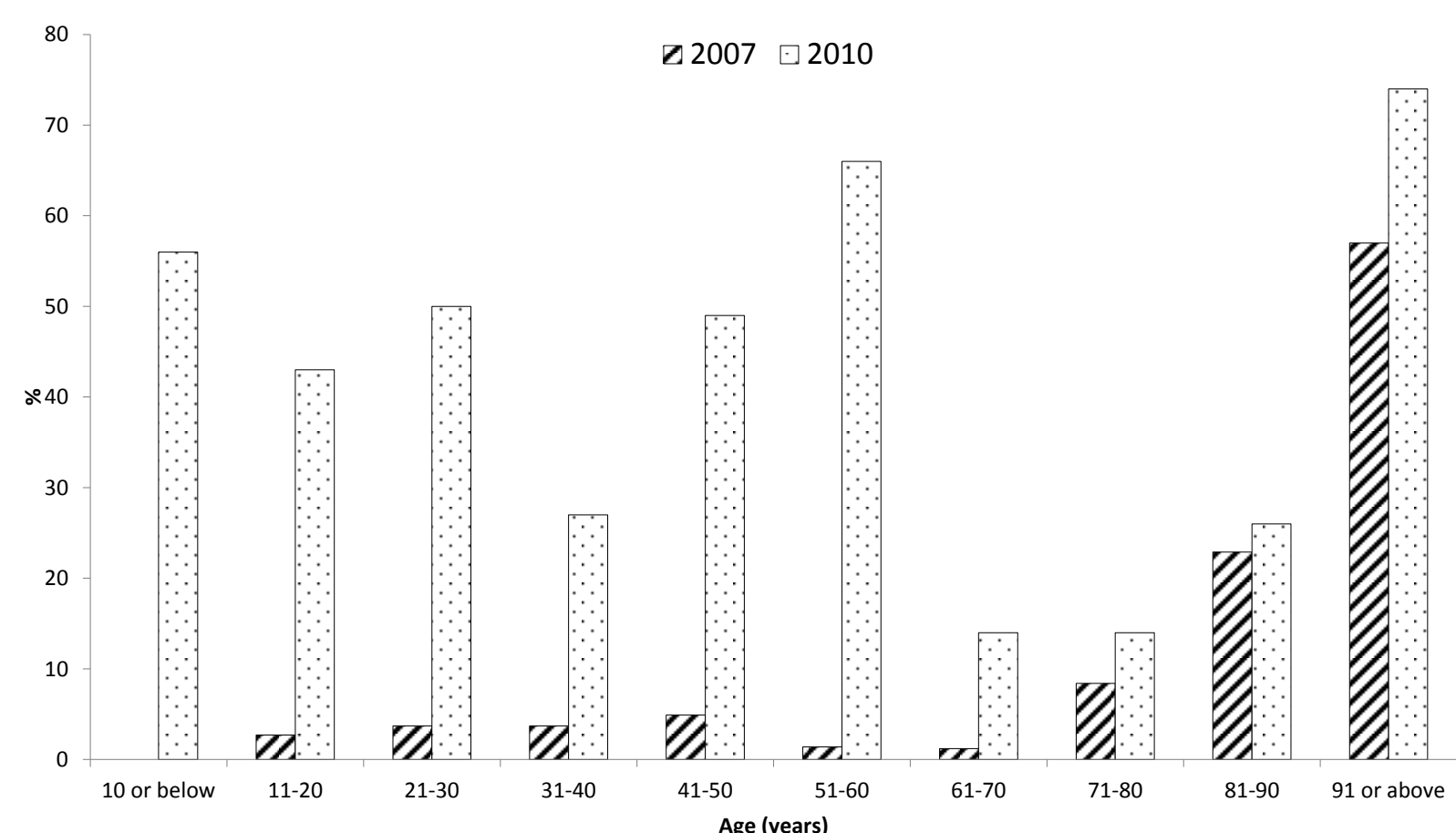


Figure 1. Prevalence of seropositive individuals  
b) hemagglutination inhibition titer  $\geq 10$

## Background:

Age-specific incidence of the 2009 pandemic influenza provides the scientific basis of public health policies and the basic science research on the age-related susceptibility to influenza. While previous epidemiological studies provided vital information for public health policies, most did not incorporate age-specific data of asymptomatic, symptomatic and severe infection in the analysis. In this study, we incorporated data from seroprevalence and microbiologically-confirmed infection to estimate the relative impact of the pandemic influenza on various age groups.

## Methods:

For the determination of pre-pandemic and post-pandemic seroprevalence, archived serum samples randomly collected at the clinical biochemistry department of Queen Mary Hospital in the years 2007 and 2010 were used respectively. Microbiologically-confirmed cases and severe cases reported to the Centre for Health Protection (CHP) from May 1, 2009 to May 23, 2010 were included in our analysis. This study was approved by the institutional review board of the Hospital Authority of Hong Kong.

## Results:

795 and 1000 serum samples were collected in 2007 and 2010 respectively. In 2007, 8.7% and 14.2% of individuals had HI titers  $\geq 40$  and  $\geq 10$  respectively. The pre-existing cross-reactive antibodies were mainly found in patients aged  $>70$  years old. In 2010, the overall proportion of individuals with HI titers  $\geq 40$  and  $\geq 10$  is 23.2% and 42.2%. The highest overall microbiologically-confirmed incidence rate was found in the 0-10 year age group, and decreased with increasing age ( $\rho = -1.0$ ,  $p < 0.01$ ). A total of 282 severe cases were reported with a mean age was 47.6 years. The incidence rate of severe cases showed an apparent bimodal age distribution, with higher incidence rate in the age group 0-10 and those older than 50 years old, and the highest incidence rate being those between 51 and 60 years old.

## Conclusion:

While the young adults were most commonly affected, the clinical consequence is most alarming in children and older adults aged over 50 years. Public policies should continue to target this high risk group.

Figure 2. Microbiologically confirmed incidence rate

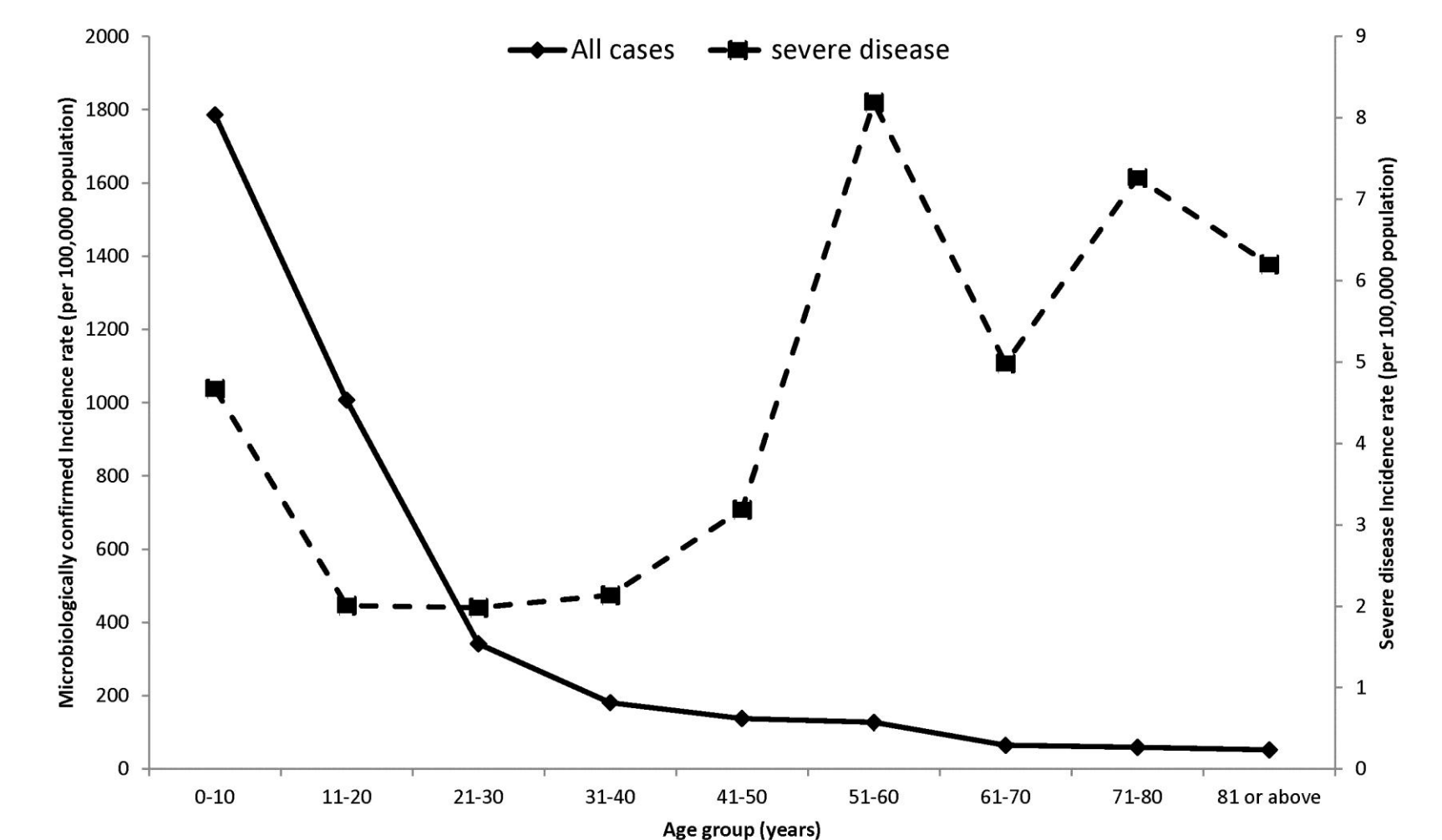


Figure 2. Microbiologically confirmed incidence rate