Clinician Outreach and Communication Activity (COCA) Conference Cal
Avian Influenza Surveillance and Update
Dr. Anna Likos and Dr. Emi Saito
June 22, 2006

Coordinator: Good afternoon and thank you for standing by.
At this time, all participants are in a listen-only mode. After the presentation, we will conduct the question and answer session. To ask a question, please press star-1.
Today's conference is being recorded. If you have any objections, you may disconnect at this time.
It will also be available after the call to listen to a replay. If you would like to listen to the replay, you may dial 866-509-3700 or 203-369-121 - I'm sorry, 1912. That will be available through July6. I will now turn the meeting over to Dr. Diana Hadzibegovic. You may begin.

Diana Hadzibegovic: Thank you, (Paula). Good afternoon. Thank you for joining COCA Conference Call. I'm glad to present two speakers for today's COCA conference call, Dr. Anna Likos and Dr. Emi Saito.

TS-CDC-OD Moderator: Diana Hadzibegovic 06-22-06/12:00 pm CT Confirmation # 8703004 Page 2 It's Anna Likos from CDC joined the Influenza Division as a medical epidemiologist in July. Her current position in the Influenza Division is focused on the international aspect of influenza, especially influenza A, H5N1, infections in humans and she has had the opportunity to provide technical assistance to countries in Asia, Eastern Europe, and Africa.
Dr. Emi Saito is a veterinary epidemiologist with the National Surveillance Unit in the National Center for Animal Health Surveillance within the USDA Animal Planet Health and Inspection Services. She's working in developing surveillance plan of animal disease of agricultural importance and operation for detecting and responding to new, emerging, and foreign animal disease.
Objectives for today's COCA conference call are avian surveillance information and update, human surveillance information and update, information regarding clinical aspects, information regarding infectious control. Slides for today's presentation, you can find on www.bt.cdc.gov/coca. Dr. Likos, you may start now.

Anna Likos: Thank you, Diana. I appreciate the opportunity to be here today.
I have to apologize; I really didn't know I would be giving this talk until yesterday. So I hope I will cover most of the information that you're interested in. If you have the slides up, the first slide is my title slide. Then move on to the second slide as you learn how to pronounce my name which is Likos.

TS-CDC-OD Moderator: Diana Hadzibegovic 06-22-06/12:00 pm CT Confirmation # 8703004 Page 3 Before I begin, I'd like to do a brief background on influenza and clarify three terms that get used frequently and sometimes inappropriately. Please note influenza viruses are those viruses which circulate every year and already a public health problem that is found every year.

These are viruses that we refer to as H3N2, H1N1, and H1N2 that are currently circulating viruses that spread easily from person to person. These are to be distinguished from avian influenza viruses of which there are many. The one that is currently of great interest is called H5N1. This virus is currently causing a devastating outbreak in poultry and it causes severe but rare human infections. At this time, it is not spread easily from person to person. Pandemic influenza viruses, however, is referred to viruses which are new influenza A subtypes that are capable of infecting humans, they cause serious illness, and they spread easily from human-to-human. H5N1 at this time is a likely candidate. But remember, it is not a pandemic virus as yet.

Next slide.

As I mentioned, seasonal influenza is an annual public health problem. It has a substantial public health impact; modeling studies indicate that there are 36,000 excess deaths each year, 200,000 hospitalizations each year, it affects 10% to 35% of children and 5% to 20% of adults causing a substantial loss in work and school date. As well, medical care systems can be overwhelmed.

Next slide.

To review a bit about the science of influenza viruses, they are classified into three types, Types A, B, and C. Only types A and B cause significant disease

TS-CDC-OD Moderator: Diana Hadzibegovic 06-22-06/12:00 pm CT Confirmation # 8703004 Page 4 in humans. Types B and C are limited to humans only. It's type A that can infect many species and in general causes more virulent disease.

Next slide.

Influenza viruses are negative sense, single-stranded RNA viruses. They're unique in that their genomes are divided into eight segments that code for at least ten different proteins. These - two of these proteins are found on the surface and are called hemagglutinin and neuraminidase.

Next slide.

These two surface proteins are the major antigens for influenza. Hemagglutinin which is represented by the spikes on the diagram shown is actually the site of attachment of influenza virus to host cells. Antibody that is generated by the host to hemagglutinin is a protective antibody.
The second surface, glycoprotein, is represented by the buttons and it's called neuraminidase. This protein actually helps release variance from cells. And antibody from neuraminidase can help modify disease severity.

Next slide.

There are 16 different hemagglutinin subtypes and there are nine different neuraminidase subtypes. Each of these is capable of infecting or is in - are found in either domestic - I'm sorry, wild waterfowl or shore bird.

If you look at the graphic, water bird is shown among - for all the hemagglutinin as well as all the neuraminidase subtypes. So that waterfowl provide a reservoir for influenza viruses in general. And you can see that a

TS-CDC-OD Moderator: Diana Hadzibegovic 06-22-06/12:00 pm CT Confirmation # 8703004 Page 5 large number of different strains can be generated by recombining or re-assorting the hemagglutinin and the neuraminidase protein.

Next page.

As I mentioned, wild waterfowl are the natural reservoir and they are a true reservoir in that the virus usually does not cause disease. However, the birds are capable of shedding virus through their respiratory and gastrointestinal secretions and feces. The viruses can survive at low temperatures and low humidity for days to weeks in the environment.

Next slide.

Typically, avian influenza viruses do not jump species and they usually do not infect people. They are classified by their subtypes, the H number, N number, as well as their pathogenicity in chickens. They are either called high path or low path avian influenza virus which is dependent upon the molecular sequencing of the hemagglutinin gene region, as well as whether or not they kill chickens when injected into them.

Next slide.

The current epizootic caused by H5N1 has been really unprecedented in terms of the number of poultry that have either died from infection or been killed in culling events.

Just this 2003 when the current epizootic began, in 2003, only two countries reported H5N1. In 2004 and 2005, seven countries -- seven new countries -- in each of those years reported it. But since the beginning of 2006, over 30 countries now report the presence of H5N1 in their bird population.

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Next slide.

The virus in the birds thus continues to change as we're tracking it. It now causes disease in wild birds as noted by die-offs in Qinghai Lake in China. It has asymptomatic infection in domestic ducks but it's also been found to cause infections in cats, as well as pigs.
In sequencing the virus, we now know that there are two virus plagues that are present in birds because the next slide that shows the phylogenetic tree for these. And you'll see some blue letters that match the blue countries of Vietnam, and Laos, Thailand. And then, the green clade is China and Indonesia. This is Clade 2 and this is currently the clade that has been moving into parts of Eastern Europe and Africa.

Next slide.

The human infections with avian influenza have been noted in the past with low path avian influenza which typically, you will not see

any poultry die-offs. We've had cases of conjunctivitis and influenza-like illness caused by types H7N7, H9N2, and H7N2 in years 1996 through 2003.

Typically, disease in humans with low path avian influenza viruses is very mild. High path avian influenza viruses also cause human infections prior to the current situation with H5N1.

In 2003, the Netherlands reported a large outbreak of 89 cases that was caused by H7N7 influenza A virus. As well as in 2004, Canada had two cases caused by H7N3.

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The next slide actually summarizes outbreaks with both low path and high path. And if you look at the column entitled "Cases" and compare it to the column entitled "Deaths," you'll see that in general, infection with avian influenza viruses whether low path or high path tends to be rather mild illness with the exception of the current H5N1 situation worldwide.

In the next slide, I'll be showing you the countries that now have human cases of H5N1 infection in humans. The first cases were - ever described were 1996, 1997 in Hong Kong. Hong Kong took the radical approach of killing all chickens within Hong Kong and expectedly, stopped the transmission of avian influenza to humans. And we saw no further H5N1 until 2003 when Vietnam, near the end of 2003, began reporting cases. Now, the boxes that will appear will go in order of countries that have reported human cases but the numbers in the boxes are their current cumulative numbers of cases and deaths. So Vietnam, though they had their first case in 2003, currently, have had 93 cases with 42 deaths. This was followed in 2004 by Thailand who has had 22 cases and 14 deaths, 2005 (saw) Cambodia, Indonesia, and China reporting human cases. In 2006, we've now seen cases in Turkey, Iraq, Azerbaijan, Egypt, and Djibouti. To total, 228 cases with 130 deaths as of June 20, 2006. This gives you a case fatality proportion of 57%.

As I mentioned, as of June 20, 2006, 228 cases, 130 deaths reported from a total of ten countries. And this sounds like a lot but it has to be put into the perspective that millions of people have been exposed to poultry during this timeframe of 2003 to 2006. So this is actually a very rare event.

TS-CDC-OD Moderator: Diana Hadzibegovic 06-22-06/12:00 pm CT Confirmation # 8703004 Page 8 The cases are sporadic there have been occasional clusters reported. And in most cases, people had either touched or directly handled sick poultry. There have been a few cases of probable limited human-to-human transmission, first reported in Thailand and then most recently, a family cluster has been reported from Indonesia. All individuals that - or all countries that have reported human cases have also reported poultry outbreaks as well.

Next slide, please.

This slide shows you the comparison of how influenza A is transmitted. Regular or seasonal influenza is transmitted to respiratory droplets that are generated from coughs or sneezes, as well as by contact transmission, as you move the virus from the surface to your own mucus membrane by contaminated hand.
In contrast, avian influenza is transmitted by direct or close contacts that people are actually touching sick birds, or in the cases of human-to-human transmission, it's thought still to be due to touching people, and then, touching one's own mucus membrane to (make) that transmission.

Next slide.

The H5N1 does not appear to replicate in the same location as regular seasonal influenza which typically replicates in the nasopharynx or upper respiratory tract.
In March of this year, there were two reports. One in Science Express and the other in Nature that indicated that H5N1 prefer to attach to cells located in the lower respiratory tract such as Type 2 pneumocytes, alveolar macrophages, and terminal bronchial epithelial.

Next slide.

The people that have been infected with H5N1 have ranged in age from one to 81 years. However, it does tend to affect the younger age groups, previously, health children and young adults have been susceptible.
The incubation period appears to be a little bit longer than regular seasonal influenza. And we're generally accepting a range of two to ten days although one case reported may have taken up to 17 days from exposure to symptom onset.
Because of the preferential replication in the lower respiratory tract, throat swabs appear to be a better specimen for isolation of H5N1 viruses for testing. And I'll be covering this in a little more detail in the subsequent slides.

Next slide.

In - the papers listed at the bottom of the slide, clinical features have been described for several patients that have had H5N1 disease. Patients still tend to present with fever of 38 degrees centigrade or higher, and either cough or shortness of breath.
Diarrhea, however, which is not seen frequently in adult seasonal influenza, does appear to have a more prominent role in H5N1 illness.
As I mentioned, lower respiratory tract symptoms develop earlier, clinical suggestions of pneumonia, and x-rays will show multi-focal consolidations or atypical type picture suggestive of a primary viral pneumonia.

 Frequently, patients will progress and worsen requiring mechanical ventilation, lymphopenia and

thrombocytopenia are frequent, patient will have multi-organ failure including both renal and cardiac dysfunctions as they progressively worsen. The next slide shows chest x-rays taken from a child in Vietnam in 2004 showing this rapid progression of pulmonary complications or pulmonary pneumonia going from this patchy infiltrate on Day 5 to almost complete wide-out on Day 10.

Next slide.

The treatments for H5N1 are obviously, supportive care and antivirals, the preferred antiviral being oseltamivir. Broad spectrum antibiotics should also be added to cover for secondary pneumonias. Other possible therapies may include corticosteroids. In some countries, other immunomodulators have been tried as well. Not a lot of data exists as to their efficacy, however, at this time.

Next slide.

Human clusters are important and these are defined as three or more persons that have the onset of severe respiratory illness within ten days - seven to ten days of each other, and then, epidemiological link through a suspected or confirmed case of H5N1. The causes of a human cluster are many - or several. They could be from a common source exposure or different exposures at different times coincidentally. Or they could be a sign of human-to-human transmission. So,

obviously, investigation of human clusters is important in terms of determining the individual's occupation, any behaviors that are risk factors for infection, as well as environmental exposures. Investigation should also include a virological component.

Next slide.

The paradigm for intervening to prevent H5N1 infection really focuses firstly on controlling outbreaks in poultry. As for this reason, human health authorities and animal health authorities have needed to work very closely.

In terms of human health, we want to do surveillance for severe respiratory illness. We want to - if bird cases have been identified and reported, then we want to look hard for any human cases in that same area.

Additionally, when severe pneumonia without an ideology is diagnosed, then you'd want to look for any risk factors such as contact with sick or ill poultry, and think about H5N1 infection. All cases should be isolated, as well as actively investigated as noted earlier. And then obviously, you want to protect the occupationally exposed including healthcare workers and also, poultry workers and those who are doing the culling work.

Next slide.

So, who should be tested? This information is actually taken from a Health Alert Network issued by the Influenza Division on June 7. In

a subsequent slide we'll have the Website address to get the whole document.

But the people that should be tested are anyone with an illness, severe pulmonary illness, that has required hospitalization and/or is possibly - has

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been fatal. And these individuals had a documented fever of greater than or equal to 38 degree centigrade, and has pneumonia on chest x-rays, acute respiratory distress syndrome or other severe respiratory illness with no alternate diagnosis, and needs one of the three-colored boxes, A, B, or C, within ten days of symptom onset.

Box ARPU is for a history of travel to a country with H5N1 cases in either birds or humans. And the individual has either had direct contact with sick or dead poultry, had direct contact with surfaces contaminated with poultry feces, has consumed raw or incompletely cooked poultry or eggs or other poultry products, has had direct contact with sick or dead wild birds that have been either suspected or confirmed to have H5N1, and/or they have had close contact of a person hospitalized or dead due to a severe, unexplained respiratory illness.

Criteria B is simply close contact of an ill patient confirmed or suspected to have H5N1. And C is a possible laboratory accident in someone working with live H5N1 influenza virus in their laboratory.

Additionally, cases can be considered for testing on a case-by-case basis by clinicians in someone that has either mild or atypical disease. The severe component is missing but they have - they meet criteria A, B, or C. Or someone that does have severe fatal respiratory disease for whom their epidemiological information is uncertain. It could be a return traveler that you don't know about their exposure or a person here in the States who's had contact with either sick or well-appearing poultry.

Next slide.

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If you want to collect samples then, the first thing to do is to be sure to notify your local or state health department that you think you have an H5N1 patient in your facility. The state and local health department epidemiologist can provide you with materials as well as a great deal of information and assistance.

The samples to collect as I mentioned before are going to be from the lower respiratory tract, an oral pharyngeal swab, a bronchial alveolar lavage or transtracheal aspirate are preferred. We would accept nasal or nasopharyngeal swabs but be aware that these may contain less virus and you may get a false negative as a result. The swabs to be used should be Dacron-tipped swabs with either an aluminum or a plastic shaft. And they should be refrigerated immediately after collection.

Swabs should be collected within three days of illness onset if that's all possible. But we have found that serial samples over several days or multiple samples from multiple sites on multiple days is actually of benefit. Of course, if the sample collection method is one that generates an aerosol or is likely to generate an aerosol, then, an N95 mask, as well as gloves and gown should be worn.

Rapid tests are not very useful in this setting. They have a very low sensitivity for H5N1 reportedly from some work done in Vietnam. The negative result does not exclude the diagnosis of H5N1 and a positive result obviously does not distinguish between seasonal flu and H5N1 infection.

And as I mentioned, this information on the previous - on this slide as well as the previous two can be found in a document entitled "Updated interim guidance for laboratory testing of persons with suspected infection with avian influenza A virus in United States." This is a Health Alert Network

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publication issued on June 7, 2006 and can be found at www.cdc.gov/flu/avian/.

Next slide.

So pandemic viruses, as I mentioned earlier, are new influenza A subtype that can infect humans. They cause serious ailments and they spread easily from human-to-human. H5N1 has met the first two prerequisites, but not the last, but keep in mind that each new human infection is an opportunity for the virus to change.

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In summary, H5N1 will not be eradicated soon. The virus does continue to change. H5 influenza - H5N1 influenza has met two of the three requirements for pandemic, but opportunities to meet the third continue as long as human and bird infections occur.

Next slide.

In the meantime, what you can do is to get vaccinated, to practice, and teach, and encourage good hygiene including good (cough) hygiene, as well as hand washing, and to stay informed.

Next slide. Thank you for your attention and I'll turn this back to Diana.

Diana Hadzibegovic: Thank you, Dr. (Likos). It's great information you gave us.

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Dr. Saito, you may start now.

Dr. Saito? We can't hear you.

Coordinator: I believe she is disconnected.

One moment.

Diana Hadzibegovic: Thank you.

Coordinator: Her line disconnected. We'll wait if she calls in.
One moment.

I wonder if she knows she's disconnected.

Diana Hadzibegovic: We'll try to contact her. I'm sorry about this. But for all listeners, please keep your questions for end of this conference call. And for those who wouldn't have a chance to ask a question, you can always email to us coca@cdc.gov and we can make sure to answer your questions.

Emi Saito: Hi there. This is Dr. Saito. I'm sorry, I accidentally disconnected when it was my time to talk.

Diana Hadzibegovic: Okay. Thank you.

Emi Saito: Okay.

Diana Hadzibegovic: Please, start, Dr. Saito.

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Emi Saito: All right. Get my presentation up again because I seem to have lost that as well, okay.

Good afternoon, you know, as was mentioned in the previous talk, avian influenza has entered into a high intensity spotlight that concerns about pandemic flu with the advent of human infection by the high-path H5N1 agent strain that is currently being detected in several continents.

At least 50 countries in Europe, Asia, and Africa have detected high-path H5N1 agent strain in wild and/or domestic poultry. The current outbreak as was previously mentioned is of extreme proportions because it's affecting millions of birds.

My presentation today is more for an educational presentation to discuss avian influenza and really the USDA's perspective on it and I'm not going to focus just on high path H5N1.

You know, in agriculture community where certainly having - have been having concern about avian influenza because worldwide in the past several years there's been a sharp increase in the number of avian influenza outbreaks compared to the previous 40 years.

The impact on the poultry industry has increases about tenfold and from 1959 to 1998 avian influenza outbreaks have impact or had impacted about 23 million birds whereas, from 1999 to 2004 alone, over 200 million birds have been affected.

So, on the first slide that I've got here, that's just a slide I took off the pandemic flu sites just to show where - the countries that H5N1 strain has been found.

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So let's move on to the next slide please.

I won't go further too much into detail on the background since Dr. Likos gave such a great introduction to it, but as we all know, influenza is an orthomyxovirus and type influenza A has been the

one that's infecting birds, but also swine, horses, humans, and some other (million) species.
There have been a couple of type C strains that have been identified in pigs and dogs, but they don't really generate cause infection in those species.
The USDA is really concerned about influenza strains detected in another species and not just the birds. In swine, only H1N1 and H3N2 have been detected. However, swine influenza viruses are transmitted to humans relatively frequently and this hasn't led to human epidemics, but certainly, some swine influenza viruses have occasionally been detected in people - or isolated in people with respiratory illness.
As it was previously mentioned, there are 16 hemagglutinin and 9 neuraminidase glycoprotein versus proteins that are the major antigens on the virus and so, therefore, in avian influenza, there are possible 144 different subtypes based on agents and combinations.
And in addition, within these different combinations, there are also different strains that are possible. So really the possibility of what's out there is really unknown and it's really high number.
Strains as what's previously discussed are identified as either low pathogenicity or high pathogenicity avian influenza and the pathogenicity is

based on the strain's ability to cause illness and the degree or illness or death in domestic poultry.
The diagnosis of the pathogenicity for official control purposes has been established by the World Organization for Animal Health or the OIE on the basis of three criteria, in vivo testing, molecular determinants, and hemagglutinin typing. So far, only H5 and H7 have been identified as highly pathogenic avian influenza.

Next slide please.

Although the actual source of infection to poultry populations and outbreaks are rarely identified, wild birds particularly waterfowl and shore birds are considered the reservoirs.
Unlike human, pig, and horse, influenza virus strain which undergoing antigenic shift and genetic change, AI strains are pretty much an evolutionary stasis within the wild bird hosts. And so these strains are fully adapted to the birds and generally cause no clinical signs.
As Dr. Likos mentioned previously, all agents and subtypes have been detected on wild birds.
On the slide, I (accepted) H13 only indicate that all 16 H subtypes have been detected in waterfowl except for H13. However, all of the H subtypes have been detected in wild birds, waterfowl or the shore birds.
Transmission between birds is primarily by direct or indirect contact with fecal contaminated aerosols, water, feed, and other

materials. Excretion of the virus from birds is primarily in the feces although aerosolization of nasal

secretion can also lead to transmission. As what's mentioned earlier, the virus can survive in water for many days and so therefore, fecal material and water is a very efficient mode of transmission in wild waterfowl.

In addition to these modes of transmission, AI can be also detected and found on the other surfaces of unwashed eggshells. So transmission can actually occur farm-to-farm by transferring contaminated eggs.

Vertical transmission via egg transmission has never been demonstrated to occur, but eggs late three to four days post infection have actually been shown to contain virus.

The big concern that you all are probably here today for is that (you don't have a) potential of avian influenza. In the past 50 years, avian influenza virus has caused sporadic infections and the risk factors have included both direct contact with live or dead infected birds and these are the poultry veterinarians, poultry farmers, and family cullers, and the folks like that, and exposure to live poultry in the live bird market system.

As far as consumer risk, there is no epidemiologic evidence. Just - or the possibility of infection by consumption of raw or undercooked blood, organs, or meat and it is also important to know that as what's mentioned earlier, that most avian influenza virus strains found in wild bird have not been found to represent a public health risk.

Next Slide.

This slide is just an adaptation from something from Dr. Webster and it's just to demonstrate the mechanism under which avian influenza virus can cause poultry infection and can lead to poultry mortality events. And the virus is

likely transmit to poultry to exposure to wild birds and the same can occur in backyard flocks or outside range poultry operations and things like that and then to a breach by security, it can enter into the larger commercial poultry operations.

Most avian influenza in domestic poultry that are detected are low path, but given the right circumstances and mutations, it can mutate into highly pathogenic form and generally, the first signs of it is seen in that picture on your right where all the chickens are generally found dead.

These clinical signs are for avian influenza in general not specific to the high path H5N1 strain that everyone is concerned about these days. As I mentioned earlier, avian influenza virus is well-adapted to wild birds. So generally, no clinical signs are seen. However, this

has changed with the H5N1 strain that's causing the mortality and illness in wild birds abroad.

In domestic poultry a broad range of signs can be seen. In low path or (unintelligible) forms, no signs maybe seen and if signs are seen, they may include increased respiratory rate, gasping, depression, edema of the head, face, comb, and wattles, cyanosis of unfeathered skin, diarrhea, (unintelligible), tremors, paralysis, and decreased egg production.

In high pathogenic forms, generally, the first sign is sudden death and high flock mortality rates.

Next slide.

If you keep clicking on the slide, there are actually three maps on the slide and all this is is to demonstrate the broad distribution of the domestic poultry across the US continent with some concentrated areas of production. But the

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first one is the number of turkeys; the second map is the number of broilers and other chickens; and then the third map is the number of layers that are in the United States.

Not included in these maps are populations of domestic waterfowl, game birds, exhibition birds, and other non-turkey, non-chicken domestic bird populations.

Kind of give you an idea of the size of our poultry populations. I'm going to kind of quote some numbers to you.

In commercial production, a census, so to speak, of birds that were on-hand when these numbers were calculated. In 2005, there were 256 million turkeys across the United States. In 2004, there were 8.74 billion broiler chickens. In December 2005, there were 290 million egg layers.

In addition to the commercial flocks, there are approximately 9.000 game fowl breeders in 34 states, over 26,000 duck farms maintaining about 3.8 million birds, over 17,000 goose farms maintaining about 173,000 birds. Almost 5,000 pheasant farms maintaining 2.27 million birds. Over 4,400 pigeon and squab farms maintaining about 450,000 birds; over 3,700 quail farms maintaining about 4.9 million birds.

So as you can see, the emergence or the arrival of high path avian influenza whether it's a H5N1 strain or another high path strain, this can have huge impacts on the poultry industry in the United States.

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In the United States, avian influenza in domestic poultry is mostly found in turkeys and these are obviously the low pathogenic form and prior to 1983, the greatest losses due to avian influenza was due to the loss of breeding and laying efficiency in turkey breeding flocks.

In the United States, there are - have actually been three high path AI outbreak and I've inadvertently left out an 1924 event from this slide and that 1924 event was due to an H7 strain that affected live bird market in four North Eastern states and the poultry mortality during that event ranged from 50% to 100 %.
In 1983, 1984, this is kind of the big high path AI outbreak that they teach all of us veterinary students about during vet school and this was one that was caused by a high path H5N2 and this high path actually had a precursor low path H5N2 strain that was in circulation in the poultry population for about six months prior to the outbreak that occurred.
And this outbreak led to the destruction of 17 million birds and if we adjust the cost to more current levels because of inflation, this outbreak led to major economic losses with over $85 million in losses to the producers, over $490 million in cost to the consumer and over $85 million for the eradication efforts.
Finally, the third high path event in the United States occurred more recently in 2004 and this was due to an H5N2 that likely evolved from a low pathogenic H5N3 that had been detected in 2002.
Quick response and scientific advances such as the development and availability of a rapid diagnostic test kit led to quick containment and

eradication and the outbreak was contained to one non-commercial flock with 5,600 birds and live bird markets with direct ties to the flock.
Currently, the US is considered free of highly pathogenic avian influenza.

Next slide.

The OIE or the World Organization for Animal Health is an international animal health organization that helps countries coordinate animal disease information and decrease the potential for epidemic.
The OIE has, as of June 2004, 156 member countries and the OIE provides surveillance guidelines that international trade partners have agreed upon to protect their respective industries and to avoid unjustified trade buyers. And so, US compliance with this standard, certifies that the practice acceptable sanitary measures and this assures our trading partners that are poultry and poultry products represent negligible disease risk and because of this, our programs for AI detection have been carried to meet these standards.
The OIE has defined notifiable avian influenza as any H5 or H7 strain of AI regardless of its pathogenicity as any - as well as any other AI strain determined to be highly pathogenic. And as I mentioned earlier, this is based on in vivo testing, molecular diagnostics, and hemagglutinin typing.

All H5 and H7 strains even the low path strains are reportable because of their potential to become high pathogenic strains. The balancing control and elimination of all notifiable avian influenza is essential for us to maintain our free international trade for the commercial poultry industry and to eliminate production losses due to infection.

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Next slide, please.

APHIS or the Animal and Plant Health Inspection Service has been working since the 1980's if not earlier with Federal and state partners and industry to safeguard the health of US animals against avian influenza and we have really three goals to our avian influenza surveillance.

First is early detection of notifiable AI whether it's the H5N1 or any other notifiable strain to assure that H5 and H7 low path outbreaks do not persist in poultry populations because that would be presenting the risk of developing high path strains in our poultry populations; and finally, to demonstrate the absence of notifiable avian influenza in our country.

Next slide, please.

On a broad scale, there are really four likely modes of the entry of avian influenza into the US agricultural community. The first one being importation of live animals or animal products and this is legal and illegal.

Currently, we ban importation of live poultry and poultry products from countries that have been identified as having high path avian influenza, particularly H5N1. All live birds that are imported are quarantined at USDA approved facilities for at least 30 days and are tested for avian influenza.

All hatching eggs are quarantined at USDA approved facilities until 30 days post hatching. AI testing is done on these eggs only if they come from countries not considered - free of another important poultry disease being exotic Newcastle disease.

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We certainly realized that we still have some potential risks for it being brought into our country, one thing, the illegal smuggling of poultry and poultry products.

There are two other potential risks that we also are most concerned about, the one being receiving shipments from countries that we consider to be free of the exotic Newcastle disease. They tend to - they have lower requirements as far as restrictions for bringing birds into the US and really these countries may have epidemiologic ties to areas that have high path avian influenza.

And then the second one being importation of products from infected countries or their neighbors; and again, this could be from a smuggled item or it can occur by mismanifested ships and this can occur when shipments are rerouted through high path AI-free

areas. If these birds enter flocks for a minimal time period, they could be represented being from a free area and reshipped.
Second possibility is incorrectly identified shipments. The third being entrance of - by a contaminated conveyances such as boxes and crates.
We certainly consider the possibility of importing swine products as a potential route of entry and we really don't at this time at least see this as a likely route because many regions of concern at this time are not free of another important swine fever, classical swine fever and, therefore, little products from these countries are allowed into the US anyway.
And zoo animals, they are imported in and sometimes that they come from areas that maybe of concern and these are really - although, these are something that we are monitoring, it's not considered to be as likely of a route because zoos have a very vested interest in their exhibit animals. And so,

therefore they really closely monitor their animals. So, if it was to come in out with the zoo animal, I think that we would be notified relatively quickly.
Second potential route of entry would be human movement and this is again legal or illegal and this is by an infected person or person wearing or bringing contaminated clothing or other material into the country and transmits it to a poultry population.
Third one is mechanical transmission and this is something that I've already alluded to earlier with the contaminated conveyances in the human travel.
And, finally, the biggest route that we've all been hearing about and concentrating a lot of efforts on is introduction by migratory birds particularly waterfowl. And this is because wild birds serve as natural reservoir and they don't really follow any defined boundaries per say and we're unable to restrict their movements.

Next slide.

There are really three risk factors that we see as things that we need to take into consideration as far as (risk) our poultry populations and how much surveillance that we may need to implement at these facilities.
The first one being the biosecurity practices of the poultry operation; is it following an all-in, all-out management where all birds come in together and no bird is introduced and then all of the birds are taken to slaughter at the same time.
Other practices is removal of all organic material and cleaning and disinfection of houses between flocks, poultry contact with potential

contaminated equipments or with other animals including wildlife pets and livestock is - (let) public access and pedestrian traffic

within the facilities and the showering and the uniforms that are changed before entering each house.

Second risk factor being the type of premises. Generally, poultry that are exposed to wild birds are at greatest risk for acquiring avian influenza and these include the open range operations, backyard flocks, hobby flocks, and other flocks that have - may have a pond or waterfowl habitat on premises.

And generally, what we find within our commercial industry is that they have very high levels of biosecurity and they really have minimal if any exposure to other animals or to wildlife because, again, it's a vested interest and it really - they do it for the protection of their industry.

And, finally, the third risk factor is location of the premises; is the premises located along a major flyway, is it near breeding in or watering areas for waterfowl and other kind of factors such as that.

Next slide, please.

We have several modes of our surveillance. The first three being our primary modes of our surveillance but we also have other things in place as far as detection and keeping avian influenza out of the country.

But then our veterinary services, we have a program that's the ASEP which is standing for the Aquaculture, Swine, Equine, Poultry programs. And within this program, they have a low path AI H5/H7 program. And this program was initiated in mid-1980 just for the National Poultry Improvement Program for the commercial poultry.

And the National Poultry Improvement Program originally established standards for overall evaluation of breeding stock and hatchery products or freedom from hatchery disseminate diseases such as (polorom).

Low path AI H5/H7 was added because of these two subtypes potential to become highly pathogenic as well as to meet OIE requirements to maintain our international trade.

So far, monitoring programs have been established in all 48 continental states in all primary breeder and commercial multiplier flocks participate in the program.

And so, this means that we've got 4,866 meat-type chicken flocks which represent about 71 million birds, 597 turkey flocks representing about 5 million birds and 184 egg-type chicken flocks representing about 3 million birds.

In addition to the chicken and turkey flocks, we've also got over 3,800 game bird breeder flocks participating in this program. And this includes waterfowl, exhibition birds, and other poultry. And this represents about 1.47 million birds.

Currently, there is a program expansion into fancy fowl as well as backyard flocks and other populations that may have not participated previously.

In addition to the National Poultry Improvement Program, we've also - the live - or LPAI H5/H7 program which expanded into the live bird marketing system in the 1990's when it was found that the live bird marketing system may serve as a reservoir for avian influenza.

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And in the Northeast US, there are about 120 markets that sell about 25 million birds annually. In the live bird market system, there are about - there are three components in the system. There are the producers, the distributors, and the markets. And from each of these three components, bird in environmental samples are collected on a regular basis and tested for avian influenza.

Currently, there are 22 states that live bird marketing monitoring program established in at least there were in 2005 and it is expected that we're going to expand that into eight more states in 2006.

As far as the non-poultry surveillance efforts such as swine and other domestic species, we currently aren't planning any active surveillance plan. We're going to rely more on passive as it has occurred in the past where we - where investigations are initiated when there are suspect cases.

And the reason that we don't - the primary reason why we're not doing more active surveillance is because primarily of a lack of a validated test for these samples particularly are rapid diagnostic test. Most of the tests that are available have been validated for poultry only.

Second component of our surveillance program include wild birds surveillance and this already kicked off early in the spring as most of you already know. And USDA Wildlife Services work together with the Department of Interior and State Agencies to help each state develop a wild bird surveillance with targeted surveillance of apparently healthy wild birds specific species based on the local geography, the wildlife ecology, and agricultural population.

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And in addition as part of this, surveillance program, Wildlife Services and Department of Interior are working together into investigation of wild bird mortality events and wild bird reporting is going to occur and as well as Department of Interior has some other components within their surveillance which includes testing of 100 killed birds and other things like that.

Our third component is being undertaken by our animal care program. And this animal care has jurisdiction over zoos and other similar facilities. And they've been working with the American Zoo Association institutions, as well as non-AZA facilities that fall within the animal care jurisdiction and this is to establish effective surveillance plans on their premises.

And so far the zoos have actually received approval by the USDA to implement vaccination of exhibit birds of particular concern primarily the threatened and endangered species. But participating facility will undertake both active and passive surveillance of apparently healthy exhibit - healthy exhibit and wild birds on their premises.

AZA zoos already performed diagnostic analysis on all animals that die in their grounds and AI testing is meant to be included among those tests performed.

Fourthly, I'm going kind of mention something that I've already mentioned earlier, our National Center for Import and Export is responsible for the importing and exporting of all agricultural products. And so they are responsible for the quarantining of all live birds and hatching eggs. And so some - all of live birds are tested for avian influenza and then some of the hatching eggs are as well. And the National Center for Import and Export bans imports of all birds and eggs from high path avian influenza H5N1 countries.

Fifthly, our Smuggling and Interdiction and Trade Compliance Program works closely with CBP, as well as other agencies to monitor the importation of animal products and importation of all products from high path H5N1 countries.

They conduct risk management and anti-smuggling activities to prevent the unlawful entry and distribution of prohibited agricultural commodities and products. Because of the elevated situation, they are targeting domestic products likely to have illegally imported avian products, as well as targeting shippers, distributors and importers thought likely to import such products.

They are concentrating their efforts on shipments not only from identified countries with high path H5N1 but also on countries - on shipments from countries to which the shipments may have been rerouted.

In addition to this, the program is currently testing an Internet monitoring system that's going to focus on potentially contaminated product being advertised on Internet for sale.

Sixth, our Center for Emerging Issues has a taskforce that kind of serves as the veterinary services' eyes and ears outside of our usual information channels. And these are really to examine the external environment to identify emerging events whether they are animal health related or societal and industry trends. And this is done on both the national and international scale.

The primary component for this taskforce is electronic scanning of information where information on Internet is filtered and potential patterns are identified. And analysts are able to simultaneously search, sort, compare, visualize, map, cluster, and perform link analysis on thousands of documents from different source - many different sources. And the program it tends to

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utilize this information to anticipate impacts of these events on animal and public health and on Veterinary Services Program objectives and operations.

So, if a mortality event is reported somewhere that for whatever reason has not yet been reported to the USDA, now, this could serve as USDA's initial flag that high path AI whether it's H5N1 or another strain has arrived and have further investigation.

The last two bullets that I have on this slide is talking about the Animal Research Service which isn't part of the ASEPs at all but we kind of work together on our avian influenza efforts. Southeast Poultry Research Laboratory actually developed the rapid screening test which is in our reverse transcriptase PCR that is currently being used for our surveillance testing of most of our animals that's in our program.

And any samples that are confirmed as high path H5N1 by NVSL would be subsequently sequenced by the Southeast Poultry Research Lab to determine its relatedness to - for sequencing to determine its relatedness to agent strains or any other H5N1 strain.

In addition, Southeast Poultry Lab is participating in a number of studies looking at wild bird to poultry transmission, the development of enhanced vaccine for birds, developing and evaluating techniques to predict which low path forms may be become - may become high path form and in collaboration with the CDC, evaluate the recombinant vaccine to ensure that human vaccination doesn't lead to poultry disease; and finally determine the risk of avian influenza in poultry meat and the ability of pasteurization of egg products (unintelligible) as meat to kill high path AI.

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And the CSREES or the Cooperative State Research Education and Extension Service has provided funding for research at various institutions for wild bird sampling and testing as well to sort of augment what ASEP has already planned.

Next slide, please.

This is just to kind of give you an idea of how things are kind of centralized within the USDA and that anything that really is assessed that avian influenza, whether it's low path, high path H5N1 or any other avian influenza strain, it really does come through - has to go - really come through the USDA.

And I'm going to kind of talk about the various labs before I go on to NVSL, as well as ARS. Known as the National Animal Health Laboratory Network and this consist of veterinary diagnostic laboratories that around the country. And the purpose of this network is targeted surveillance for early detection of a disease outbreak and for demonstrating (unintelligible) disease and

response testing performed and what diseases which include high path avian influenza.

The test that they're using for avian influenza surveillance is the RT-PCR (unintelligible) and they're performing - they're scheduled to perform test for the live bird marketing system, wildlife services, zoos, and other animal care facilities.

The labs that are in the network are approved laboratories that are trained by NVSL and have passed proficiency testing. Currently, I think there are about 47 labs that have been approved and these are in 40 states.

Another group of labs that are going to be - that are used as part of our program are the National Poultry Improvement Program Laboratories. And

these laboratories are public and private laboratories that are around the country and they perform serologic testing on poultry samples and this is done by ELISA and/or AGID and this is primarily for commercial flocks.

The approved laboratories are changed by NVSL staff as well as proficiency tested. Currently, there are 65 labs in 31 states.

Now, in addition to the known and NPIP doing testing, the Department of Interior and National Wildlife Health Center is doing wild bird testing as part of surveillance and as part of other research projects, research laboratories may also be performing testing outside of the formal surveillance program.

Now, all positive samples from known NPIP or other laboratories must be sent to NVSL for confirmatory testing. And NVSL will actually perform the subtyping as well as determine the pathogenicity.

In addition, NVSL does test all of the samples that are taken from the live birds, as well as hatched eggs in the quarantine facilities.

Animal Research Service, Southeast Poultry Research Lab, and NVSL do work together very closely in development of diagnostic testing as well as in the confirmatory testing.

NVSL will confirm avian influenza and subtype and initial sequencing will be done here to determine whether the (mutation) at the (previous) site is present that complete sequencing for genetic relatedness is really going to be done by the Southeast Poultry Lab. And in addition, Southeast Poultry may also receive samples from various research projects that are going on.

The next slide and this is going to be my final slide, I believe, yes. So, you know, our response is really going to depend on the situation. In general, the

USDA, we establish incident management teams, we initiate response, and we take measures to control and eradicate an outbreak. Our response and communication is - of the situation is

and will be done in coordination with other federal and state agencies as well as the industry.

The actual response as far as other actions are going to really vary depending on the situation under which the detection occurs and on at the investigations and those would be primarily the trace backs and trace forwards. And at a minimum, the premise or the facility from which the infected bird or sample came from would be quarantined; a movement offsite will be restricted. Infected and surveillance zones will be established and follow up testing and monitoring of flocks on premises will occur as well as enhance wild bird surveillance in that area.

Other actions may include movement and restrictions of poultry products within the zone. The - yeah, the population of infected flocks and cleaning and disinfection of premises and should the measures that are being taken - that are taken place not be felt to be sufficient, vaccination of poultry may occur.

And again, this is all done in coordination with various federal and state agencies, as well as industry because we want to have a consensus on what are the appropriate actions and to ensure that cooperation is going to occur.

And so I'm going to thank you for your attention at this time and just, you know, emphasize that for us, we've been monitoring for avian influenza for many years now and the emergence of the H5N1 agent strain in our minds, we're not going to really be treating it that much differently than we would any high path strain that's detected.

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We certainly consider a high path avian influenza to be something that would - more in the rapid response as any high path avian influenza events would but our activities in general would probably not change that much as far as the veterinary response.

So, thank you very much for your attention and I will turn in back over.

Diana Hadzibegovic: Thank you, Dr. Saito. This was excellent set of information.

Now, it's time for questions and answers. But before we start this session, regarding any media questions, please do ask them to the Office of Media Relations. Let's give chance to our clinical audience to ask us questions.

Let me just one more time repeat for those who will not have a chance to ask a question today, please email to us at coca@cdc.glv and we will make sure to respond to your inquiries.

And one more information, next week, transcript and audio recording files of this - of today's COCA conference call will be posted on the Web; Website address is www.bt.cdc.gov/coca.

Now, (Paula), I can turn to you.

Coordinator: Thank you.

We will now begin the question and answer session. If you would like to ask a question, please press star-1. You will be prompted to

record your name. To withdraw your question, you may press star-2.

One moment, please.

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Coordinator: You may ask your question, sir.

(Participant): In the first presentation, the very last slide, it was rather critically noted that vaccination was important and I think that needs to be elaborated on a little bit.

Anna Likos: Yeah, this is Anna; thank you for your question.

Vaccination for routine influenza is - we're always encouraging that people get vaccinated in the appropriate recommended group. The seasonal influenza vaccination is available and should be used appropriately.

In the face of H5N1, we tried to encourage vaccination just to eliminate the possibility of a hypothetical risk of mixing of H5N1 with seasonal influenza in a single individual, sort of what we expected to happen in pigs; it's been thought that pigs was a mixing vessel in the path.

So in general influenza - seasonal influenza vaccination is a good thing and in - specifically, it can help reduce the risk of generating a pandemic virus through re-assortment of the gene segments.

(Participant): Thank you.

Coordinator: You may ask your question after you state your organization.

(Participant): The University of Arkansas for Medical Sciences and Arkansas Children's Hospital.

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My question is there's some concern about development of antiviral resistance in this virus and I wondered if that has been seen in any of the individuals who have passed away from this infection.

Anna Likos: Yeah, this is Anna again.

And there have been reports of antiviral resistance, the (amantadine). There is occasional resistance that is shown with the Clade 2 viruses, it was present ion Clade 1 as well. And it just - it appears to be spontaneous as my understanding that in some cases within the same country and cases that are temporally associated not from a common source but a country that's experiencing multiple cases that one (isolate) will be sensitive to the (amantadine) but another can be resistant.

Oseltamivir resistance has also been reported, I believe two reports of three cases that Clade 1 viruses were resistant to oseltamivir, I believe. I'm not aware of any Clade 2 yet that have been reported.

(Participant): Thank you.

Coordinator: Please state your organization.

(Participant): (Glenn Hope) Hospital.

I was wondering on the CDC Website the interim recommendations for infection control and health care facilities is under revision and I was wondering if you have any idea as to when that will be posted

because the WHO recommends droplet precautions where the CDC still is recommending airborne and I was wondering if you know if we're going to be going with droplet or airborne precautions.

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Anna Likos: All right, yeah, thanks.

The new guidance should be coming up soon. It's my understanding it's been through clearance and I don't know exactly where it's been held up.

You're correct that there's been some discussion about airborne versus respiratory droplet precautions. The - I spoke with our infection control people this morning and what I'm expecting to have a recommendation for is actually the more conservative approach. And we know that in general for clinicians, for healthcare workers that are doing procedures to patients thought to have H5N1 that are - that the procedures would generate an aerosol, we recommend a respirator, an N95 respirator.

The situation is we really don't know what's going to happen with this virus, as well as a pandemic virus, be it H5N1 or any other virus. So it's certainly reasonable in a situation where you have very close contact providing care or - to a patient that an N95 respirator could certainly be worn in that situation.

I hope that helps. Keep checking the Website. It should be coming out soon.

(Participant): Thank you.

Anna Likos: Uh-huh.

Coordinator: Please state your organization and ask your question.

(Participant): EHA Consulting Group.

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When you're making recommendation for employees returning to work, should they ever get this disease, what would the length of time be after cessation of symptoms?

Anna Likos: Good question. I'm trying to search my memory bank here. Could you send that question in an email?

What comes to my mind immediately is 21 days but I'm not sure that that's correct. So, could you just send an email to the COCA and I'll find that and send it back to you with the right answer.

(Participant): Sure.

Anna Likos: Uh-huh.

Coordinator: Our next question. Please state your organization and ask your question.

(Participant): I'm from New (Heights) Clinic.

The question is about mask. The previous answer (unintelligible) to using N95 mask for healthcare professional taking care of patients with close contact. How about for the following groups of people, one, say, receptionist, nurses, other healthcare providers. The second group is people potentially be (evaluated with) H5N1. And the third group of people is patients infected of H5N1.

Anna Likos: All right. In terms of anyone that you know is infected or you suspect to be infected with an H5N1 virus, it is not appropriate to put an N95 mask on those individuals.

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A surgical mask is actually more protective in preventing the spread of the virus rather if you put that - a surgical mask on someone who is ill, is much more appropriate use of it.

In terms of receptionists and - I didn't quite hear the other group, the second group of people that - could you repeat?

(Participant): Healthcare personnel, you know, clinical office. And the second group was people being evaluated for influenza.

Anna Likos: People being, I'm sorry.

(Participant): Evaluated.

Anna Likos: Evaluated for influenza.

Well as a physician, taking a throat swab from somebody that is coughing, I know I would want to put an N95 mask on just - that the viral particle - you're up close to that patient, your in front of them, you're in the line of fire, so to speak. So, I would encourage the use of appropriate protection.

But in terms of other people, as I've said before, I think that when there is certain procedures that are being done known to generate aerosols or at least have a higher risk of generating aerosols, then the N95 mask is a better form of protection.

Providing patient care, direct close patient care, N95 protection can be considered and can be used. The - if resources become limited - and basically when resources become limited, however, you have to start prioritizing your use of masks. And so I would limit probably the N95 mask to those

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procedures know to generate aerosols that could possibly infect the healthcare worker.

Those are the things that need to be thought about in terms of what somebody would be wearing.

(Participant): Thank you.

Coordinator: Please state your organization and ask your question.

(Particpant): Yale Occupational & Environmental Medicine Program.

I have another question about occupational aspects of avian influenza; for clinicians who are providing occupational health services to people who may be at risk, either lab workers, poultry workers, healthcare workers, any recommendations forthcoming regarding medical surveillance either at base line or periodically any other special issues on working with these population?

Anna Likos: I'm thinking on that one as well. I know that the local health departments, the state health departments, I would imagine if H5N1 arise in the United States would establish some kind of active surveillance for those individuals that are taking care of patients,

so that that may be more appropriately answered through your state health department.

If you like, you can send an email as well and I'll follow up on that question in more detail.

(Participant): Thank you.

Anna Likos: Uh-huh.

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Coordinator: Please state your organization and ask your question.

(Particpant): (Franklin) County Health Department.

The question is, has the CDC and (HHF) and WHO, they took a proactive look on how many regiments of Tamiflu has the CDC purchased and are you going to include that antivirals and oral suppressions into the SNS program?

Anna Likos: Yes, the Strategic National Stockpile has been collecting doses of Tamiflu, as well as other medications. I don't have the current count as now, I believe it is - can be found on the pandemicflu.gov Website.

Coordinator: Our next question. Your line is open, please state your organization.

(Participant): My question has been answered, thank you.

Coordinator: Please state your organization and ask your question.

(Participant): Randolph County, West Virginia, Office of Emergency Management.

My question relates to surveillance. Recently in the news, it was announced that a gosling in Prince Edward Island was suspected of dying from H5N1. Now this occurred sometime prior to June 16th and it took until somewhat after the 20th and several different responses from various labs in Canada, first it was positive then it was negative, now the Canadian government says there was no sign of H5N1.

My concern is about surveillance. When we see diagnosis coming from poultry in Indonesia or places like that, they immediately are sent to Hong

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Kong or to the Naval Lab in Cairo, Egypt. And generally, within 48 hours, we have a reliable diagnosis.

Is anything being done on that front to make the surveillance diagnosis more readily available, more quickly performed and more accurately performed?

Emi Saito: Are you talking about it in the (unintelligible).

(Participant): Yes, ma'am.

Emi Saito: Okay. Well, you know, currently we have the initial screening, the PCR which we have results within three hours and with our communications plan being what it is, I mean, we generally will send out a notice that there has been a preliminary H5 and within its arrival to NVSL, we can pretty much determine within a few hours by PCR whether we can confirm it as H5 or not, and then as well we also have an assay to determine whether it's N1 or not.

We certainly wouldn't consider it confirmed until we've done the full virus isolation and the official subtyping through the inhibition test as well. And then primarily the reason we have to do that is, one, we want to make sure that our diagnosis is correct because, two, you know, there certainly there are trade implications.

So, you know, if we have an event that occurs as H5N1, we can have some preliminary data that are - preliminary announcement but it certainly wouldn't be confirmed any faster, it really depends on how the kind of specimen that comes in, how much of it grows in culture and basically what can we - what are we going to be able to do as far as confirming it using our standard protocol.

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If it's something that gets into the poultry industry, I can tell you that generally, the first sign are the birds are going to be dead particularly with what has been seen with the H5N1 in these other countries.

And certainly, the poultry industry in general in a lot of states in general don't wait until that confirmatory test is done before they take action. As soon as they suspected it's H - avian influenza, particularly H5 or H7, they will have response plan and they probably will, particularly if it's something that they suspect is high path AI, they will be populate before the testing is even confirmed.

(Participant): Thank you very much.

Coordinator: Your line is open, please state your organization.

(Participant): Yes, (unintelligible) culture.

Anna Likos: I'm sorry, could you repeat that, you're breaking up and I didn't get all the words.

(Participant): I'm sorry, is that better?

Anna Likos: Yes.

(Participant): Okay. My question is that the testing in the Dacron swab, do you want a dry or wet or both? And has it ever been isolated in urine?

Anna Likos: To my knowledge, it has not been isolated in urine. However, what labs are doing across the world, I don't know, but I really don't think it has been isolated in urine at all; that would be reported rather quickly.

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And in terms of a wet or dry swab, that's a good question. I think a dry swab is adequate, as long as you get the, you know, oral pharyngeal areas well swabbed, or even deeper as possible.

(Participant): Well, the (unintelligible) can be done quicker on a dry…

Anna Likos: Uh-huh.

(Participant): …as a screening but wet for culture…

Anna Likos: Uh-huh.

(Participant): …so I'm just wondering if you're asking for both.

Anna Likos: The - we'll take both.

(Participant): Both, yeah, okay, thank you.

Anna Likos: Uh-huh.

Coordinator: Our next question. Please state your organization and ask your question.

(Particpant): Miami Day County Health Department.

I am concerned just because all the measure, the quarantine, established its own limit movement of the poultry and the population vaccination and all those measure have been applied in other country and in other situation. What is that we do or will do different than Euro and Asia to prevent the spread of the disease among the bird?

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That is my first question.

Emi Saito: I think the first thing to address that is that our operations here are very different than it is in Asia. I mean, certainly we are very limited by the reporting, I mean, certainly if an operator chooses to not report to us, then we're not going to be able to do anything.

But it is very dependent on it being reported and being allowed access to take care of it. But I think that based on activities in the past and we certainly have facilities and laboratories set up all over our country where we can handle over 20,000 samples a day to have this rapid response.

I think that in that sense, we are set up a little differently not to mention we have a whole (crew) of not only the people who are in the USDA agency but we've got emergency response volunteers, as well as other resources to call upon. And so I think that our situation is a little bit differently just by how our industry is set up.

(Participant): And the second part of my question is if we know that we won't have enough anti-flu and we know that we don't have enough vaccine and we will not have enough vaccine in the near future, why is that we spend so much time and money and resource on anti-flu and vaccine when the population is being kind of left out in education and prevention. Less than 10% of the resource is being put toward the education and prevention and that really call my attention at this moment.

Emi Saito: Are you talking about the human vaccination and…

(Participant): Yes.

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Emi Saito: I appreciate your comment and concern so I agree with you that simple procedures such as hand washing and teaching good cough for respiratory hygiene are extremely important and sometimes not given as much value as they are certainly worthy of.

I am always interested in the question of how to protect healthcare workers and yet as a physician I know that physicians are not as good at washing their hand as they could be and we're not that good at getting vaccines either, the influenza vaccine ourselves.

So I should at least encourage us all to think about that and to promote these good habits.

(Participant): But why is that we don't invest on (unintelligible) education to the population, we, again, we spend less than 10% of the whole amount that the government is spending on the possible pandemic, less than 10% is invest on population education. And that is wrong because we need to make people aware of what's going on and how to protect them, how to prevent - we make sure that they have the least possible education to prevent the spread of the disease when they come, because we know it will come sometime.

Emi Saito: I appreciate your concerns.

(Participant): Thank you.

Coordinator: The next question. Please state your organization.

(Participant): Exelon in Chicago.

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Just a clarification, personal protective equipment in a corporate setting; if an employee presents himself or herself to, let's say, human resource professional or an occupational nurse with flu-like symptom, are we recommending again - I understand the N95 masks if there is going to be droplets formation or close procedural contact.

How about - and I think it wasn't really clear with the previous question or what's talking about receptionist. Let's say call center personnel or - not people on the phone, but let's say tellers in a bank or live reception personnel. Are we recommending that those people have surgical masks at hand if they're exposed to someone that has a fever and let's say want to go home because they feel sick.

Anna Likos: Well, obviously, anyone that feel seek or has a fever, especially if you think it is influenza, even seasonal influenza, I certainly encourage those people to stay home and separate them, to remove them from infecting - the possibility of infecting other people.

In terms of specific recommendations for non-healthcare providers, I really am afraid that I'm going to have to differ to our infection control specialist. I'm not aware of any specific recommendations that have been made for those individuals.

And it's unclear to me, if you're talking about H5 N1 infection as we know it today or if you're talking about a pandemic possibility. And it...

(Participant): We won't know at the time. Let's just say that there is a spread of afebrile flu-like illness and we're not sure if it's H5N1 or some other virus.

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Well, let's say we were in the middle of a H5N1 epidemic, are we recommending that people that are exposed to other folks on the workforce that, you know, inappropriately are at work and are sick. Let's just say, I'm at work and I go to the occupational nurse and I feel sick and I want you to go home, does the occupational nurse have to wear N95 mask? She's not going to have really close

contact to do a procedure or let's say a teller in a bank or someone at the electric company that is processing a bill payment from an employee. Are those people - should they have surgical masks at hand?

Anna Likos: I hate to waffle on you, but I also hate to give out wrong information. My - I honestly don't know the answer to your question. I don't believe that specific recommendations have been made for those individuals but I would ask that you allow me the opportunity to check with the people that have been working more on the issues of infection control.

(Participant): Shall I email you?

Anna Likos: That'd be great.

(Participant): Thank you so much.

Anna Likos: Uh-huh.

Coordinator: Our next question. Please state your organization.

(Participant): Brookings Hospital in Brookings, South Dakota. And my question is with the antiviral medications, we - oseltamivir is one I'm actually talking about. But there really aren't any clear guidelines on what dose we need, how long is the dosage, will people need to be re-dosed in the

second or third wave. Because as we talk about Strategic National Stockpiling or any stockpiling, a lot of people think of Tamiflu in a box and it that comes in where it has a five-day course, and may think that a dose to cover somebody, but it may not be adequate. So, are there guidelines that are addressing that?

Anna Likos: People have been looking at that issue and at this time as far as I know in current cases of H5N1, the question of using a higher dose than the usual dose of Tamiflu has not been really born out to be true. A longer duration of treatment may be warranted and that would have to be a clinical judgment.

(Participant): So as we're assessing stockpiles, do we say we have dose that's based on the five-day course we use for seasonal influenza or how do we know how many people we can treat with what we have?

Anna Likos: For pandemic?

(Participant): Right.

Anna Likos: The…

(Participant): If we detect in the United States today that there's avian influenza and there's concern about (unintelligible) or healthcare workers because people may be showing up in our facility, how we dose them and for how long?

Anna Likos: You would dose them with the regular - if I were the clinician I would start them on the regular dose of Tamiflu and assess at the five-day period as to whether it should be continued or not.

(Participant): Well, how do you assess them? What's your criteria?

Anna Likos: Are they getting better?

(Participant): But we're prophylaxing our staff.
Anna Likos: Oh, I'm sorry, I'm sorry. I wasn't - I thought you were talking about treatment.
(Participant): Prophylaxis, I mean, that's the whole idea as I understand it is - you know, we have the stockpile to move out partially for treatment but also we're going to prophylax our workers so that they don't become infected. We were able to still utilize them and to help treat the sick.
Anna Likos: Prophylaxis that I'm aware of has been used in cases of people having direct contact with H5N1 cases. And the prophylaxis has been at the usual dose and has been extended for periods of time.
Again, in terms of the numbers in the stockpile and how that covers that, I'd really have to talk to the SNS folks themselves.
(Participant): Okay.
Anna Likos: Thank you.
Diana Hadzibegovic: We have time for two more questions.
Coordinator: Our next question. Please state your organization.
(Participant): Yes, the Pasco County Health Department in Florida.
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I just wanted to address the gentleman's concern from Miami (Dates). Our health department has a program where we go out into this community and we talk to people about hand washing. We talk to people about preventive measures, we give flu shots when our suppliers up, when it's down, we start talking about ways they can prevent it.
So this is something we were doing for seven years on a Federal grant and we're real proud of that and I am assuming that most health departments across the country because of the shortages of the vaccine were doing the same thing.
I just wanted to let you know that Florida is doing this and that gentleman was from Miami (Dates). So I'm assuming or have the same awareness as we do, as all health departments do. We've always been into prevention and health department and has not been neglected and that's all I wanted to say.
Thank you.
Coordinator: And our last question. Please state your organization.
(Participant): Independent Research, clinician with CDC.
The question is, in the event that we do have a pandemic operate would there be an efficacy in human consumption of (raw plant) material that's high content is (chemic acid)?
Anna Likos: I'm unfamiliar that.
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(Participant): (Unintelligible) a company in Canada has been experimenting with extracting (chemic) acid from different pine needle type trees. (Chemic) acid is in the plant, can a human consume the plant and gain any protection?
Anna Likos: I am unfamiliar with that work.

(Participant): Alright. Thank you very much.
Diana Hadzibegovic: You may just email that question to coco@cdc.gov and we will try to find out an answer for you.
(Participant): Thank you very much. I will.
Diana Hadzibegovic: On behalf of CDC Clinician Communication Team I would like to thank everyone who make this COCA conference call possible.
Please stay tune for our next COCA conference call.
And until next time, thank you everyone. Good bye.
Coordinator: This concludes today's conference. If you would like to listen to the replay, you may dial 866-509-3700 or 203-369-1912; that will be available through July 6.
Thank you.
This concludes today's conference. You may disconnect at this time.