



Under the Microscope

Examining Healthcare Filtration Issues

Avian Influenza, Aerosol Transmission?

In the Fall 2006 issue of Air Media, we went “Under the Microscope” to present a primer on avian influenza. As part of that discussion we talked about the three primary ways which influenza is spread. They are large droplet transmission, contact transmission and airborne or aerosol transmission.

In the past, the medical community has emphasized large droplet as the primary mode of influenza transmission while downplaying the role of aerosol transmission. The control measures recommended for these applications have been based on the large droplet transmission theory. Two documents that have recently been published reflect a shifting of thought by the American medical community. We will focus on those documents in this issue of Under the Microscope.

In the November 2006 issue of Emerging Infectious Diseases, published monthly by the CDC, Dr. Raymond Tellier of the Hospital for Sick Children in Toronto, has authored a paper entitled “Review of Aerosol Transmission of Influenza A Virus.” In his paper Dr. Tellier states, “Published evidence indicates that aerosol transmission of influenza can be an important mode of transmission (that has) obvious implications for pandemic influenza planning.”

In his article Dr. Tellier presents both epidemiologic observations as well as laboratory animal experiments as supporting the importance of aerosol transmission of influenza. He writes that “Despite the evidence cited in support of aerosol transmission, many guidelines or review articles nevertheless routinely state that ‘large droplet transmission is thought to be the main mode of influenza

transmission”’. He adds, “...despite extensive searches, I have not found a study that proves the notion that large-droplets transmission is predominant and that aerosol transmission is negligible (or nonexistent).”

Dr. Tellier points out that US and Canadian pandemic influenza plans recommend surgical masks, not N95 respirators as part of personal protective equipment for routine patient care and that, “this position contradicts the knowledge on influenza virus transmission accumulated in the past several decades.” In contrast, the World Health Organizations (WHO) current (April 2006) guidelines for avian influenza recommend, “... the use of airborne precautions when possible, including the use of N95 respirators when entering patients’ rooms.”

Dr. Tellier’s article lays out an excellent argument supporting the need to stress the importance of aerosol transmission during influenza outbreaks. Facilities and governments should take this into consideration when planning their protective controls whether they are administrative, engineering or personal protection. Dr. Tellier’s article can be found online at www.cdc.gov/eid.

As if on cue, the US Department of Health and Human Services has issued an Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza Pandemic. The Centers for Disease Control and Prevention (CDC) is aware of no new scientific information related to the transmission of influenza viruses since the drafting of the HHS Pandemic Influenza Plan (www.hhs.gov/pandemicflu/plan/). As stated in the plan, the proportional contribution and clinical importance of the possible modes of transmission of influenza (i.e., droplet,

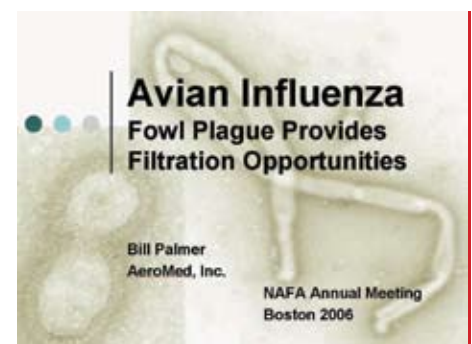
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airborne, and contact) remains unclear and may depend on the strain of virus ultimately responsible for a pandemic.

While this document does not represent a large shift in the strategic planning of the federal government, it seems to be in reaction to growing concern over the role of aerosol transmission of influenza.

Armed with the knowledge that influenza can be transmitted via the aerosol route and knowing that the medical communities thinking on this issue is continuing to evolve, facilities may want to strongly consider the use of HEPA air purification equipment to help control influenza transmission within healthcare facilities.

You can download Bill’s PowerPoint presentation in the Members Forum section of the NAFA web site at www.nafahq.org.



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