Mega-Flu Pandemic – *(not quite the)*

U.S.A.

Rumors begin to spread

Flu expert suggests China has CONCEALED hundreds of human bird flu deaths

Is the U.S. ready to fight the mega-flu? That is the question that is on the minds of everybody in Washington today. The White House claims it is on top of the possibility of a pandemic that might kill millions around the world and perhaps even millions of Americans. But the voice of skeptics is being heard more loudly. More on this from...

The News
CDC Increases National Avian Flu Surveillance
State and Local Governments Must Train Additional Staff
"Facilities and Personnel Are Woefully Inadequate" Say Officials

The News
US Government Plans Vaccine Development
"Researchers Are Studying Avian Flu Virus and Vaccination Strategies" Say CDC Officials
Antiviral Drugs Included in Strategic National Stockpiles

Wrong information on bird flu floods internet

Investors warned of STOCK SCAMS that offer 240% profit on bird flu drug

Customs agents confiscate fake antivirals

The risk of a pandemic even occurring is greatly exaggerated.

Betters give bird flu a 65% CHANCE OF HAPPENING IN US BY MARCH 2006

CHICKEN LITTLE: Almost everybody is going to die!

US begins emergency effort to avoid pandemic

The News
US Closes Its Borders to All Flights from Asia
Fear that Avian Flu Will Spread and Overwhelm Public Health Capacity

The News
US and World Begin Developing Vaccine
Scientists Isolate Flu Virus to Proceed with Vaccine Production
"We're Still 3-6 Months Away From Delivering a Vaccine" Says CDC

The News
US Government Enacts Travel Restrictions
Border Patrols Scanning for Illness Among New Arrivals
International Surveillance of Flu Increased, as US Fears Outbreak

OSTRICHES -- There's nothing to worry about !

Confusion and fear over pandemic

The News
Avian Flu Vaccine Only Partially Protects From Pandemic Flu Virus
Laboratory Tests Show Difference in Pandemic Flu Virus; Vaccine Manufacturers Placed on Alert

The News
WHO, US Fail to Stop Avian Flu Outbreaks.
Outbreaks and Cases Reported in Distant Countries, with Trade Ties to Infected Region
Extensive Air Travel Also Blamed for Spread of Flu Virus

The News
Health Care Workers Will Be Protected
Front-line Medical Personnel and Elderly Care Providers Deemed Essential to Survival

The News
Flu Deaths Skyrocket in Military Camp in Illinois
With Too Few Ambulances, Cabs and Trucks Used to Take Sick and Infected to Clinics
Hospitals Suffer from Limited Supply of Beds; Sheets; Masks
Happened in 1918

The News
Avian Flu Kills 15% of Infected Individuals
Mortality Decreases to 2% With Quality Medical Care
Government Preparing to Meet Demand for Hospital Services

Rumor says elderly will not get vaccine

There's really no worry because we hav

Home remedies and pat

The News
25% of US Work force Will Be Affected By Flu
"America Must Prepare for Economic Hardship and a Limited Work force" Says US President

Remember that the Centers for D

Data and Assumptions

Key assumptions of this scenario

Assumption (of this scenario). No one knows if, when, or where a mega-flu pandemic might begin. Therefore, this scenario does not have an exact starting date and the general assumption is that it will start in Asia. This is a worst case scenario. Therefore, we assume that, when the pandemic arrives, the world will ***not*** have sufficient ***antivirals*** to prevent the spread of pandemic flu and will ***not*** have any ***vaccine*** for the first six months and thereafter will have vaccines only in limited amounts.

Assumption
Susceptibility to H5N1 pandemic influenza:
Everybody

Assumption. **Clinical attack rate will be 15 to 35 per cent of the U.S. population (perhaps as many as 50 per cent).**

***Assumption.* Case fatality rate** (number of deaths divided by number of cases) **will be 2 to 15 per cent.**

Incubation period for influenza
1-4 days
Average
2 days

Data
typically in a flu epidemic...
one person *infects* **5 to 25 people**
Thus, it is believed the "R value" of human to human transmission will be 5 to 25

Data. **Researchers believe that the common flu kills between 36,000 and 50,000 annually in the US and 300,000 to 600,000 world wide** Multiple sources.

U.S. Preparedness for a mega-flu pandemic

Data Assumption**: Switching production to grow vaccine in vats instead of eggs would take too much time (2+ years from 2005).** "Scientists had been working on methods of growing virus for the vaccine in large vats of cultured animal cells instead of eggs. That could cut the delay to maybe three months. But progress had been held up by US Food and Drug Administration concerns over the safety of the cell lines. In any case, it would probably take at least two years before the existing factories could be switched over." Butler, Nature 5-26-05 435/26

Data. Vaccine takes six months to be produced in quantity. A vaccine against the pandemic strain produced using current technology would not be available for at least six months after the pandemic starts. And even then, the supply would only be large enough to vaccinate 14% of the global population. Osterholm, Nature 5-26-05 435/26 footnote 1. Osterholm, M. T. N. Engl. J. Med. 352, 1839–1842 (2005).

Data. Vaccine producers will only be able to contribute up to 15-20 million doses per year (to the US stockpile). "HHS Secretary Michael Leavitt is trying to negotiate to get up to 20 million doses," he adds. (Leavitt announced in September that HHS had increased its H5N11 vaccine order by $100 million.) According to [Bruce] Gellin, current vaccine producers could contribute at most 15 million to 20 million doses a year to the U.S. stockpile." Gibbs, "Preparing for a Pandemic", *Scientific American*, November 2005

Data. An order for 20 million conventional vaccine doses may only yield 3.3 million H5N11 vaccinations. "An order for 20 million conventional doses may thus actually yield only enough H5N11 vaccine for about 3.3 million people." Gibbs, "Preparing

Data.
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Other
Pandem

"As one influenza expert has said, "The clock is ticking. We just don't know what time it is."
Barry, J., *The Great Influenza*, 2005

WHO Pandemic Alert Phase 4.
Small cluster(s) with limited human-to human transmission...spread is highly localized,

Month 1

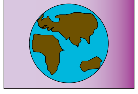
WHO Pandemic Alert Phase 5
Larger cluster(s) but human-to-human spread still localized...substantial

WHO Pandemic Alert Phase 6.
Pandemic: increased and sustained transmission in general population.

Month 2

Month 3

INTERNATIONAL



Avian flu outbreak signals pandemic alert

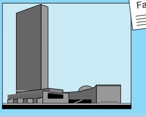
The News
Avian Flu Outbreak in Small Chinese Village
20 People Sent to Hospital with Acute Infections, 5 Confirmed Deaths; Virus Affects All Ages
Severe Respiratory Illness and Pneumonia Cause of Deaths

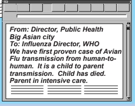
The News
Avian Flu Could Rival Pandemic of 1918-19
UN, International Community Working to Contain Outbreaks Throughout Southeast Asia

The News
Avian Flu Spreading Between People
WHO Finds Mutation Allowing Human-to-Human Transmission
Outbreaks Continue in Rural China; "Surveillance Inadequate" Say WHO

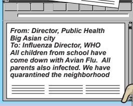
The News
WHO and UN Declare a "Pandemic Alert"
Sporadic Human Infections Have Occurred in Rural Poultry Farms; No Confirmed Deaths

The News
Chinese Authority Seeks WHO Help
Avian Flu Spreads to Provincial Capital, Neighboring Villages
Viral Specimens Sent to CDC for Further Examination and Testing





From: Director, Public Health
Big Asian city
To: Influenza Director, WHO
We have first proven case of Avian Flu transmission from human-to-human. It is a child to parent transmission. Child has died. Parent in intensive care.



From: Director, Public Health
Big Asian city
To: Influenza Director, WHO
All children from school have come down with Avian Flu. All parents also infected. We have quarantined the neighborhood

Human-to-human transmission begins

The News
Bird Flu Threatens Global Trade in Asia
Investors Wary of Effects on Domestic Stocks & Exchange; NASDAQ Drops 100 points

The News
Death Rate from Avian Flu is 30 Percent
Early Reports from Hospitals and Public Health Official Confirm Terrifying Pandemic

The News
WHO Warns States, Doctors, Hospitals That Avian Flu Breaks Out
Between 10 to 150 Million People May Die in Next 3 Ye

The News
All International Travel Banned; Medical Exceptions
Air, Land and Water Transport Closed on Government Orders

The News
Businesses Begin to Prepare for Pandemic
Some Move Vital Staff to Remote Locations
Most Can Only Hope Pandemic Will Not Hit Too Hard

Widespread deaths begin in Asia

Normal business and tourist travel carries Avian Flu to Europe, North America, and Latin America

First "Wave" of the Flu Hits SE Asia

The News
Skin Turns Deep Blue, Black From Infection
Doctors Describe Intense Cyanosis of Flu Patients
"The Entire Body Takes On A Leaden Hue," Says Doctor
Happened in 1918

The News
Blood Pours From Infected Flu Victims
Reports of Blood Projecting From Nose With Violent Force; Doctors Observe Spurt of Several Feet
Happened in 1918

The News
Influenza Demonstrates Extreme Virulence; Leads to Pneumonia
10 to 20 Percent of All Flu Cases Are Serious And May Have Complications
Happened in 1918

The News
'Crackling Sick' Disturb Doctors, Nurses
"Air Leaking From Ruptured Lungs Make Influenza Patients Crackle When They Move," Says Health Care Professional
Happened in 1918

The News
Virus Targets Healthy 20-40 Year Olds
Individuals with Strongest Immune Systems Most Likely to Die, Say Medical Experts
Over-reaction of Immune Response to Flu is Major Cause

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Data and Assumptions

Data. **Flu could be killing more than 1 million people annually, without being recognized as flu.** "It is sometimes said that flu kills 1 million people worldwide each year, but the toll could be considerably higher because annual influenza is the least recognized of all so-called 'captains of death'." Davis, The Monster At

Data. Current global response to normal annual flu epidemics. "Every year, seasonal influenza A kills up to 1.5 million people around the world as the disease migrates between the Northern and Southern Hemispheres1. Current efforts to reduce this global death toll largely involve the delivery of roughly 250 million to 300 million doses of influenza vaccine to the most vulnerable residents in a dozen or so industrial nations. Those fortunate enough to receive vaccines represent less than 5% of the world's current population of 6.5 billion people." Osterholm, Nature 5-26-05 435/26

supported by

The science. The major way flue virus changes is by a human getting two different flu viruses at the same time. The viruses exchange genetic information and are said to "reassemble"

supported by

The science. Flu is transmitted from human to human most rapidly when people are crowded together. The speed of human to human transmission is called the "R" value by epidemiologists. R for smallpox in India was 3.4. R for common Flu is 20. That means one person who has the flue normal transmits it on average to 20 persons.

Data: **China has exponentially increased its quantity of livestock since 1968, and H5N11 is adapting to more and more animals. "**But never before in history has there been such a combination of so many people and animals. In 1968, for example, China had only 5.2 million pigs and 12.3 million poultry; now it has 508 million pigs and 13 *billion* poultry. And H5N11 is adapting itself to more and more animals." Barry, The Great Influenza, 2005, 454

supported by

The science. With current global transportation patterns, any human flu will be on all continents in three weeks.

Data. **Global outbreak could spread internationally, from one person, in one day.** "The CDC would later construct a flow-chart of cases that originated from the Metropole Hotel: 195 in Hong Kong, 71 in Singapore, 58 in Vietnam, 29 in Canada, and 1 each in Ireland and the United States. As WHO Global Outbreak Alert and Response scientists later marveled, "A global outbreak thus seeded from a single person on a single day on a single floor of a Hong Kong hotel." Davis, The Monster At Our Door 2005, 71

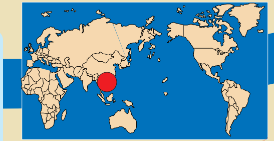
supported by

Assumption. **Businesses will prepare themselves for a loss of human capacity.** "Businesses would voluntarily quarantine a meaningful proportion of their essential staff at remote locations to have a stand-by team in case of emergency." Cooper, BMO-Nesbitt Burns 08-05

Data. Air travel would spread a pandemic more quickly than vaccines could be produced
"A recent Johns Hopkins study shows that, unlike the 1968 pandemic, which took a year to circle the world, air travel would now spread a pandemic much faster than pharmaceutical factories could be geared up to produce vaccine." Davis, The Monster At Our Door 2005, 158-9

supported by

Assumption. **Avian flu targets strongest immune systems.** "Yet if the experts are correct that this could be...a cytokine storm, where those with the strongest immune systems are most likely to die, the bulk of the labor force in the 20-40 year old range would be severely incapacitated." Cooper, BMO-Nesbitt Burns 08-05



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DRAFT v.2 - based on published information
Prepared for the PanDefense 1.0 Conference

Worst Case Scenario V.2

Pandemic in U.S. is now inevitable

The News
US Policy: No Evacuations of Cities and No Quarantine
CDC Says These Measures Are Ineffective Against Spread of Flu Pandemic

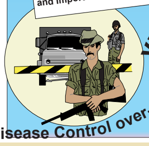
The News
U.S. President and Congress Failed to Protect the Country Early Enough with Antiviral Drugs
Polls Show Huge Numbers of US Citizens Now Realize that Doctors Warned of Pandemic and Need for Vaccines Years Ago

e modern intensive care units in our hospitals

ent medicines for mega-flu flood market

The News
US Closes Its Borders
Military Joins Over-taxed Border Patrol to Stop Land and Air Immigration
Tourism and Flow of Exports and Imports Threatened

The News
CDC Reports Isolated US Avian Flu Outbreaks
Four Major US Cities Place Returning Americans In Quarantine Under Fears of Pandemic Flu Outbreak



Vitamins will stave off the flu

The News
State Governments Intensify Surveillance
National Leadership Requests Vaccine Manufacturers Switch from Seasonal Flu Vaccine to Pandemic Flu Vaccine

isease Control over-reacted to the Swine Flu in 1976.

Due to vaccine expiration, at current
uction rates a stockpile could never reach the
million doses needed to protect the three highest
ty groups. "Vaccines expire after a few years. At
t production rates, a stockpile would never grow to
28 million doses needed to cover the three highest
y groups, let alone the roughly 600 million doses
would be needed to vaccinate everyone in the U.S.
nations face similar limitations." Gibbs, "Preparing for a
nic", *Scientific American*, November 2005

Data: A mortality rate of just over 1 percent in the US, would mean between 500,000 and 1.3 million deaths. "One death in eighty-nine may not sound terrifying, but a new influenza virus makes between 15 and 40 percent of the population ill enough to show symptoms. It would make between 44 and 115 million Americans sick. And, in the United States alone, a mortality rate of just over 1 percent would translate into roughly 500,000 to 1.3 million dead." Barry, The Great Influenza, 2005, 454

U.S. cities hit hard

The News
Outbreak Spreads as Children, Teachers Return to School
Pandemic Flu Found in Every Major City and Spreading Rapidly as Infections Increase

The News
Pandemic Flu Outbreak Increases Hold in US
Local Governments Were Unprepared for Onslaught
CDC Struggling to Contain New Outbreaks Throughout the US

The News
Seattle, LA, Chicago, New York, DC Hit with Avian Flu Outbreaks
Hospitals Overwhelmed with Desperately Sick Patients

The News
San Francisco, Detroit, Houston, Dallas, Miami Report Avian Flu
Hospitals Can't Cope with Torrent of Patients

The News
Flu Fear Spreads Among US Workers
Many Stay Home to Avoid Catching Flu While Others Have to Care for Family Members with Disease

"Waves" of the Flu Usually Last 3 - 4 Months

Data (1918): **The influenza virus had a roughly six week cycle in a community in which it appeared, peaked and dissipated (in civilian areas).** "By early October the first fall outbreaks and the memory of the spring had already suggested that the virus attacked in a cycle; it took roughly six weeks from the appearance of the first cases for the epidemic to peak and then abate in civilian areas, and from three to four weeks in a military camp with its highly concentrated population." Barry, The Great Influenza, 2005, 315

Data (1918): **33,000 died in New York City alone, but the number is considerably higher, since statisticians stopped counting people as victims of the epidemic.** "The death toll ultimately reached thirty-three thousand for New York City alone, and that understated the number considerably since statisticians later arbitrarily stopped counting people as victims of the epidemic even though people were still dying of the disease at epidemic rates." Barry, The Great Influenza,

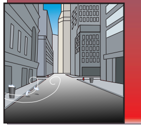
U.S. healthcare system struggles

The News
Sick Railroad Workers, Air Traffic Controllers Stall Transportation
Essential Supplies Unable to Reach Hospitals, Clinics to Fight Spreading Pandemic

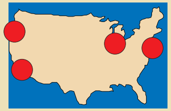
The News
Influenza Infects More Than 50% of Families
Over Half of San Antonio's Entire Population Infected;
Virus Attacks Hundreds of Millions Around the World
Happened in 1918

The News
CDC Reports Infants, Adults and Elderly Most Vulnerable to Flu
"2% of Infected Americans Will Die" Says Health Official

The News
Public Begins to Isolate Itself; Increasing Reports of Paranoia
"Most People Will Not Talk With One Another," Said Local Leader, "They Fear They'll Catch the Flu."
Happened in 1918

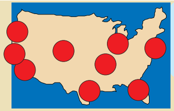


The News
Nursing Homes and Schools Hit Hardest
Young Children and Elderly are Most Vulnerable to Avian Flu Pandemic
Many Non-infected Stay Home from Work to be Care Givers



Data (1918): **U.S. life expectancy went down 13 years as result of 1918 pandemic.** Barry, The Great Influenza, 2005

Data (1918): **1 in every 67 soldiers died of Influenza, in a 10 week period.** "One in every sixty-seven soldiers in the army died of influenza and its complications, nearly all of them in a ten-week period beginning in mid-September." Barry, The Great Influenza, 2005,



U.S. drug supply inadequate

The News
Shortages of Essential Drugs, Thermometers
Flu Rapidly Depleting Hospital Stockpiles of Essential Supplies.
"Hospitals Do Not Have the Resources to Care for this Flood of Patients," Says Doctor
Happened in 1918

The News
Nearly 25% of Patients in Philadelphia Hospital Dying From Influenza
"Normal Treatment Procedure is Failing In Almost Every Situation," Says Doctor
Happened in 1918

The News
Community Wide Flu Infections; Antiviral Drugs Exhausted
CDC Predicts Death Toll Will Sky Rocket as Essential Drugs Are Used Up in Onrush

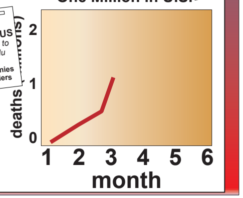
The News
Almost All Schools and Higher Ed Close
Parents Scramble to Get Regular Child care Set Up
Many Stay Home from Work to Take Care of

The News
Health Care Workers Cannot Absorb Number of Pandemic Flu Victims
"We Have No Option But to Turn Them Away" Says Hospital Administrator

The News
Intensive Care Units Unable to Meet Soaring Demand For Advanced Medical Treatment
Pandemic Flu Causes Severe Pneumonia and Respiratory Failure

The News
Spot Power Outages Reported Across the US
Utility Companies Struggle to Maintain Power Grid, as Flu Shrinks Work force
Water and Sewage Companies Strategize with Local Leaders

Deaths Rise to One Million in U.S.



The News
**Food, Fuel and M
Supplies Slow to
Flu Ravaged Are**
***Truck Drivers and Ai
Pilots Become Infect***
*US President Orders
Solve Transportation*

supported by

Assumption. People will avoid densely populated areas. "Large cities with dense populations in residential, shopping and office space would be most harshly impacted. People would shun high-rise office buildings and large condos, not because of terrorism; but instead because of nature's microbial attack." Cooper, BMO-Nesbitt Burns 08-05

Data. The Trust for America's Health estimates that 25% of the U.S. population will become sick, with 4.7 million seeking hospital care; Currently, there are fewer than one million staffed hospital beds. "In the U.S., where states have primary responsibility for their resident's health, the Trust for America's Health (TFAH) estimates that a "severe" pandemic virus sickening 25% of the population could translate into 4.7 million Americans needing hospitalization. The TFAH notes that the country currently has fewer than one million staffed hospital beds." Gibbs, "Preparing for a Pandemic", *Scientific American*, November 2005

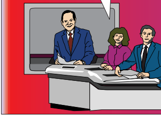
Month 4

Countries struggle to slow disease

The News
Stockpiling of Essentials Cause Shortages and Sharp Price Increases
Flu-Related Buying Blamed
ugs, Water, Food, Energy, ealth and Safety Products Scarce

The News
Hong Kong, Tokyo, Singapore, Jakarta Are Latest Cities Hit by Flu
"There is no stopping it" Declares Public Health Chief

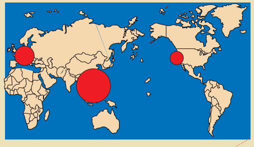
*ders meeting in Hawaii today
ed that the so-called mega-flu
come a pandemic. The world
prepare itself for difficult
There is now no widely
ble vaccine or enough
rals to prevent it from
ling...more now from...*



The News
Thirteen Chinese Cities Shut Down with Flu
Weak Public Health System Can't Cope With Onslaught of Global Pandemic Flue

First "Wave" of the Flu Hits Europe

Data. India's 1994 plague outbreak caused large-scale panic in the medical community and led to the breakdown of the public health infrastructure. "As patients began to present plague symptoms, the doctors were the first to flee the plague. "They were totally unprepared for what followed. The private doctors panicked. Eighty percent of them fled the city, closing their clinics and hospitals and abandoning their patients. The fear in those physicians' eyes did not go unnoticed by the populace, and rumors of a great impending disaster spread swiftly among the largely illiterate masses." Davis, The Monster At Our Door 2005, 161



Month 5

Initial wave of pandemic overwhelms Asia

The News
Japan Struggles to Contain Pandemic
Attempt to Keep Avian Flu From Entering the Country Does Not Succeed

The News
Global Work force Incapacitated with Flu
Chinese Work force Devastated by Flu Virus; International Trade Comes to

The News
Many Plants Shut as Closed Borders Interfere with Just-in-Time Inventory Management System
Shortages of Everything Reported

supported by

Assumption. **Labor markets will suffer from severe lack of work force.** "Businesses would suffer the consequences of reduced labor at a time when the labor markets in at least the U.S. and Canada are fairly tight." Cooper, BMO-Nesbitt Burns 08-05

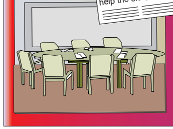
Month 6

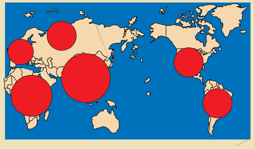
Rapid spread across the globe

The News
London, Paris, Berlin, Madrid, Rome Stagger at Rapidity of Spread of Pandemic Avian Flu
Early Preparedness Helps EU

The News
Empty Offices and Empty Streets Seen All Over the Globe as Many Large Service Companies "Go Virtual"

The News
Central African Countries Devastated
"We have nothing to stop the flu. We have no medicines to help the sick," Says UN Chief





How Many Might Die?

Various estimates based on different assumptions

Assumption	Deaths worldwide
1957 flu pandemic mortality	2 million
1968 flu pandemic mortality mortality	0.7 million
1968 extrapolated (by Stohr, WHO influenza chief)	2 to 7.4 million
1918 mortality	40 to 100 million
Omi's estimate	7 to 100 million
1918 extrapolated	325 million (maximum)
H5N1 mortality extrapolated	1 billion

Modified from table in Davis, M. *The Monster At Our Door* 2005, 125

Month 7

Africa is devastated by pandemic

The News
Estimated Fifty Million Africans Dead From Pandemic Flu
"Impossible to know exactly," Says Top WHO Doctor

The News
Meat Industry Collapses as People Shift to Vegetarian Diet
Consumers Stop Buying Pigs and Chickens Because of Flu
Even Beef Sales Down as Rumors Fly

The News
Asian Restaurants Close Doors All Over the Globe
Fear of Catching Flu Also Threatens Whole Industry

Data. **Africa is the weakest link in the global influenza surveillance network.** "The region is the weakest link in the global influenza surveillance network coordinated by the WHO: in recent years Cote d'Ivoire, Zambia, Zimbabwe have closed down their national flu surveillance systems after pleading debt and bankruptcy; currently only South Africa and Senegal actively track flu cases and have the laboratory resources to isolate and characterize subtypes." Davis, The Monster At Our Door 2005, 24

supported by

Assumption. **People will shift to a more vegetarian diet**. "Food chains and supplies would be disrupted as people in panic shift from animal foods to a more vegetarian diet (think of what BSE did to beef consumption). Not only would poultry and eggs be shunned, but so would pigs and other animals that could provide the conduit for disease transmission to humans. Thailand and China are major producers of exported chickens." Cooper, BMO-Nesbitt Burns 08-05

Deaths overwhelm healthcare system

The News
200 Bodies Stacked In Philadelphia Morgue
Facility With Maximum Capacity of 36 Bodies, Overwhelmed By Stench
Thousands More Lay Dead and Dying Throughout the City
Happened in 1918

The News
"Every Patient Dead" Declares Horrified Doctor in NYC
Overnight Every Single Critical Condition Patient Died at NYC's Presbyterian Hospital
Happened in 1918

The News
Lines Form for Scarce Food, Supplies, Gasoline
State Troopers and National Guard Patrol Grocery Stores and Pharmacies After Isolated Reports of Looting

Medical
Reach
eas
rplane
ted with Flu
Military to
Issues

The News
Not Enough Ventilators
Government and Hospitals Failed to Prepare for Pandemic by Buying Ventilators that Experts

The News
Transportation, Police, Fire Services Suffer Personnel Shortages
Public Unrest and Fear Rises as Security in Communities Diminishes

The News
Food Disappearing From Grocery Stores
Public Unrest Occurring in Areas Hit by Shortages; Local Authorities Demand State and National Assistance

The News
Hospitals Overwhelmed By Number of Patients
Makeshift Hospitals and Clinics Established in Schools and Armories Nationwide
US President Calls On All Medically Trained Personnel

The News
Philadelphia Frozen With Fear; Erie Silence Settles Over City
"The Highways and Roads Are Empty For Miles Around the City," Says State Tro
Happened in 1918

Social chaos in parts of U.S. as flu devastates economy

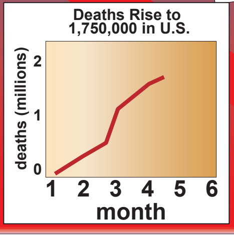
The News
Mayor's Call For Help Ignored By Citizens
Largely Infected Population No Longer Interested In Public Health Warnings
Volunteer Numbers Drop to New Low
Happened in 1918

The News
1 Year in Prison and $500 Fine for Coughing and Sneezing in NYC
Police Department Enforcing New Public Health Law
Public Scared to Leave Homes
Happened in 1918

The News
Pandemic Flu Spreads to Pigs and Farmers
Pig Herds Decimated to Stop Outbreak from Entering Food Supply
Poultry, Dairy and Beef Also Face Flu Contamination Risk

The News
Riots at Vaccine Clinics as Supplies Run Out
Health Care Workers Attacked As People Are Turned Away From Clinics
Doctors, Nurses Avoiding Work For Fear of Violence

PHARMACY
Rx



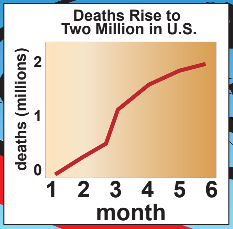
Flu-related black market hits big cities

The News
2 Million Deaths in US; 15 Million Infected
Flu Virus Reaching Peak of Infection, Reports CDC
"The Worst Has Passed" Says US President

The News
Shortage of Coffins Increases Cost of Burial
Funeral Homes Hire Guards to Protect Coffin Supplies
"We Had to Patrol Our Warehouse, Because People Would Be Stealing Coffins," Says Local Funeral Home
Happened in 1918

The News
Mortuaries, Funeral Homes Overwhelmed
Dead Bodies Stacked In Front of Funeral Homes, Hospitals, Clinics
Widespread Reports of Bodies Being Burned in Open Fields Across the US

The News
Public Mistrust of Government Grows
Anxiety From Lack of Security Fuels Unrest
Diminishing Compliance with Public Health Advisories



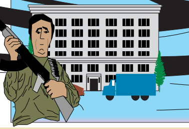
2 million deaths in U.S – Country struggles to recover

The News
Black Market Emerges In Medical Vacuum
Counterfeit Vaccines and Drugs Circulate as Public Desperation Grows

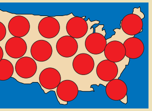
The News
Morale Drops Across America As Influenza Deaths Decrease
"Reports of Widespread Depression Abound in Worst Hit Areas" Says Health Official
Happened in 1918

The News
Economy Hits Bottom
Many Companies and Individuals Face Bankruptcy
GDP Lower by 3 Per Cent Due to Mega-Flu Pandemic -- Could be Worse Before It Gets Better

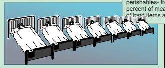
The News
Vaccine Transports Hijacked; Medical Supplies Stolen
Increased Reports of Looting, Riots and Widespread Violence
"We Don't Have the Manpower to Stop the Crime" Says President



The News
No Vaccines or Antiviral Drugs Available to Public
Low Government Supplies Exhausted In First Wave
Vaccine Production Continues



Data. Current hospital capacity will be unable to meet the needs of even a mild flu epidemic. "Let us hope this moment of truth never arrives. The HMO revolution has raised profit margins by shutting down hospitals and reducing bed space. As a result, many large cities lack even the capacity to deal with spikes in ordinary diseases." Davis, Playing Chicken With Avian Flu, *San Francisco Chronicle*. October 16, 2005



Data: **Since 1957, more meals are eaten out of the home and more perishable food is eaten. "**Social behavior has altered, too. In 1957 only 10 percent of meals were eaten outside the home, and only 20 percent of food items sold were perishables- fresh vegetables instead of canned. Today 38 percent of meals are eaten outside the home, and 48 percent of food items are perishable." Barry, The Great Influenza, 2005, 453

supported by

Assumption. Shortages in medical supplies will be major problem. "Health care services, vaccines and antibiotics, masks and other protective materials would be in short supply regardless of price." Cooper, BMO-Nesbitt Burns 08-05

Data: **Due to manufacturing process of coffins, if anything stronger than a mild pandemic strikes, undertakers will not have enough coffins. "**In 1968 coffins were used on average five months after manufacture; now they are used three and a half weeks after manufacture, making it almost certain that anything beyond the most mild pandemic will leave undertakers without coffins, recreating at least one of 1918's horrors." Barry, The Great Influenza, 2005, 454

Assumption. For most sectors of the economy,CBO assumed that, on average, 30 percent of the workers in each sector would become ill and of those workers, 2.5 percent would die. Further, CBO assumed that those who survived would miss three weeks of work, either because they were sick, because they feared the risk of infection at work, or because they needed to care for family or friends ....Under the assumptions detailed above, **GDP would be more than 3 percent lower in the year in which the pandemic occurred**, CBO estimates, than it would have been had the pandemic not taken place. CBO 12-8-05 p11

Assumption. In addition to workers' absences, many businesses (such as restaurants and movie theaters) would probably suffer a falloff in demand because people would be afraid to patronize them or because the authorities would close them....CBO assumed that a pandemic's effects would be especially severe among industries whose products required that customers congregate; examples include the entertainment, arts, recreation, lodging, and restaurant industries. Other industries, including retail trade, were assumed to suffer a smaller decline in demand, and one industry, health care, was assumed to experience an increase in demand because of the surge in demand for medical care. The estimated **demand-side impacts** sum to about **2 percent of GDP**; combining them with the **supply-side impacts** implies about a **5 percent reduction in GDP** in the year of the pandemic. CBO 12-8-05 p 12

Assumption. In 2004, the labor force totaled 147.4 million people. Under the assumption of an attack rate of 30 percent and a case fatality rate of 2.5 percent-the same assumptions applied to the population as a whole- **a severe pandemic would cause the deaths of more than 1 million labor force participants, or about 0.75 percent of the labor force**. Since growth in the labor force averaged 1.6 percent during the 1948-2005 period, **losing 0.75 percent of the labor force would be equivalent to a pause of one-half year in the growth of the work force**. CBO 12-8-05 p 15

Assumption. In the long term, however, the economy's response to natural disasters demonstrates that people can adapt to extreme hardship and businesses can find ways to work around obstructions. As a result, e**conomic activity would recover, and the economy would eventually return to its previous trend growth rate**. CBO 12-8-05 p10

Month 8

World economy begins to falter

The News
Avian Flu Gives Gold, US Dollar Boost
Domestic and International Investors Seek Security
However, Massive Selling of Jewelry Threatens Gold Price

The News
Reports of Bribery Discovered in Hospitals
"Health Workers Must Refuse Any Bribe to Apply Preferential Treatment," Said Hospital Official
Visiting Families Accelerating Spread of Flu from Hospitals
Happened in 1918

The News
Nurses Kidnapped; Held Against Will in Homes of Diseased
Reports of Missing Nurses Increase, As Patients Force Health Care Workers to Stay
Happened in 1918

The News
Banks and Credit Companies Falter as Flu Deaths Cause Many Bankruptcies

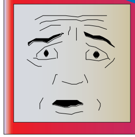
The News
One Hundred Million Asians Dead From Flu
WHO Issues Preliminary Report on Region Hit First from Global Pandemic

Month 9

Mega-flu brings world economy to near-halt

The News
Global Commodity Prices Plummet
Slowdown in Asian Markets Sends Shockwave Through International Economy
Chinese Economy Was Huge Buyer of Cement, Steel, Coal

The News
Unemployment, Inflation Sky-Rockets
All Non-Essential Economic Activity Slows to Halt; Large-Scale Decline in Public Spending



The News
Housing Bubble Bursts
Supply of Houses from Those Who Died During Pandemic Drives Down Prices All Over Country
Rental Supply is Dramatically Up

The News
Interest Rates Plummet as Depression Nears
Deflationary Forces Take Over Economy
Credit Activity at New Low

Month 10

Global economic depression begins...

The News
Severe Psychological Effects of Flu Reported
Early Reports of Post Traumatic Stress Disorder Putting New Strain on Health Care System

The News
Widespread Depression and Lack of Confidence
Workers Report for Work Tired, Sleep-Deprived, Irritable Conflict In Workplace Increases

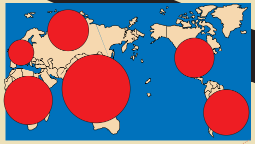
Month 11

Worldwide two hundred million die

The News
Children Traumatized by Grief for Loss of Parents and Siblings
Schools Report Widespread Evidence of Depression and Learning Problems

The News
Financial Panic as Banks Foreclose
US and European Banks Suffer Large-scale Monetary Crunch
Credit Restrictions Put in Place

The News
Personal Liberties Eroded in Age of Flu
Borders Close; Movement Curtailed; Minorities Blamed and Quarantined



supported by

Assumption. **Banks will lose money as loans, mortgages and credit defaults.** "Households would be unable to make their mortgage and credit card payments. Businesses, as well, would default on their debt. Loan losses at banks could rise sharply, at least temporarily, as financial institutions scramble to provide liquidity, alleviate or reduce credit burdens, and keep their trading and lending businesses going with severe labor

supported by

Assumption. **Due to just-in-time inventory management practices, shortages will emerge in all sectors of traded goods and services.** "In a world of just-in-time inventory management for material inputs, finished goods and labor, disruption at the ports, airports, borders and rail lines would quickly lead to empty shelves." Cooper, BMO-Nesbitt Burns 08-05

supported by

Assumption. **Every business in the world will be affected .** "Every sector and every business in every country would be affected." Cooper, BMO-Nesbitt Burns 08-05

supported by

Assumption. **Stock piling will tax limited resources and inflate prices.** "Stock piling of basic food, drug, water, energy and safety supplies would initially lead to shortages and skyrocketing prices (reminiscent of the run on duct tape and gas masks in New York City in the aftermath of 9/11)." Cooper, BMO-Nesbitt

supported by

Assumption. **The housing bubble will burst as debt or death increases supply sharply.** "Credit risk premia would rise sharply, taking the spread between corporate and government bonds up meaningfully. Many who are now over-extended with debt would lose their homes and their businesses. The surging supply of houses and rental properties (as tenants and homeowners die or can no longer afford them) would burst the housing bubble." Cooper, BMO-Nesbitt Burns 08-05

supported by

Assumption. **Financial markets will look for stability in gold, and US currency.** "Flight to safety in financial markets would be a knee-jerk reaction. Initially gold, the U.S. dollar and U.S. Treasuries would benefit. Gold prices would rise and remain high for sometime, despite potential jewelry liquidation." Cooper, BMO-Nesbitt Burns 08-05

supported by

Assumption. **Interest rates would fall and economic activity will slow.** "Interest rates, however, would ultimately fall sharply, as in the Depression, as deflationary forces take hold, economic activity would slow and credit demand would plummet." Cooper, BMO-Nesbitt Burns 08-05

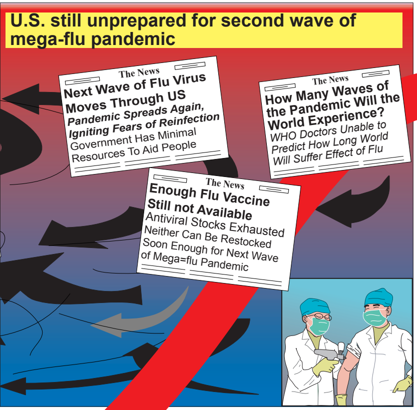
supported by

Assumption. **Post Traumatic Stress Disorder will cause long-lasting psychological and social problems for entire populations of people.** "The psychological effects of the pandemic might even be longer lasting, though more difficult to quantify. Post Traumatic Stress Disorder (PTSD) would develop gradually after the first emergencies and could last for an extended period, even a generation. We have seen the first few years of this in the U.S. since 9/11/01 and we are only beginning to see it in the U.K. since 7/7/05. The Israeli population and no doubt neighboring Palestinians have suffered from PTSD for years. People lose confidence, become depressed, tired, irritable, sleep-deprived, more cautious and paranoid and the finger-pointing begins." Cooper, BMO-Nesbitt Burns 08-05

supported by

Assumption. **Panic will lead to paranoid and irrational behavior.** "Panic-driven irrational behavior would follow. People would be constantly washing hands with antibacterial agents; would discriminate against Asians and Asian restaurants; be afraid to leave their homes; and obsess on the real-time Internet and media statistics; regarding the latest numbers of cases and deaths. Think of the Florida hurricane coverage for a far more catastrophic event over a much wider land mass." Cooper, BMO-Nesbitt

U.S. still unprepared for second wave of mega-flu pandemic



The News

Next Wave of Flu Virus Moves Through US

Pandemic Spreads Again, Igniting Fears of Reinfection

Government Has Minimal Resources To Aid People

The News

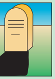
How Many Waves of the Pandemic Will the World Experience?

WHO Doctors Unable to Predict How Long World Will Suffer Effect of Flu

The News

Enough Flu Vaccine Still not Available

Antiviral Stocks Exhausted Neither Can Be Restocked Soon Enough for Next Wave of Mega=flu Pandemic

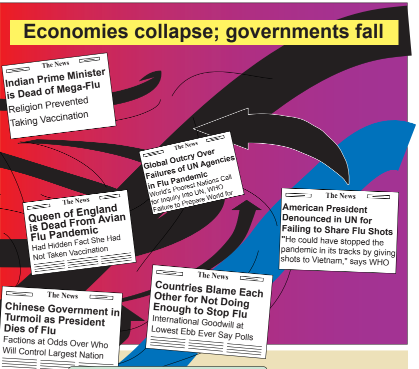


***Data:* A mortality rate of just over 1 percent in the US, would mean between 500,000 and 1.3 million deaths.** "One death in eighty-nine may not sound terrifying, but a new influenza virus makes between 15 and 40 percent of the population ill enough to show symptoms. It would make between 44 and 115 million Americans sick. And, in the United States alone, a mortality rate of just over 1 percent would translate into roughly 500,000 to 1.3 million dead." Barry, The Great Influenza, 2005, 454

***Data:* A death toll as serious as that of 1918, in today's numbers, would equal 1,750,000 deaths in the U.S.** "Investigators today believe that in the United States the 1918-19 epidemic caused an excess death toll of about 675,000 people. The nation then had a population of between 105 million and 110 million, while it was approaching 300 million in 2006. So a comparable figure today would be approximately 1,750,000 deaths." Barry, The Great Influenza, 2005, 238

Month 12

Economies collapse; governments fall



The News

Indian Prime Minister is Dead of Mega-Flu

Religion Prevented Taking Vaccination

The News

Global Outcry Over Failures of UN Agencies in Flu Pandemic

World's Poorest Nations Call for Inquiry Into UN, WHO for Failure to Prepare World for

The News

Queen of England is Dead From Avian Flu Pandemic

Had Hidden Fact She Had Not Taken Vaccination

The News

American President Denounced in UN for Failing to Share Flu Shots

"He could have stopped the pandemic in its tracks by giving shots to Vietnam," says WHO

The News

Chinese Government in Turmoil as President Dies of Flu

Factions at Odds Over Who Will Control Largest Nation

The News

Countries Blame Each Other for Not Doing Enough to Stop Flu

International Goodwill at Lowest Ebb Ever Say Polls

Data. Historically, flu pandemics circle the globe 2 or 3 times, with outbreaks in individual communities potentially lasting several months and often peaking in 5 weeks. "Based on patterns of past pandemics experts expect that once a new strain breaks loose, it will circle the globe in two or three waves, each potentially lasting several months but peaking in individual communities about five weeks after its arrival. The waves could be separated by as long as a season: if the first hit in springtime, the second might not begin until early fall." Gibbs, "Preparing for a Pandemic", *Scientific American*, November 2005

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Months 13-36 Uncertainty about a second wave