

## ***A General Approach to H1N1 and Pandemic Situations***

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Some persons in the general public and within business and political communities have been asking, "Is there still swine flu around?" and "Are there really pandemic health risks from H1N1 or other infectious diseases?" There appears to be concern that the pandemic alerts from WHO, CDC and others is much ado about nothing.

I must answer both of these questions in the affirmative, not with a sense of alarmism but as a wake-up call about how we need to take actions that implement new programs and are not merely reformulations and agreements that some action should be taken.

Let's consider H1N1, so-called Swine Flu (which as of early July, 2009, has been detected in migrations into the actual swine population, with some potential for mutations). While H1N1 (2009 variant) is presently, in all known detected forms, a relatively benign virus (structurally lacking the means to produce an amino acid that in turn would make it more virulent and lethal) it is in pandemic status because of its fast (easy) transmission.

In other words, it is already well-distributed worldwide. Few places have zero incidence reports.

Now people can and do die from H1N1, but so far, this has been generally due to their poor health beforehand, poor response and treatment, poor care, and some unusual complications. This situation may also be changing, however, as recent reports show how H1N1 can more adversely affect the respiratory system and cause more intense infectious and harm to even very healthy and strong individuals (as has been witnessed among some of the first people affected in Mexico and the USA during April and May, 2009).

In New Scientist (3.July.2009) (<http://www.newscientist.com/article/dn17414-revealed-how-pandemic-swine-flu-kills.html?DCMP=OTC-rss&nsref=online-news>) we read:

Two separate teams -- one led by Ron Fouchier at Erasmus University in Rotterdam, the Netherlands, and the other by Terrence Tumpey at the Centers for Disease Control (CDC) in Atlanta, -- both report that the pandemic virus binds deeper than ordinary flu in the respiratory tract of ferrets, the animal most like humans when it comes to flu.

A virus of the same H1N1 family as the pandemic flu has been circulating as ordinary seasonal flu since 1977. Both groups found that the seasonal virus binds almost exclusively to cells in the ferrets' noses. But, the pandemic H1N1 binds deeper, in the lung's trachea, bronchi and bronchioles. The pandemic virus also replicated more, and caused more damage, though none of the ferrets were severely ill.

This is almost “par for the course” – mutations occur, an unfortunate but simple matter of fact in the microbial world and in the reality and complication of our biological makeup.

However, any number of mutations can change H1N1 into being more lethal and for larger subsets of the human population. For instance, quite likely, and of grave concern to those of us in the field - there is H5N1 ("Bird Flu"). This virus is not a fast transmitter, & thus, to date, not worldwide, but it is clearly present and dormant only in pockets around the world, and of course, more transmissible among avian species. The fact that H1N1 is virtually everywhere means that where there is H5N1, there is also H1N1.

While H5N1 is today not good at transmitting from human to human, period, much less fast between humans, H1N1 is exactly so. Mingle them in proximity within one infected human organism and you are likely to see mutations whereby some new genetic material, some new viral strain, has the lethality of H5N1 & the transmissibility (especially human-to-human) of H1N1.

Now in this case you will have a very dangerous pandemic on your hands. One that will tax all health systems & therapeutics.

So, a hybrid H1N1--H5N1 is going to be similar to the 1918 Pandemic and arguably, with 6.2B people on the planet, and much closer and in more communication and exchange, and with the world economy in much greater dependence upon precisely lots of personal communication and travel and exchange, you are going to see a combination of grave sickness and many deaths and a dramatic blow to the world economy, which is likely to bring about more social unrest, regional and local and even broader-scale conflict, and general chaos. It's not pleasant to paint such a bleak picture but the maths, the biology and physics bear it out, simple, unavoidable, conclusions about the Potential.

All the same this Potential is exactly just that – it does Not mean that things must be so. Such a scenario is (potentially, of course and only) avoidable. How so?

One method for the avoidance and deterrence and minimization of the worst potential is essentially what a very large collection of experts have been seeking and upon which they heartily agree, from WHO to CDC to many in academic research and private and family medical practice.

- Hygiene, common sense, health maintenance, and then, sensible public health and epidemiology.
- Rapid, early detection, transmission of data, results, and esp about new, emerging gene sequences, Mutations.

When we in medicine can act socially and medically as effectively as the Virus, metaphorically speaking, then We have a fighting chance. And some of us, spanning from CDC to Vanderbilt to CADS to many other top research centers and experts, believe and are told by others that we have one of the best such tools and weapons, namely CUBIT, with rapid, mobile, intelligent PCR-based diagnostics, and demographics data and knowledge acquisition, plus upcoming, advanced mutation tracking and mutation vector forecasting. A specific nation-wide program to implement CUBIT testing facilities in several cities and to provide mobility as well is known as CRAIDO – Community Rapid Diagnostic Response to Infectious Disease Outbreaks.

CRAIDO is for all 50 states and as a project it will cost very little in comparison to the

monstrously vast sums of money spent on “paper studies” and “planning.” We are beyond the simulation stage as well because we are in a pandemic and facing additional pandemics that can grow out of a bad situation not properly addressed.

CRAIDO will produce real mobile diagnostic stations for schools, transit hubs, bus stations, airports, food processing plants, large factories, and big hospitals. This is Real Public Health Sense. CRAIDO will also produce a lot of jobs, including jobs for non-scientific, non-laboratory skilled labor such as mechanics and electricians, because of what CRAIDO will need for some of its mobile units. CRAIDO is not a research project, not a stand-off demo but a real configuration of immunoassay-based testing, PCR instrumentation and bioinformatics. It enables taking the lab to the incidence site, getting samples, performing the assays and running the analyses within a couple of hours as opposed to a few days, and getting the results anywhere and everywhere they need to be, in cogent web-enabled, GIS-enabled formats. This type of timely rapid response is what will make the difference for one community and state after another in how they will respond to full-blown pandemic conditions with uncertain immunological outcomes for vast numbers of the population.

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