

ATLANTIC Council --- Pandem

Three conceivable possible threats:

- Growing number and sophistication of laboratories and imaginative scientists with whole new tool kits for manipulation of micro organisms.

2. Resurgence of **smallpox** in a world now with little immunity, only one manufacturing facility and very little vaccine. 30% death rate Spread of disease is slow but panic is rapid. Resulting in border closures, hospitalization of thousands with rash, etc. Most likely a state actor needed

3. A virus which spreads rapidly and has a high case fatality rate.

As in a pandemic first, 1580 and outbreaks every 2 to 3 years

last century – three new pandemics – **1918, 1957, 1968**, 2007(?Russia)

Virus—continually mutating, changing

Reservoir in pigs, birds – occasional strain that spreads to humans

HX—400 years + with outbreaks every 2 to 3 years (5,000 to 15,000 deaths)

Pandemic occurs when strain crosses to humans – large % susceptible
Many sick and get immunity – keeps recurring

1918-19 >20 million deaths world wide; 550,000 in the U.S

Community – 30 to 50% infected; death rate around 2%

Could have been lower with today's antibiotics (?50%)

Quarantine, school or community closure – no help

Three areas escaped (Samoa, S.F.Bay Isl., mining village)

H5N1 bird flu

First seen in Hong Kong **1997** 6 of 18 --Chickens slaughtered

2004 appeared in Thailand and Vietnam

First deaths reported – getting more info other cases – few

Disastrous for chicken flocks. Efforts to contain its spread by slaughter or vaccination (quality of vaccine ?)

Cases (about 550) in 6 countries

2011 Concerned about H5N1 but showed no sign of significant human spread

Studies by Fouchier and Kawaoka – experiment with transmission in ferret

For influenza, ferrets a conventional lab animal – human similarity

Studies done under excellent biosecurity conditions

Would these new mutant strains of H5N1 transmit in humans in same way?

Only one way to find out.

Escape from lab and it's gone—**no way to stop a beginning outbreak**

Should further experiments be conducted?

Strain is not needed to develop a vaccine or diagnostics

If as lethal as it has been and spreads as rapidly as influenza does.

And, if not this flu strain, other mutant strains of flu virus

Solution: vaccine production enough for all countries, new broad-based flu vaccine protecting against many strains. Antivirals possible but doubtful.