8 December 2009

This supplement has been prepared to present scientific and technical news items that may be of more interest to technical personnel at RDT&E activities and the labs, or the medics rather than the broader readership of the basic CB Daily. Due to the nature of the material, the articles, if available online, are usually only available through subscription services thus making specific links generally unavailable. Thus, usually only the bibliographic citation is available for use by an activity's technical library.

Should you wish to be removed from this Pandemic Influenza Edition address group, just send an email to one of the people listed at the bottom of this message. This will not affect your continued receipt of the CB Daily.

Chem-Bio News – Pandemic Influenza Edition #90

1. USING NON-HOMOGENEOUS MODELS OF NUCLEOTIDE SUBSTITUTION TO IDENTIFY HOST SHIFT EVENTS: APPLICATION TO THE ORIGIN OF THE 1918 'SPANISH' INFLUENZA PANDEMIC VIRUS: *"This would suggest that the virus was introduced into humans sometime between 1913 and 1918."*

2. NEW YORK AUTOPSIES SHOW 2009 H1N1 INFLUENZA VIRUS DAMAGES ENTIRE AIRWAY: *"In fatal cases of 2009 H1N1 influenza, the virus can damage cells throughout the respiratory airway, much like the viruses that caused the 1918 and 1957 influenza pandemics, report researchers from the National Institutes of Health (NIH) and the New York City Office of Chief Medical Examiner."*

3. H1N1 MORE RISKY THAN SEASONAL FLU IN CHILDREN WITH SICKLE CELL DISEASE: *"Infection with the H1N1 virus, or swine flu, causes more life-threatening complications than seasonal flu in children with sickle cell disease, according to research from Johns Hopkins Children's Center. The findings, presented Dec. 7 at the annual meeting of the American Society of Hematology, warn parents and caregivers that such children are more likely to need emergency treatment and stays in an intensive-care unit."*

4. [FDA] FRAUDULENT 2009 H1N1 INFLUENZA PRODUCTS LIST: *"This list is intended to alert consumers about Web sites that are or were illegally marketing unapproved, uncleared, or unauthorized products in relation to the 2009 H1N1 Flu Virus (sometimes referred to as the "swine flu" virus). Note that until evidence to the contrary is presented to FDA, the owner of the listed Web site is considered responsible for promoting the unapproved, uncleared, or unauthorized products. The uses related to the 2009 H1N1 Flu Virus are not necessarily being promoted by the manufacturers of the products."*

CB Daily Report

Chem-Bio News

USING NON-HOMOGENEOUS MODELS OF NUCLEOTIDE SUBSTITUTION TO IDENTIFY HOST SHIFT EVENTS: APPLICATION TO THE ORIGIN OF THE 1918 'SPANISH' INFLUENZA PANDEMIC VIRUS
Biotech Week
December 9, 2009

"Here we explore the possibility of using nonhomogeneous models to identify host shift nodes along phylogenetic trees of pathogens evolving in different hosts."

"It has been noticed that influenza viruses show marked differences in nucleotide composition in human and avian hosts. We take advantage of this fact to identify the host shift event that led to the 1918 'Spanish' influenza. This disease killed over 50 million people worldwide, ranking it as the deadliest pandemic in recorded history. Our model suggests that the eight RNA segments which eventually

became the 1918 viral genome were introduced into a mammalian host around 1882-1913. The viruses later diverged into the classical swine and human H1N1 influenza lineages around 1913-1915. The last common ancestor of human strains dates from February 1917 to April 1918. Because pigs are more readily infected with avian influenza viruses than humans, it would seem that they were the original recipient of the virus."

"This would suggest that the virus was introduced into humans sometime between 1913 and 1918."

The full article can be found at: (M. Dosreis, et. al., "Using Non-Homogeneous Models of Nucleotide Substitution to Identify Host Shift Events: Application to the Origin of the 1918 'Spanish' Influenza Pandemic Virus". Journal of Molecular Evolution, 2009;69(4):333-345). Link not available.
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NEW YORK AUTOPSIES SHOW 2009 H1N1 INFLUENZA VIRUS DAMAGES ENTIRE AIRWAY
NIH News
December 07, 2009

"n fatal cases of 2009 H1N1 influenza, the virus can damage cells throughout the respiratory airway, much like the viruses that caused the 1918 and 1957 influenza pandemics, report researchers from the National Institutes of Health (NIH) and the New York City Office of Chief Medical Examiner. The scientists reviewed autopsy reports, hospital records and other clinical data from 34 people who died of 2009 H1N1 influenza infection between May 15 and July 9, 2009. All but two of the deaths occurred in New York City. A microscopic examination of tissues throughout the airways revealed that the virus caused damage primarily to the upper airway—the trachea and bronchial tubes—but tissue damage in the lower airway, including deep in the lungs, was present as well. Evidence of secondary bacterial infection was seen in more than half of the victims."

The full article can be found at: http://www3.niaid.nih.gov/news/newsreleases/2009/FluAutopsy.htm
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H1N1 MORE RISKY THAN SEASONAL FLU IN CHILDREN WITH SICKLE CELL DISEASE
Johns Hopkins Children's Center News Release
December 07, 2009

"Infection with the H1N1 virus, or swine flu, causes more life-threatening complications than seasonal flu in children with sickle cell disease, according to research from Johns Hopkins Children's Center. The findings, presented Dec. 7 at the annual meeting of the American Society of Hematology, warn parents and caregivers that such children are more likely to need emergency treatment and stays in an intensive-care unit.

The researchers analyzed the records of 118 children with sickle cell disease treated for any kind of flu at Hopkins Children's between September of 1993 and November of 2009. Of them, 28 were infected with the H1N1 virus, a new strain that emerged for the first time in April of 2009."

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"Another Hopkins Children's study, released earlier this year, found that children with sickle cell disease are hospitalized with seasonal flu nearly 80 times more often than other children."

The full article can be found at: http://www.hopkinschildrens.org/H1N1-Risky-for-Kids-with-Sickle-Cell.aspx
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[FDA] FRAUDULENT 2009 H1N1 INFLUENZA PRODUCTS LIST
US Food and Drug Administration
December 02, 2009

"Information current as of noon December 02, 2009
147 entries in list"

"This list is intended to alert consumers about Web sites that are or were illegally marketing unapproved, uncleared, or unauthorized products in relation to the 2009 H1N1 Flu Virus (sometimes referred to as the "swine flu" virus). Note that until evidence to the contrary is presented to FDA, the owner of the listed Web site is considered responsible for promoting the unapproved, uncleared, or unauthorized products. The uses related to the 2009 H1N1 Flu Virus are not necessarily being promoted by the manufacturers of the products."

The full article can be found at: http://www.accessdata.fda.gov/scripts/h1n1flu/
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