Study calls for increased research in flu transmission to prepare for pandemic flu outbreak

February 18 2009

Researchers at Rhode Island Hospital have completed a study to better understand the impact of infection control measures during a possible flu pandemic. Their study focused on the likelihood of the transmission of flu from individuals showing no symptoms (asymptomatic) or from individuals who are infected but have not yet exhibited symptoms. The researchers call on the scientific community to better understand the transmission of influenza in order to provide guidelines for effective pandemic flu planning. Their findings are published in the March-April 2009 edition of *Public Health Reports*.

The study, from Rhode Island Hospital's department of epidemiology and infection control and the division of infectious diseases, notes that public health measures for controlling outbreaks involve isolation of symptomatic individuals and the quarantine of individuals with whom they have had contact. This intervention is dependent upon early identification of symptoms, and the success of the intervention can be limited by transmission that occurs prior to symptom onset and transmission from asymptomatic infection.

Senior author Leonard Mermel, DO, ScM, medical director of the department of epidemiology and infection control at Rhode Island Hospital, along with Eleni Patrozou, MD, performed a systematic review of literature on viral shedding and disease transmission. The review included animal studies, human studies, inoculation experiments, vaccine

and antiviral drug efficacy studies, and observations during outbreaks.

Mermel says, "Our findings indicate that pre-symptomatic transmission of influenza has been inferred based on the presence of the virus in the upper respiratory tract rather than from the appropriate transmission experiments. This is troubling because our review of the literature does not support significant influenza transmission based on positive nasopharyngeal cultures in the absence of symptoms."

Their findings also indicate that small-particle aerosols expelled from infected individuals may play a greater role in influenza transmission than previously recognized. The problem, however, is that it remains unclear as to how many of these droplets are generated by asymptomatic or pre-symptomatic individuals.

Mermel adds, "Asymptomatic individuals may shed influenza virus, but studies have not conclusively determined if these individuals effectively transmit influenza to others. Our review of the literature suggests that the role of asymptomatic or pre-symptomatic influenza-infected individuals in disease transmission may have been overestimated in recent articles that have served as the basis for national and international pandemic planning."

He concludes, "Based on the historical record over the last century, we must be prepared for another pandemic. Our research tells us that a better understanding of transmission dynamics is essential if we are to develop effective influenza pandemic plans."

Source: Lifespan