



COMMUNITY MITIGATION

ANNOUNCER: This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

MODERATOR: Throughout history, one of the most common and effective methods for disease containment was quarantine, a topic with which our final panelist, Dr. Francisco Averhoff from the National Center for Preparedness, Detection, and Control of Infectious Diseases, Division of Global Migration and Quarantine here at CDC, is quite familiar: Francisco.

AVERHOFF: Thank you, Dr. Rutz. As mentioned by our first panelist, Dr. Smith, non-pharmaceutical interventions and community mitigation are important elements to consider during pandemic influenza preparedness.

To begin, I'd like to review some quick definitions that are used when talking about non-pharmaceutical interventions and community mitigation.

Isolation refers to the separation of ill persons with contagious diseases – this is often in a hospital setting but could be at home.

Quarantine is the restriction of persons who are not ill but presumed exposed, usually this is conducted in the home or a designated facility.

Social distancing refers to measures to decrease the frequency of contact among people in order to decrease the risk of spread from communicable diseases. This could include measures such as school dismissal and staying at home when sick.

Infection control refers to personal hygienic measures to decrease spread of infectious pathogens, ...hand-washing is an example.

For many of our planning activities, we use the following background and assumptions. For a pandemic to occur, the following would be required:

- *emergence of a novel virus;
- *a fully susceptible population; and
- *efficient human to human spread.

A pandemic can be defined as an epidemic that would occur over a large geographic area and affect a large proportion of the population.

It's believed that a 1918-like pandemic would result in 2 million deaths in the United States if it occurred with our current population.

An important consideration is that vaccine for the pandemic strain would likely be delayed following the emergence of a pandemic, and antiviral drugs may be of insufficient quantities, ineffective, and/or difficult to distribute in a timely manner.

The CDC's Division of Global Migration and Quarantine currently has 20 Quarantine stations.

We are responsible for over 300 ports of entry into the US.

The Quarantine Stations have an important role in pandemic influenza preparedness.

Ports of entry would implement activities for control of importation of influenza based on the trigger (of sustained human to human transmission overseas of a novel influenza strain).

Some of the measures under consideration include:

- *closing ports of entry,
- *funneling of flights,
- *isolation and quarantine of arriving passengers at Ports of Entry, and
- *exit screening.

Many of these are based on lessons learned from SARS and what we believe may be effective.

To identify potential cases, we would use certain screening modalities to delay entry into the U.S. of pandemic virus

At best, we can expect a delay of a few weeks for the introduction of pandemic influenza into the U.S.

Given that we will not be able to keep pandemic influenza from being introduced into U.S., and that there may be insufficient antiviral stock and delayed vaccine production, it is necessary to have a strategy to mitigate the impact of pandemic influenza following its introduction.

The interim, pre-pandemic planning guidance: Community Strategy for Pandemic Influenza Mitigation in the United States, was released February 1, 2007 to address this challenge.

This was a collaborative effort of many US government departments and agencies with partners from state and local public health, academia, and the Institute of Medicine.

A public engagement process was also conducted to hear the concerns of the public, faith based, and business communities.

One of the first issues to arise when considering mitigation strategies is the need to describe the severity of pandemics; pandemics vary in their severity, much as hurricanes do.

The recommended public health interventions, or mitigation strategies, need to be flexible based on the severity of the pandemic.

This is the recommended Pandemic Severity Index, or PSI, adjusted for the US population.

This illustrates a pandemic with an attack rate (clinical illness rate) of 30%. If the illness rate is 30%, and the case fatality ratio, the percent of those who die, is equal or greater than 2%, this would result in greater than 1.8 million deaths in the U.S. based on the current pop of 300 million, a category 5 pandemic.

This is an estimate of the illness rate and case fatality ratio that we believe occurred during the 1918 pandemic.

It's important to remember that the next pandemic may be even more severe than this.

Any pandemic at least as severe as presented in this example would be considered a category 5.

Lesser severity pandemics would have correspondingly lower death rates based on the case fatality rate.

The goals of community based interventions are demonstrated on this slide.

The pink line is what an unmitigated pandemic may look like.

The first goal of community based interventions is to delay the rise of cases; this would allow time for the health care system to prepare and to begin production of a vaccine.

The second goal is the “spreading out” of cases, this would allow the HC system to better handle those cases that do occur.

The third goal is to actually decrease the total number of cases.

As mentioned, in order to arrive at community mitigation strategy guidance, experts from CDC worked with many partners.

The basis for the recommended interventions was derived from a variety of sources including evidence from the 1918 pandemic, epidemiologic studies, modeling, and common sense.

The community mitigation strategy consists of isolation and treatment of ill persons, voluntary home quarantine of household contacts, dismissal of students from school and child care and social distancing, and workplace/community social distancing.

Antiviral medication will also play a role in community mitigation.

When used together, these interventions, called targeted layered containment, are likely to be more effective than using one intervention alone.

Not all interventions should be used under all circumstances – and again, the interventions are related to the Pandemic Severity Index.

It's also important to remember that all interventions should be used in combination with personal infection control measures – hand hygiene, cough etiquette, and the use of personal protective equipment such as face masks.

A critical piece of voluntary quarantine and social distancing is individual and family preparedness.

The following PSA was developed to create awareness and promote preparedness on this issue.

ROLL PSA

This PSA, and other additional information on pandemic preparedness can be found at the pandemic flu website.

When using interventions, it's important to remember that timing of implementation can impact effectiveness.

For example, school dismissal at the peak of transmission is not likely to be effective, so it would need to be done early.

Again, this is based on historical evidence from the 1918 pandemic, models, and common sense.

There are three levels of initiation for pandemic interventions:

The first level is Alert:

Notification of critical systems and personnel of their impending activation

Next is Standby:

Initiate decision-making processes for imminent activation including mobilization of resources and personnel

The last level is Activate:

or implementation of the pandemic mitigation measures.

So let's look at an example: If we have a WHO phase 6 situation (sustained person to person transmission and widespread outbreaks) and we have the first human case in the US, and it's a very severe pandemic, category 4 or 5, we would be on Standby throughout the US, but in the region where the case occurred, we may be more aggressive and be on Activate.

Non-pharmaceutical interventions may be effective in mitigating influenza pandemic at ports of entry and in the community.

Planning at state and local levels should incorporate and plan for use of these interventions to help curve the spread of infection.

These interventions are not an exercise for public health to implement alone, but specifically require working with colleagues in the education, business, and faith based sectors as well as with politicians and community leaders.

MODERATOR: Dr. Averhoff, thank you very much. Now you talk a little bit about the closure, the possible closure, of ports and airline restrictions in the event of pandemic. What about private transportations on the common road: Would there be driving restrictions? Would that be considered as a possible way of cutting or slowing transmission, city to city?

AVERHOFF: Thank you for the question, Dr. Rutz. The Community Mitigation Strategy does not recommend or address domestic travel restrictions. However, implementation of the current recommendations would go a long way towards limiting transmission with the goal of creating disease free work and community spaces.

Appropriate use of voluntary isolation of ill persons and voluntary quarantine of household members of ill persons are likely to be far more effective than domestic travel restrictions. State and Local jurisdictions are in the process of pandemic preparedness, a complex multi-sectorial exercise, addressing many issues including transportation.

MODERATOR: Tough, complicated issues, but we've, again, made some progress in addressing a good many of them.

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