



## Pathology Biology Section – 2010

### G115 Two Cases of Novel Influenza A (H1N1) Virus (“Swine Flu”) Infection: Clinical Presentations, Autopsy Protocol With Findings, and Review of Literature

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After attending this presentation attendees will be familiar about the origins, spread, autopsy procedures, and findings in seven cases of H1N1 virus infection, that is currently designated a global pandemic.

This presentation will impact the forensic science community by organizing its preparation for a mass disaster situation involving a biological agent. The lessons learned from the way the nation and the world has responded will also be reviewed.

This novel infection, which has undergone a series of nomenclature changes (including new influenza virus, swine-like influenza virus,

swine-origin influenza virus, and known colloquially as “swine flu”) is now labeled a novel form of influenza. A virus resulting from a combination of genes derived from two types of swine influenza, one of which was in turn a “reassortment “ of human, avian, and swine influenza A strains.

The initial spike of cases started in La Gloria, Mexico, generally regarded as the ground zero of this epidemic. The United States of America soon after became the epicenter of this rapidly spreading epidemic with a distinct pattern of disease incidence in relation to the usually seasonal variety of Influenza. On June 11, 2009, the WHO proclaimed the H1N1 infection as a global pandemic, based on its spread in several continents, especially in the southern hemisphere. Now in early November, North America has become the epicenter of the disease. As of the of November 1, 2009, there have been more than 480 thousand laboratory confirmed cases of pandemic influenza worldwide and over six thousand deaths reported to the World Health Organization. The week of October 25 to 31 saw spike of at least eighteen flu related pediatric deaths, of which fifteen death were confirmed 2009 H1N1 and three were not sub-typed.

Described in this presentation is the experience with cases evaluated in two counties in Central New York. The clinical history, hospital course and autopsy precautions and protocol followed, and diagnostic testing in cases seen by us are summarized in this Table # 1. **Table # 1.**

#	Age	Sex	Major risk factor(s)	Clinical progression	Autopsy	Diagnosis	Major pathological findings	Other pathological findings	Major non-pathological findings
1	35	Male	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
2	36	Female	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
3	35	Female	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
4	32	Female	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
5	32	Female	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
6	30	Male	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage
7	47	Female	Fluorinated Quinolone Antibiotic (Levofloxacin)	Death to Adult to Adult	Yes	RT-PCR	Diffuse Alveolar Damage	Diffuse Alveolar Damage	Diffuse Alveolar Damage

Besides the variation in risk factors, the H1N1 infection itself has raised many changes in business (loss of earning by the pig industry), changes in social mores, religious rituals and public behavior. It has also raised questions, including how one defines epidemic and pandemic, and to what extent preventive strategies should be allowed to disrupt normal life and economic activity. In New York State the Public Health Department had promulgated laws mandating all health care workers to receive the Seasonal and Novel Influenza vaccinations. Onondaga County expanded the requirement to include all medical examiner Personnel as well. These were later rescinded, and shortages of the vaccines became the dominant theme for conversation. Meanwhile there are reports that the virus has mutated and developed resistance to commonly used anti retroviral medications.



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This presentation will also review the most recent publications, monitor and update the latest information about the spread of the infection as well as evaluate the public health response and lessons learned from the epidemic/pandemic. The main focus of this presentation will be to review the role of medical examiners/forensic pathologists monitoring sentinel events which adversely influencing public health.  
**Swine Flu, Bronchopneumonia, H1N1 Virus**