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## **Chem-Bio News – Pandemic Influenza Edition #64**

**1. BIPARTISAN WMD PANEL CRITICIZES OBAMA PLAN TO FUND FLU VACCINE:** *"President Obama's contingency plan to help finance production of a swine flu vaccine with funds set aside to develop defenses against biological attacks would weaken the nation's preparedness for terrorism, the leaders of a bipartisan commission on weapons of mass destruction said yesterday."*

**2. PANDEMIC FLU: LESSONS FROM THE FRONTLINES:** *"The Pandemic Flu: Lessons From the Frontlines report reviews 10 early lessons learned from the response to the H1N1 (swine) flu outbreak, 10 ongoing core vulnerabilities in U.S. pandemic flu preparedness, and case studies of challenges communities around the country faced when responding to the outbreak."*

**3. "WILL THEY JUST PACK UP AND LEAVE?" - ATTITUDES AND INTENDED BEHAVIOUR OF HOSPITAL HEALTH CARE WORKERS DURING AN INFLUENZA PANDEMIC:** *".....non-clinical workers are an overlooked group whose lack of knowledge and awareness could undermine pandemic plans."*

**4. COMPUTATIONAL STUDIES OF H5N1 INFLUENZA VIRUS RESISTANCE TO OSELTAMIVIR:** *"Detailed analyses indicated that conformational change of E276 in the Pocket 1 region of NA is a key source of drug resistance in the H274Y mutant but not in the N294S mutant."*

**5. SWINE FLU H1N1 INFECTIVITY TO INCREASE MARKEDLY AND LETHALITY TO REMAIN LOW ACCORDING TO LATEST REPLIKIN\* PEPTIDE GENOMIC DATA:** *".....Boston-based biotech firm Replikin Ltd. last week analyzed the most recent peptide genomic sequence data available and determined that the infectivity of the H1N1 virus will increase markedly, while its lethality will remain relatively low for the immediate future.."*

# **CB Daily Report**

## **Chem-Bio News**

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### **BIPARTISAN WMD PANEL CRITICIZES OBAMA PLAN TO FUND FLU VACCINE**

By Spencer S. Hsu  
The Washington Post  
June 08, 2009

"President Obama's contingency plan to help finance production of a swine flu vaccine with funds set aside to develop defenses against biological attacks would weaken the nation's preparedness for terrorism, the leaders of a bipartisan commission on weapons of mass destruction said yesterday.

The White House asked Congress on Tuesday for authority to spend up to \$9 billion more for an H1N1 flu vaccine and other preparations against the novel flu strain that first appeared in April.

Of the total, the administration asked Congress to provide \$2 billion in "contingent" funding. Another \$3 billion could come from the Project BioShield Special Reserve Fund, created in 2004 to field countermeasures against nuclear, biological or chemical threats; \$3.1 billion from stimulus funds appropriated to spur economic recovery; and \$800 million from the Department of Health and Human Services.

"Using BioShield funds for flu preparedness will severely diminish the nation's efforts to prepare for WMD events and will leave the nation less, not more, prepared," the commission's chairman, former senator Bob Graham (D-Fla.), and vice chairman, former senator James M. Talent (R-Mo.), wrote to Obama in a letter sent yesterday and in another dated Wednesday to his budget director, Peter Orszag."

The full article can be found at: <http://www.washingtonpost.com/wp-dyn/content/article/2009/06/07/AR2009060702549.html?hpid=topnews>

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## PANDEMIC FLU: LESSONS FROM THE FRONTLINES

Trust for America's Health

June 2009

"The Pandemic Flu: Lessons From the Frontlines report reviews 10 early lessons learned from the response to the H1N1 (swine) flu outbreak, 10 ongoing core vulnerabilities in U.S. pandemic flu preparedness, and case studies of challenges communities around the country faced when responding to the outbreak. The 10 early lessons learned from the 2009 H1N1 outbreak in the report were that:

1. Investments in pandemic planning and stockpiling antiviral medications paid off;
2. Public health departments did not have enough resources to carry out plans;
3. Response plans must be adaptable and science-driven;
4. Providing clear, straightforward information to the public was essential for allaying fears and building trust;
5. School closings have major ramifications for students, parents and employers;
6. Sick leave and policies for limiting mass gatherings were also problematic;
7. Even with a mild outbreak, the health care delivery system was overwhelmed;
8. Communication between the public health system and health providers was not well coordinated;
9. WHO pandemic alert phases caused confusion; and
10. International coordination was more complicated than expected."

The full article can be found at: <http://healthyamericans.org/report/64/pandemic-flu-frontlines>

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## "WILL THEY JUST PACK UP AND LEAVE?" - ATTITUDES AND INTENDED BEHAVIOUR OF HOSPITAL HEALTH CARE WORKERS DURING AN INFLUENZA PANDEMIC

Hospital Business Week

June 7, 2009

"The aim of this study was to explore HCWs [health care workers] knowledge, attitudes and intended behaviour towards pandemic influenza. Cross-sectional investigation of a convenience sample of clinical and non-clinical HCWs from two tertiary-referral teaching hospitals in Sydney, Australia was conducted between June 4 and October 19, 2007. The self-administered questionnaire was distributed to hospital personal from 40 different wards and departments. The main outcome measures were intentions regarding work attendance and quarantine, antiviral use and perceived preparation. Respondents were categorized into four main groups by occupation: Nursing (47.5%), Medical (26.0%), Allied (15.3%) and Ancillary (11.2%). Our study found that most HCWs perceived pandemic influenza to be very serious (80.9%, n = 873) but less than half were able to correctly define it (43.9%, n = 473). Only 24.8% of respondents believed their department to be prepared for a pandemic, but nonetheless most were willing to work during a pandemic if a patient or colleague had influenza. The main determinants of variation in our study were occupational factors, demographics and health beliefs. Non-clinical staff were significantly most likely to be unsure of their intentions (OR 1.43, p< 0.001). Only 42.5% (n = 459) of respondents considered that neuraminidase inhibitor antiviral medications (oseltamivir/zanamivir) would protect them against pandemic influenza, whereas 77.5% (n = 836) believed that vaccination would be of benefit.

***We identified two issues that could undermine the best of pandemic plans - the first, a low level of confidence in antivirals as an effective measure; secondly, that non-clinical workers are an overlooked group whose lack of knowledge and awareness could undermine pandemic plans. [emphasis added]***

Other issues included a high level of confidence in dietary measures to protect against influenza, and a belief among ancillary workers that antibiotics would be protective. All health care worker strategies should include non clinical and ancillary staff to ensure adequate business continuity for hospitals."

The full article can be found at: (H. Seale, et. al., "Will they just pack up and leave?" - attitudes and intended behaviour of hospital health care workers during an influenza pandemic", BMC Health Services Research, 2009;9():30). Link not available.

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## COMPUTATIONAL STUDIES OF H5N1 INFLUENZA VIRUS RESISTANCE TO OSELTAMIVIR

Drug Week

June 12, 2009

"Resistance depends on the binding properties of NA-drug complexes. Key residue mutations within the active site of NA glycoproteins diminish binding, thereby resulting in drug resistance. We performed molecular simulations and calculations to characterize the mechanisms of H5N1 influenza virus resistance to oseltamivir and predict potential drug-resistant mutations. We examined two resistant NA mutations, H274Y and N294S, and one non-drug-resistant mutation, E119G. Six-nanosecond unrestrained molecular dynamic simulations with explicit solvent were performed using NA-oseltamivir complexes containing either NA wild-type H5N1 virus or a variant. MM\_PBSA techniques were

then used to rank the binding free energies of these complexes."

"Detailed analyses indicated that conformational change of E276 in the Pocket 1 region of NA is a key source of drug resistance in the H274Y mutant but not in the N294S mutant."

The full article can be found at: (N.X. Wang, et. al., "Computational studies of H5N1 influenza virus resistance to oseltamivir". Protein Science, 2009;18(4):707-715). Link not available.

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## **SWINE FLU H1N1 INFECTIVITY TO INCREASE MARKEDLY AND LETHALITY TO REMAIN LOW ACCORDING TO LATEST REPLIKIN\* PEPTIDE GENOMIC DATA**

Health Risk Factor Week

June 9, 2009

"Amid all the speculation over what course the Swine Flu epidemic will take, Boston-based biotech firm Replikins Ltd. last week analyzed the most recent peptide genomic sequence data available and determined that the infectivity of the H1N1 virus will increase markedly, while its lethality will remain relatively low for the immediate future.

The company's quantitative analysis of the most recent sequence data available on PubMed, a standard scientific repository for published papers, showed an increase of 46% in the Replikin Count\* over the past five months. This points to a marked increase in infectivity in humans. At the same time, while the total number of replikins has gone up significantly, their composition appears to have changed in a way that makes them more closely resemble their counterparts in earlier pandemics.

The firm, which had predicted a year ago the likelihood of the current H1N1 outbreak, used its proprietary FluForecast(TM) software program to make these determinations. "The dual differentiation of these properties may provide advance warning of the future course of H1N1," noted Samuel Bogoch MD PhD, chairman and founder of Replikins Ltd. "Our understanding of the protein chemistry of rapid replication enables us to develop synthetic vaccines specifically tailored to destroy or restrict replication of the targeted virus strains prior to an outbreak."

The full article can be found at: <http://find.galegroup.com/itx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T004&prodId=AONE&docId=A201304994&source=gale&userGroupName=flstuniv&version=1.0&digest=316ff47295fe1b5ccf6923ea3f80d9b4>

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