

**Annual Conference: Health in Foreign Policy 2005:
Panel III: Responding to Infectious Diseases: National Security
or Human Rights?
February 4, 2005**

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SHARON HRYNKOW: Institute of Health and we're going to spend some time over the next hour or so discussing the Infectious Disease Agenda and its relationship with foreign policy. I think that David Fidler did a great job this morning in providing us with framework and a backdrop for this discussion as Laurie Garrett noted in her comments as well.

Talking about the four pillars in foreign policy, The National Security Dimension, Economic Dimension, Development Dimension, and Human Dignity Dimension. If we were to identify a single health area that we felt had implications for foreign policy whether U.S. or other Nations we would have to think first of Infectious Diseases. In fact, in the early 90s when I was spending some time at the State Department and we were looking at Health Issues, indeed the only issue that rose to the surface of the screen was at that time, AIDS. Followed a few years later by Emerging Infectious Diseases and the reason why was because those two issues hit upon each of the four pillars that we just mentioned. And so it's a pleasure to have the opportunity to speak with you today about some of these issues.

I want to note a couple of over arching things before we start and I want to pick up on something that Jack Croddy said in his comment. This gets to the bi-directionality of

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the relationship between health and foreign policy. You know, many years ago when the U.S. engaged in foreign policy issues with other government's science was often used as the bridge. The U.S. and Russia as a forensically union for example had a very strong bilateral relationship in the scientific realm and that relationship carried us through many chilling times. Health has now become a bridge in the foreign policy community to other nations but at the same time, as technical and health agencies are called on by the Diplomatic Community to sometimes provide programs, provide advice, and so on. So while the State Department turns to us to look for activities that can become part of the bridge we are also looking to the State Department to help us as we advance our agenda. So two way nature of the dialogue is very important and I would submit it is somewhat new. Even in the last, well certainly with the advent of AIDS, we started to take on this broader relationship with the foreign policy realm.

Looking at the Economic Dimension I want to note other item and that is the relationship between health and wealth. The Dogma use to be that if we create wealth in a nation it will trickle down and it will improve the health of the population and if we look back ten or fifteen years ago this was the thinking of the time. We now know and thanks to Economist like Nobel Laurette and others there really is the

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inverse relationship. That is, as we improve health of populations we also generate wealth. I think it is important to bare these things in mind as we look at the foreign policy agenda, which has traditionally been an Economic, a Defense Agenda, and the Health Agenda. The relationship between health and wealth is very important. And this will be born out by our panelist today. So we have four very distinguished experts on our panel. Each will talk about a case study and then Dr. Hamburg will start to help us synthesize our thoughts in this area. I'll introduce each of these experts in turn. What we want to do is have a look at National Security. Have a look at Human Rights. Have a look at Global Security as Laurie Garret challenged us just a moment ago. We're not just talking about U.S. Security here but we're talking about the Global Community as we look at Infectious Disease threat. At the end of the session we're hoping that we will have learned something about Best Practices. We'll have a discussion about challenges and perhaps opportunities to move forward either as Health Professionals or as members of the Foreign Policy Community. So with those very broad introductory comments let me introduce our speakers in the order in which they will speak.

First Stephen Morrison will talk to us about the AIDS of the Case Study. He joined the Center for Strategic and International Studies in 2000 where he has revitalized the

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Africa Program and he has launched a CSIS Task Force on AIDS. He worked on TODAN and a number of African issues before joining CSIS and he has made significant recommendations in the policy realm to State Department Officials including up to the Secretary of State, Colin Powell at that time.

Charles Riemenschneider is from the Food and Agriculture Organization. He is responsible for the North American Portfolio. He resides here. He represents FAO at U.S., Canadian meetings also with the International Organizations based in the U.S. so the World Bank and so on. Before joining FAO he ran the Staff Office for the U.S. Senate Committee on Agriculture and he is an Agriculture Economist by training.

Next we will have David Heyman and we've taking a little liberty in the agenda here who has made some last minute changes but we would then like David Heyman to say a few words about the Bio-terrorism Agenda. David is a Senior Fellow at the CSIS, The Center for Strategic and International Studies where he is responsible for the Homeland Security Program. He focuses on bio-terrorism threats, Risk Management, and Infrastructure problems related to those threats. Before that he was an Advisor to the Secretary of Energy and he is certainly well known in the Washington Policy Circles.

Finally, Dr. Margaret or Peggy Hamburg will say a few

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words. She is the Vice President for the Nuclear Threat Initiative. She served as a policy advisor to the Secretary of the Department of Health and Human Services. When she served as the Assistant Secretary for Policy and Evaluation. Before that she was the Health Commissioner for the City of New York for several years and I'm very proud to say she was also a member of the National Institute's Health Team working at N.A.N.I.D. for some years.

So that's our panel. We will have each speaker speak for about 10 to 12 minutes. A few questions after each speaker and then we'd really like to reserve the bulk of our time for a fuller Q & A period for about 30 minutes at the end. So that's the general plan. With that, let me introduce Steve Morrison.

STEPHEN MORRISON: Good afternoon. Thank you Sharon and thank you Polly Pittman for putting such an emphasis on these issues this afternoon. I think from Laurie's presentation it's pretty clear that we've reached a point where it's taken for granted that something as large and destructive and dangerous as Global HIV/AIDS Pandemic as we now see it represents a security threat. Something that has to be factored in the thinking of National Governments and of International Bodies in Life but that's a pretty recent development. And it's not entirely a shift of conceptual and cognitive shift that is complete. Let me speak just a moment

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about how the whole concept evolved here particularly in American concept. I think it's important in looking at what does it mean? One of the big events in stirring people to begin thinking that this pandemic is a National Security Threat was when the Clinton Administration in a broader effort at looking at newly emergent Transnational Threats began to put a strong focus on the HIV/AIDS Pandemic and the big moment was in January 2000. The U.S. was in the Presidency of the Security Council for the first time in the history of the Security Council. At the U.S. request a special session was held in January of 2000 focused upon HIV as a Global Security Threat involving the case of the presentation of then, Vice President Gore, the U.S. permanent representative Holbrook and it was time to coincide with the release unclassified publication of a National Intelligence Counsel Study that had been underway for the previous six to nine months and brought forward on an accelerated basis to make the case that the projections of the current realities, if you projected them out were going to have a number of the stabilizing consequences in terms of migration, deterioration of the State Security Force, Services of both policing and militaries in terms of generations of large orphan populations. Stressing economies, leading to deterioration and growth alike. It is important to note here that the role that the National Intelligence Counsel play. The National

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Intelligence Counsel, which is a body that brings together inputs from all the different elements of different agencies, involved in intelligence gathering and analyses began producing analyses of HIV/AIDS in 1997. When you go back and look at their unclassified publications they've been reasonably accurate and over time became more and more activist which is an interesting development that you could have the envelope pushed that hard by an analytic agency that normal is not a public agency, not involved in pushing as dramatically as this case. Something like the exertion that HIV/AIDS [inaudible] emergent threat to U.S. National Security and Global Security. And they've continued to play that role and I will comment more on that in a moment.

Now when the Bush Administration came in, they initially rejected this notion. They saw it as poor wily-minded thinking by the Clinton Administration and there were some tough criticism of this assertion. Where is the evidentiary base? Where have you seen states fail? Where do you see the actual outcomes? What's the beyond antidotal evidence? What are these assertions based on and more over if it is truly a security threat, then why isn't our government or other governments mobilizing with matching responses that are Security Initiatives? There were very, very few at that time. That debate evolved rather rapidly early in the Bush Administration to a position that was a

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return to and an embrace of the earlier Clinton Administration position and a elaboration of it. The National Security Strategy statement, the famous Preemption Strategy Statement of 2002 made the argument very powerfully and very clearly. That statement was again issued in the latter part of September 2002 within a week's time of the release of yet another National Intelligence Counsel Study that put the projections forward as to what the destabilizing consequences would be between the second wave states. That is if the states that the large populous powerful nuclear armed states, the China, Russia, India and others that are at risk of a generalized epidemic and it made some very stark predictions within that NIC study. Yet again, dramatically pushing the debate forward.

There are a couple of other things that need to be mentioned here in changing the debate. One was the activism of then Secretary Powell. The skepticism that came forward early on from then the NIC Advisor, Condeleezza Rice, from Vice President Chaney there was a very strong push back that came from Secretary Powell and it was reinforced in public testimony and public statements by George [inaudible] his role then as Head of the CIA. The debate was won and the debate was won at a rhetorical and a conceptual level with the activated support of the National Intelligence Counsel analyses and of the backing within the leadership of Congress

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that came which was very, very important. The backing that came from other sources like the International Crisis Group, Nick Abenscott at AUI, and others. One question that has not really been addressed is, was it 9-11 at the end of the day that forced the hand or the reappraisal or was it with or without 9-11 there was enough leadership at this Secretary of State level for this to happen? The fact is there are skepticism about these fundamentalist exertions, however the debate has largely at the broad level been won.

Now, there are several questions that remain. One question that remains is where's the evidence? How do you begin to document and fill-out what this means? Far too many of the analyses are regurgitating of the same and antidotal evidence. There is a dramatic under investments in applied research. Around these issues there are only a few places in Eastern and Southern Africa that are seriously looking at the consequences be they economic, be they looking at the deterioration and the capacities of core State Institutions, Security Services at the Treasuries and the Finance Ministries and alike you are looking at the deterioration of pheasant households and their ability to reproduce and avoid periodic famine. All of those dimensions, the other newly emergent and very powerful one around the feminization of the pandemic and what this means in terms of the acute vulnerability of young women and girls to the devastating

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impact. Now the new infections within the African contacts are running at about 60% women/girls. So you've had this under investment. You had new sub debates generated, activist like Jim Morris at the World Food Program asserting in fact that we're entering a period of a much higher proclivity to famine and drought as this cuts across a peasant household economies and then push back from some other analysts who work on these Agricultural Economic issues saying the evidence is not there. They're unresolved. When you look at the economic modeling that is happening right now, and there was an analysis last year trying to look at what has been put on the table thus far in the last few years in terms of economic projections. Again it was the National Intelligence Counsel that undertook that study. The conclusion was that the modeling that was being done is completely across the spectrum in terms of projections and is very weak in terms of evidentiary base. And there are two competing theories that under ride those, under girth those different perspectives let say are at the two ends of this spectrum. One is that the claim that the HIV/AIDS pandemic, when you look at the vectors of destruction associated with this and how unprecedented and historic and extreme it is, there is simply no way it could not have profoundly devastating facts and we need to admit to ourselves that it will override and grossly weaken the coping strategy that

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society in Africa that is most acutely impacted have used to respond to other major catastrophes, most of the environmental or periodic draught. This will in fact gradually erode these capacities but that we may not see the full impact quite yet because we're not there. The opposing view is that this is a strain that has not destroyed the coping mechanism and that some societies and you can point to a few like Uganda have made recoveries in which some of these stark trends have been reversed and pushed back.

Security Services, let me just comment for a few minutes and then I'll close on the Security piece of this. Security Services have been very closed to sharing data for clear reason. This is a strategic source of information. That is beginning to change. In the last we've seen some fairly dramatic openings. Not just within Africa and some of the key militaries, Nigerians, South Africans. We've also begun to see some openings on the part of the Chinese, the Russians, and the Indians and we don't fully understand what is driving that. Whether it is the advent of access or at least the possibility of access to treatment on affordable basis so that it is possible to begin providing something that was not possible to provide within your militaries and within your policing core. Is it the search for partnerships as the money had come available through different streams? In case of the U.S. Government, the President's Emergency

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Program on AIDS Relief. Historically here in the United States we have had very, very weak leadership. There has been no champion for engagement on a military to military level on HIV/AIDS. There has not been a strong champion within the Pentagon, until recently no strong champions within the regional commands and no strong champions among the appropriators within the House and Senate. That's beginning to change slowly as well and part of what is driving it is the realities on the ground within these militaries. Part of it is the historic change within mission that the European command and the Central command are pursuing. It puts them into their Counter-Terrorism Agenda and in very close alignment with African militaries today the ability to deliver a very desired set of services for care, prevention and treatment is a very valuable thing in opening a relationship. And now that you are also seeing the movement forward of the President's Emergency Program which needs to validate itself with numbers on care, prevention and treatment is to find reliable institutions. There is a match that is evolving there and you're seeing partnerships being formed in which the European command is going in with the President's program in places like Nigeria and Zambia. I'll close right there. [Applause]

FEMALE SPEAKER: Thank you Steve. To keep us on time I think that we will have one question and I will take the

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Chair's prerogative and ask it. Because we wanted to talk about Human Rights a little bit and I think the AIDS situation brings us squarely into that arena. Steve, if you could comment a little bit about some of the Quarantine Programs and the more contentious activities that certain governments have undertaken to control their spread of AIDS within their borders, I think it would be important to get that out on the table at this point.

STEVE MORRISON: Well you don't see in the African context, you don't see anything as dramatic as what you've seen in Cuba, the dramatic quarantine initiatives. The issue of Human Rights is playing itself out. Until recently I believe in terms of the whole question of access and the responsibility of the states to protect its citizens in responsive to crisis and in the case of South Africa where you had a clash, you had very strong allegations from within the Activist community that Nile and the relative indifference or the delays that have been seen at the official level represent something that is extreme rudderick [inaudible] to crime against [inaudible]. There you see the clash translated to what amounts to a new form of historic debate of public health. And what that means is the Rights of Citizens and the responsibility of the states. That is probably the most pronounced [inaudible]. On the question of the gender and the impact that this being borne by women and

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what steps are being taken to correct for that initial protections and empowerment, recourse of by women who are victimized in various context. Some have projected that this will stir an era of much greater mobilization. I don't see that yet but it's still very [inaudible]. Certainly in terms of consciousness the willingness to admit the reality that structurally disenfranchised, disadvantage position of young women and girls places them squarely at the center of this epidemic is now understood and accepted. What we do about it is a matter of Public Health and Human Rights.

CHARLES RIEMENSCHNEIDER: Well this is an unusual audience for me who I'm use to talking to Agriculture Groups and Farm Groups. So Public Health people are not my usual cup of tea so I guess I got to explain a little bit as why I think it is important that as a group we need to be worried about and you need to be worried about the trans-boundary animal diseases as well as Public Health.

First of all, I guess the easiest reason is that many of these animals as you know affect humans as well. Influenza is the latest example. Human mortality in those who have gotten the disease is of the order of 75% and yet none of them alone, 12 of them alone in the last five weeks. SARS, Mad Cow Disease, R1P Valley Fever, West Nile Virus are all animal diseases in the news recently that effect humans. And the threat of highly pathogenic Avian Influenza becoming

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easily transmissible between humans have the epidemiologist around the world quite concerned and I think that's probably the interest today. But I think importantly and one that really effects how these diseases are handled in the world is that these diseases can have very dramatic economic impacts as well, both direct and indirect cost. The 2001 outbreak of Foot and Mouth Disease in the United Kingdom costs was estimated cost was over 9 billion dollars. Classical Swine Fever in the Netherlands in 1997 and 1998, 2.5 billion. These are diseases that don't necessarily have a human counterpart. In Southeast Asia alone last year, last winter over a 100 million chickens were killed. And at one point in March or so we did an analysis that between Mad Cow and Avian Influenza and other animal diseases in the world over 1/3 of the world trade in meat was affected by various bands from different countries. And I think it is also important to recognize the cost of these outbreaks will only grow quite dramatically in the future as higher income in developing countries means much greater demand in meat. The livestock industries are getting larger. They're getting more intensified and they're increasingly involved in International Trade. The number of animals that is being raised has grown dramatically. Just for instance during the 1990s in East Asia poultry reproduction rose of the order of 12% per year. That is a doubling in the population of

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poultry in that region every five to six years. And I think there's evidence that there are increasing threats from trans-boundary animal diseases. We're all familiar with new human diseases like AIDS and SCARS and Loss of Fever seemed to have developed within the last two decades. But new animal diseases have been appearing about as rapidly and particularly at an alarming rate. The current highly pathogenic Avian Influenza first was seen in the late 90s. The NEPA Virus, the Mad Cow, the Hendra Virus as well as new viral types of existing forms of infectious diseases are much more viral form of infectious disease in poultry in Europe. Vector borne pathogens like West Nile Virus, Blue Tongue, Rip Valley Fever are also spreading too much wider areas than they have been traditionally found in the past. I think it is important to look at why that has been occurring.

First of all, Globalization and Trade, we've got much more and faster trade that has led to more host material, more packaging, more opportunities for long distance hitchhiking of these diseases around the world. Also at the same time there's much more trade in fresh as opposed to processed food, which also increased the likelihood that they will carry diseases. The United States exported very little meat only around 1990 and now it's a much more important part of our beef trade, for instance 10% of production. So the world trade in these products has been moving rapidly. You

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couldn't buy raspberries, fresh raspberries in your grocery store except in June, if you were lucky. Now you can find them pretty much all year round because we're shipping them in from around the world. We've also got many new trade and travel routes that we didn't see before. South Africa to Southeast Asia, Southeast Asia directly to South America and that provides more opportunity.

Secondly another reason for these increasing threats are the increase conflict in civil unrest also will lead to the increase of trans-boundary animal diseases. It makes it very difficult to enforce quarantine through the Military and Refugee Movement. There's often in these failed states a breakdown of institutional support for quarantine. There's also increased smuggling. There's also increased Food AID Flows which may contain contaminates. And it's also in many cases difficult to get access to border areas or other parts or other areas because of land mines, making disease surveillance much more difficult.

There is also a rising demand for meat in the world. Meat in the diet is a very highly income elastic so that when the less income dries people want to eat more meat. This has lead to intensification to production. We're putting more animals in one place often and peri-urban areas near humans and too often in the developing world under sub optimal husbandry practices. Disease outbreaks in high density

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production areas spread to greater number of animals faster at which leads to the possibilities of these viruses and the like of mutating quicker. But it also leads to socially unacceptable control measures. The Classical Swine Fever outbreak in the Netherlands led to mass slaughter of pigs there and that lead to a tremendous backlash from the non-farm population which was reflected on how the Netherlands approached the Foot and Mouth Disease when they got that a few years later.

There is also the conversion of tropical rainforest and wilderness to livestock ranching. This puts livestock in contact with a completely new range of infectious agents and vectors previously only circulating in wildlife. Disease spread rapidly then, as the domestic livestock are fully susceptible host. Global warming trends change rainfall and weather patterns shifting the global distribution of insect vectors like those for Rip Valley Fever, Blue Tongue and African Horse Sickness in addition to Malaria and other human diseases. And most experts agree that bio-terrorism threat has also increased. Perhaps animal diseases maybe even greater threat than human diseases because there is less danger to the terrorist and there is more endemic diseases in some of the poorest countries of the world so the ability to have a major economic impact is great. And I think very importantly the response is often slower for animal diseases

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than for human disease. And that is a combination of a lack of technical capacity and some perverse economic incentives. So it's easier for these diseases to get out of hand quicker and to create more problems. The Public Veterinary Services in most developing countries are usually much weaker than the Public Health Services. Disease reporting systems are based on poor passive reporting rather than active disease surveillance. There is a tremendous lack of farmer awareness of high threat epidemic animal diseases coupled with poor contact between field veterinary staff than the farmers. There are also poor diagnostic capabilities of new and exotic diseases in developing countries both the training of the veterinarian and the laboratory capacity to identify and confirm new diseases.

I was in Laos in December and we had just started there a new laboratory for Avian Influenza. They didn't have the capability last winter to identify a 5-in-1 Avian Influenza in the country. They had to send the samples outside the country. I can't say that the laboratory that we put in there would be very great by American Standards but they at least had some capability at that point. With rising trade, producers also have less incentive to report diseases like Avian Influenza due to the fear of loss of export markets. The typical policy response in Agricultural trade when there is an outbreak is to completely band the imports.

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As I said 1/3 of the trade in the world was affected by this last winter.

The BSE cost here, the Mad Cow Disease in the United States has cost us a billion dollars in lost markets to Japan. Avian Influenza has cost Thailand in there area over a billion dollars in poultry exports. The premier of Alberta and Canada suggested in the media that a good farmer, if he thought he had a cow with Mad Cow Disease should take the animal to the back forty, shoot it and bury it is not a recipe for early action on these kind of diseases. Trade concerns have also limited the use of preventive vaccinations because disease free countries are normally reluctant to import from countries using the corresponding vaccines. You often can't tell the vaccinated animals from the sick animals so that the only answer is to keep it out. And the International Rules by the World Organization for Animal Health means that a country usually must wait longer or jump through more hurdles to begin exporting again after vaccinations than if they use the stamping out policy to kill all of the sick animals. Thailand for instances, has been very reluctant to use vaccinations for Avian Influenza because they want to get back into the export market quicker. It was also part of the strategy to why the United Kingdom was not willing to use vaccinations for the Foot and Mouth Disease there. From a Public Health standpoint a good

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Vaccination Program might reduce the viral load circulating in the country and reduce the risk of a disease like Avian Influenza mutating and spreading more directly to humans.

Compensation schemes are also poor in many of the developing countries. Farmers can easily lose their life savings so it's a further distance to report sick animals that might affect trade. And even when the compensation schemes exist there is often a great disparity that can cause problems. For instance in Avian Influenza one of the biggest problems are the Fighting Roosters which is much more valuable than the common chickens and so in South East Asia when the Veterinary Services was going around to try to stamp out and kill all the sick chickens the Fighting Roosters were hidden from them. We had the same problem in California with New Castle Disease a few years back. And so this failure to timely reporting has hastened the spread of the disease between countries. Some have suggested that the Avian Influenza might have been circulating for months last year in China before it was reported and this led to time to introduce it in other countries. The study of the 2001 outbreak of Foot and Mouth Disease in the UK show that the disease was probably circulating for three or four weeks before it was reported and that if a ban on livestock movements had occurred early on it would probably have cut the spread by over 40% and probably eliminated it's

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spread to other countries in Europe.

So in conclusion, let me say that trans-boundary animal diseases are a growing threat to human health and economic growth in the world. And this alone should make them a National Security Threat. We're putting people and animals together in numbers the world has never seen before in South East Asia and East Asia in particular. And in these places bio-security is often poor. There is a great potential for disease to jump from species to humans to create health problems. I was in Vietnam I was on a medium size farm that they wanted to show me that the government had picked out that was no bigger than this room and in it was a 1000 chickens, 30 pigs, the families' house and the manure lagoon. So if you want to see a recipe for how these diseases can spread and the typical spread of Influenza is from birds to pigs to people and this is true all over that region. Even a place with good bio-security where we had to put on lab coats and we had to put plastic bags on our shoes, they neglected to point out that there were a half a dozen dogs running around that didn't have to do any of that and we were completely moving from facility to facility and this was supposedly a better place. So I think the key to dealing with this is going to be early detection and early response. We need to invest in the Veterinary Public Health Services as long with the Human Health Services in developing countries.

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Without a strong Veterinary Service even the best National Public Health Strategies are jeopardized. We need better training and laboratories and we need preparedness plans. If they're weak for human diseases they're probably even weaker for veterinary diseases in most countries. We also have to improve the incentives to report diseases. We need better compensation for farmers and risk management tools and import bans need to be based on sound science that will assure that countries will have an incentives to report quickly on an International basis. Both these Health and National Security issues tend to fall at the National level but actually we need to look both ways from that both to decentralize government structures and to improve International coordination because these diseases don't respect local or national boundaries. We need government support at the lowest administrative level so we can get early detection and they have to be coupled with coordination at the National and Regional level to avoid the spread of disease through livestock movements and also through learning more about it through sharing diagnostic services. And finally the International Coordination is also critical. In 1994 FAO established its Empress Program for Emergency Prevention of Trans-boundary Animal and Plant Testing Disease to improve FAOs early warning and early action to the disease threats. And this effort has increased our ability to respond to these

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threats. We work very closely with the OIE, the World Organization of Animal Health as well as the World Health Organization on almost all of these aspects of trans-boundary animal disease and I think this coordination has strengthen well. But financial support for these efforts tends to go from crisis to crisis. The ongoing support is not always there. The Avian Influenza case has been a good example in South East Asia where there has been a very close coordination between the three agencies and virtually all of the training and meetings that have occurred in response to Avian Influenza have been organized jointly by the three International Agencies. Yet we need to be sure that the governments continue to support these coordinations even when the crisis isn't on CNN. Thank you. [Applause]

FEMALE SPEAKER: Thank you very much. I think in the interest of time we will go right to David Heyman and hear his thoughts on the Bio-Terrorism Agenda.

DAVID HEYMAN: Good afternoon. Hope you guys are enjoying the day and that your Serotonin isn't rushing through your brain right now and you're ready to fall asleep. I will try to take a different angle. I know a lot of talk today has been a discussion on the emerging of infectious disease or the natural occurring outbreaks. I'm going to talk a little bit more about the deliberate outbreaks and before I get into it I sort of want to give a very broad,

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perhaps historical context in two historical examples.

First, we take back 500 years ago. The Renaissance really began May 29th in 1453. This is the day that [inaudible] and [inaudible] fell to the Turks and it was about a couple hundred years between the Muslims and the Christians when that took place. It's a day that historians mark as the sort of the rejuvenation of the arts and sciences and the middle ages.

The second event I want us to counter balance that with took place 500 years nearly to the month later, June 1953. There appeared an article in British Scientific Journal, Nature, you all know that, by two young scientists James Watson and Francis Crick reporting the discovery of the DNA Double Helix. And why do I talk about these two in just the position to each other. Well we hear from the Bin Laden's of the world that believe in the clash of civilizations and we're really on the re-emergents of a conflict between Western and Eastern Cultures. At the same time with the mapping of the human Genome and the understanding of the instructions of how we describe life I'd argue that we're also witnessing the [inaudible] - the end of the historic age of physics and the beginning of biology of my former boss at the Department of Energy who is a physicist who disagrees to that but I can understand why he is a physicist. What this leads to is really a convergent

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possibility of Global terrorism of wide spread availability of molecular biology and at the heart of this collision is the use of disease as a weapon with Global implications.

So what I'm going to talk about then is six points. First. the new age in biology is likely to transform the world. Two, that the dread of bio-terrorism is real. Three, that 9-11 and the Anthrax attacks were a wake-up call we must respond to that. The consequence of inaction is great. We need government leadership today and the key point of this conference and of my remarks is that Health Security is a National Security Issue.

Let's go back a little bit and look at the convergent of science and security. The age of chemistry started back about 1869, remember the description of the periodic table and with that the power to do a tremendous amount of work putting it on an industrial level. And I note that about fifty years later we had our first use of chemical weapons in World War II. The age of physics, the nuclear age with Rutherford's announcement of the fear of the Nuclear Atom was 1911, less than fifty years later was when we had the first serious use Nuclear weapons in war. I just mentioned the DNA Double Helix, that was in 1953, we're about fifty years from that right now and fortunately at this point no major use has been used of Biological weapons all there were some in World War II and of course throughout history there has been minor

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uses. But this is a new age of biology. We are at a point where the tools that we used to develop the capability to understand the Double Helix, the sequence pathogens are becoming more widely available. Our ability to sequence has improved dramatically. Tripling twice in the last fifteen years and becoming cheaper, and now you have online the capability of describing what sequence your interested in and having a company ship that synthetically designed pathogen to you and I could show you some slides about where you go to do that. We had a publication a couple of years ago about how to do synthetic Polio and it caused quite a stir but I bring this forward because we are now just at the very beginning at the ability to use the tools of biology in the way that we use the tools of physics and chemistry.

One thing I want to just describe is the differences between, everyone has probably heard this before but biological attacks are unique. People talk about weapons of mass destruction they group them all together, nuclear, chemical, biological and conventional. On nuclear, chemical and conventional the deliver is overt, you know when its happened. It's instantaneous and the consequences are finite with the exception of the radiological fall out which takes some time to clean-up and could take quite some time but at least it's discreet. The biological attack, it maybe covert you don't know it's happened, it could be ongoing with

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something that is contagious and the consequences may persist beyond the initial attack because of the ability of secondary infections and so on. Biological weapons proliferation, there was a concern out there of Iraq. I put it on here for mainly because in fact the weapon scientists who were a part of the Iraq program are still around and the regime has not melted back into the society. They're still available and some of them are working right now quite hard to defeat the Democratic processes in Iraq but the technical capacity for developing biological weapons still exist and just like Russia where we had some concern and we still have some concern perhaps of former weapons scientist selling their wares for economic or other gains or perhaps political gains. We do have that concern in Iraq. While we've spent an enormous amount of energy internationally, and both in terms of capital and resources on the former Soviet Unions Nuclear threat we have spent substantially less effort on the biological one. That infrastructure was far greater than our infrastructure in the United States and by contrast we have done pittance in terms of insuring that it has been dismantled in Russian and I'm sure Peggy will talk a little bit more about that. As it is right now there is a number institutes that we have yet to be able to go into.

A couple of these other examples out there in terms of where threats could come from are North Korea and other so

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called Rogue States. We've seen the experience with [inaudible], religious cults and Al Qaeda we know of the evidence that we've found in the Afghan caves and additional evidence from the interrogations subsequent to that. Of the capability, the recipes and the technical capacity for biological threats particularly risen and anthrax. So the threat I believe is real. The US Anthrax attacks started back at with a single case. This is how we might see any kind of biological attack and when we talk about all the diseases that we've talked about today, well I shouldn't say all of them because I didn't hear all of them, but a number of them it is not impossible to think of them as a deliberate attack where you hear of a 63-year-old man admitted to an Emergency Room with fever, vomiting, muscle aches and confusion. That is quite common, quite normal and yet it's in fact the beginning of a biological attack. Eight weeks later as we know from the Anthrax experience it had spread to five states. We had eighteen individuals contracted Anthrax, five of them died. In D.C. alone we had 40,000 people require Post-Exposure Prophylaxis, the largest single medical intervention that we had done til that time. But it had national consequences beyond just the individuals who were attacked. We shut down frankly two-thirds of the government, Federal government that is. There were delays in Postal operations for actually years outgoing where substantial

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investments in the security now particularly in Postal operations and decontamination efforts, that number is substantially lower than it really is because the Federal Government contributed massively to the clean-up in Washington, D.C. and the efforts there but did it on normal operating budgets that weren't accounted for. That was our wakeup call but let's talk about this Internationally.

Anthrax, not contagious and yet despite that and despite that it really only had taken place in a couple of cities in America, the Anthrax attacks were substantially globalized. We started in Florida and across the United States. I just gave you that summary but if you look across the globe then, because of the fear of potential copycats or for a concern of ones on, the so called worry on health we had in Europe over 7,000 Anthrax investigations within two or three months. France alone had 4,000 investigations. We had on every Continent investigation's having to do with Anthrax. Four hundred in [inaudible] and these are just some examples. There was one real letter that was in Chile and then in Mexico we had 700 investigations, Japan had approximately 2,000 investigations. All of this, some four or five letters sent to from the US Postal System. And this again from something that is not contagious. Now if we take the question and I don't have the slide on this but if we take the question on something that would be deliberate, the

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closet we could come to perhaps a model for that is SARS. In the SARS outbreak there was no reason to think initially that it wasn't deliberate or that it was. We didn't have the evidence either way or the question is, how does the world respond to that? Well we responded as if it was an outbreak of an unknown pathogen and the World Health Organization, first of all states and local authorities took it primarily but with coordination and research efforts by the World Health Organization. Had this been a deliberate outbreak there are a number of questions that are raised in terms of who is in charge and what's steps to take. The World Health Organization has members that would be quite concerned that there epidemiological investigation would be turned into a security investigation and looking at pointing a finger at either a state that had accidentally released a new pathogen or perhaps individuals who are within a state and so at this point the World Health Organization has said that they would be uncomfortable looking at this from a security perspective. But the SARS case is worth noting, particularly as we talk about the question of Human Rights and the recourse we had with no medical intervention of sorts other than Standard Health Practices but no counter measures, no vaccines, no therapeutics. We relied on restricting people's movements so they would not pass on the disease from one to another.

I just add that the economic consequences as we look

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at Foreign Policy are large just from terrorism in general but also particularly for health consequences. For SARS we had the travel announcement that was travel recommendations had an impact on economics. The D.C. government made a intentional decision not to invoke the Stafford Act, which was the request for emergency support from the Federal Government when they don't have the resources, or the capacity to deal with the crisis in the Anthrax attacks. They did that because it was after 9-11 and tourism was done and they already had economic consequences that they were concerned about but it goes beyond, including the Anthrax, it goes beyond our borders. If you look at the earlier outbreaks that naturally occurring ones in the early 90s, the cholera and plague, you had approximately several billion dollars worth of losses because of tourism and trade losses despite the fact that the World Health Organization gave the blessing for people to go and travel in those regions. You have other things like consumption decline consumer confidence goes down, investments because of a terrorist attack, people's risk aversion goes up and if you see the draft on the bottom is actually the Stock Market after 9-11 but that affects our global integrated economy so that the prices in the US affects Japan. We talked just a minute ago about the animal pathogens such as Mad Cow, that has had billions of dollars impact and that was nationally occurring.

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So the consequences if you do not look into this are great. And actually I should comment on Laurie's comment this afternoon, it shouldn't take a tsunami to look at the health consequences of interaction.

So what should we do? There is no model for deterrence today but the best thing we can do is make it virtually ineffective and if we can't prevent an attack from occurring we have to develop the capacity for a number of things. We have to be able to detect it. The earliest detection would reduce morbidity, mortality, and the ability to diagnose quickly what the pathogen is to develop some counter measures. Effective counter measures need to be developed, rapid decontamination recovery, we actually learned from the Anthrax attack that's probably the least researched and least known, how do we clean up after these kind, the Anthrax in particular which was significantly stable and will stick around for quite some time. And in addition to the Public Health concerns we also have to address the need for better intelligence because we want to stop these things in advance. How do you know there is suspicious activity is going on? How do we know if somebody is perhaps bought too many Pitre dishes of Auger? Are there other indicators we need to look at for intelligence? Who will screen for interjection, interdiction, for the forensics as well as programs to address the root causes of terrorism?

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All of these things need to be part of a Comprehensive Program and we in government need leadership to do that. And there are a number of areas that I will just put out there. Research of course. Education, we've done a substantial amount of development of education programs in this country. There was some discussion on the International level of bringing together the International Community. We're looking at the questions of whether there is an intersection of response of Prevention, Preparedness, Response, and Recovery. Things like Standards, Best Practices, that hasn't gone anywhere at this point although it is still being discussed. As I said, the World Health Organization is not and will not at this point take a leadership role if there is an intentional or a deliberate outbreak except in helping out in the epidemiological investigation. Exercises are critically important. We just had a exercise here in Washington D.C. done by the Pittsburgh Center and the John Hopkins, Atlantic Storm that looked at these International Dimensions and raised the concerns that I'm just talking about in terms of Command and Control, Crisis Management, Sharing of Resources. They focused particularly on the sharing of resources if there was a smallpox attack there is not enough vaccine to protect everybody. How do you distribute that in a way that's effective? And foreign assistance governments that cannot help out perhaps that can help out beyond their own

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borders in terms of Public Health Education or in above that because of the terrorism we need to actually replace these with tools that are not teaching the anti-Americans.

Some barriers to getting there are Stovepipe bureaucracies; this goes across every government in every country. There are new partnerships that need to be brought together. The Public Health Community is just one. I would actually like to see by the show of hands, how many people here are from Law Enforcement or the Traditional National Security, like defense? I see some stripes over there but that would be Public Health. Okay. This is a conference where you are talking about Foreign Policy as a Public Health issue there should be Security folks in the room because it really is a security issue even if it's not a deliberate outbreak. As Chuck has said, the implications to failed the states but going back to the barriers. If we don't have the different stovepipes together everybody thinks it's somebody else's responsibility and my bottom line is that we need to have an integrated approach in bringing the folks together to do that.

Some assumptions to re-examine: This is something that is relatively new and Steve talked about the Clinton Administration. I was at the White House at the time when for the first time we made Health Security as part of our National Security Strategy. The concerns about the AIDS

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epidemic in Africa and failed states are what lead the first on that. It's been reconsidered and particularly important today with the concern of failed states you have in Africa obviously the opportunity for states to collapse. I think the next panel will talk something about the role but if you do, we're concerned about Afghanistan and the role that weak or failed states have in providing safe haven for terrorist. We need to be thinking about the implications from a security prospective of what happens where AIDS takes over 30% of the military, 40% of the civil society and you actually end up having the inability for government to do its job. That was all the points I just made so we'll go to an added benefit as a spillover effects of us dealing with this as a security concern beyond traditional Public Health. If we do have the necessary Global Surveillance Capacity for early detection for bio-pats obviously those networks will expand and preventing and controlling other diseases. For emerging infectious diseases like Tuberculosis, strategies that we put in place in terms of Health care Infrastructure for this example, if we do the invest today we can improve our investments in other categories and then if we look at America and in particularly industrial countries, the President talked about this in his speech on Wednesday. We have an aging society and the healthcare needs are only going to go up and in 2025 across the globe will be 1.25 billion

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people over the age of sixty and then it will continue to expand tremendous cost to healthcare and then our investments in the medical field and Public Health and our ability to counter disease will perhaps help bring down those cost as well.

So let me conclude by saying that the convergents of global terrorism with the sense of microbiology presents us with a great challenge but also an opportunity, at best we may long last develop the capacity to relieve tremendous human suffering and perhaps even the relation to certain diseases but there are also underlying assumptions that we need to confront. We have to look at this as a National Security. We have to conceive of Health in the context of beyond traditional consideration. Thank you. [Applause]

SHARON HRYNKOW: Thank you David. Well let me introduce again Peggy Hamburg, Dr. Hamburg who has looked at these issues from a number of advantage points and we welcome you to the podium. We look forward in hearing your prospective.

PEGGY HAMBURG: Thank you very much and thank you Sharon for your flexibility in structuring this panel. We presented her with a dilemma as the session began that both David Heyman and I had come prepared to give basically the same presentation except he was actually prepared with a PowerPoint and everything and I had scribbled notes so

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showing the flexibility that is so critical for all good health professional and all good diplomats she came up quickly with a strategy that would enable the panel to move forward in a hopefully coherent and effective way. So the task that I'm taking on now rather than talking about the Global Challenges of Bio-Terrorism as indicated on the original agenda is more to just reflect on the presentation that we've heard and perhaps underscore a couple of important points. I think we had an opportunity this afternoon to hear from three people who have been quite intensively on some of the most important issues of our day. And in the context of a broader meeting that has really focused in on a very timely topic that I think deserves much more of all of our time and consideration is the role of Health in Foreign Policy.

This panel obviously focused on the infectious disease threats and I think we would probably all agree that the most valuable way to think about Bio-Security is to define it as a problem of protecting people and Agriculture whether caused by terrorist. Whether cause by a State Run Biological Weapons Program or caused by natural events. And I think we all probably agree that Mother Nature can be a very effective and powerful terrorist. There are several trends that have been remarked on this afternoon that I think really do under score how important this issue of Bio-Security is in the 21st Century and why we really need to

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recognize not just the current state of the threat but the evolving nature of the threat. Clearly emerging infectious diseases are taking a powerful hold with huge implications economic, political, and health implications around the world. For the past three decades every year we've seen at least one newly recognized infectious disease emerge and we have detected it and labeled it. We've seen old disease re-emerge including old diseases in new forms such as drug resistant Tuberculosis and we have to recognize the nature of the world we live in today is creating more and more opportunities for the emergents for sergents and modification for [inaudible] threats. Health. Charles gave a nice list talking about some of the factors that influence the emergents and taking hold of the infectious diseases in our modern world. The advent of International travel and trade, Urbanization, crowding compounded of course by poverty, changes in environmental practices and agricultural practices. And changes in how we address Public Health including our willingness in the past to allow critical Public Health Infrastructure to deteriorate to the point of ineffectiveness allowing the resurgent very preventable and controllable diseases. And of course we can't under estimate the power of microprobes themselves and many great thinkers have noted if we want to talk about war against microprobe disease we will know who the winners will be. Not us, but

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the microprobes. So we need to really seriously address the National and Global concerns of the threat of infectious diseases. We have to do that today in the context of the advent of mass casualty terrorism. And as David pointed out it became clear during the decade of 1990s really, that mass casualty terrorism was an important and escalating contemporary threat. Terrorists were changing how they did business. They didn't just want a seat at the table they wanted to blow up the table, more casualties, more horror, more devastation, more disruption. Probably in the near term more conventional terrorism threats will remain the norm but I think we have to recognize the biological threat has the potential to be very attractive to terrorist. Some people refer to it as the Poor Man's Nuclear Bomb in a world of Grade A symmetries and power the biological weapon can represent a very important tool both for terrorist groups and also for disenfranchised nations, sort to speak. We know that terrorist groups and nation's states have been interested in biological weapons and have made attempts to develop programs. Russia obviously had a very large program at the height of the cold war. The terrorist groups like [inaudible] also invested heavily in biological terrorism and they actually tested biological weapons, not tested they tried to release biological weapons several times in Japanese cities but without success and we know unfortunately that Al

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Queda has a strong interest in biological weapons as has indicated that they have a religious duty to pursue the development of biological and other weapons of mass destruction. Also as David mentioned the dramatic advances in biotechnology has really changed the nature of the equation. They give us great opportunities or strategies to prevent disease and promote health and they do have a potential dark side as we know more about how to manipulate organisms as we know more about strategies to insert materials into human genomic. As we learn more about basic regulatory mechanisms in the body we can start to think about the next generation of biological weapons, which may not be infectious. We tend to really be focused on the infectious disease model and the epidemic model for biological terrorism but there is every reason to believe that strategies such as neuromodulators or disruptors might be weapons of the future and also potential military weapons non-lethal strategies for certain kinds of confrontations and military or other attacks. So we live in a very complex and rapidly transforming world. Our modern world as has been noted by the panelist requires new ways of thinking, new strategies to address the new partnership as this conference has noted the intersection between Health and Foreign Policy and National Security is one that very urgently needs our attention. But as we pursue that we have to recognize all of the other

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critical partnerships that have to be developed. It might be hard enough to get the National Security, the Foreign Policy and the Health and Science Communities all around the table understanding each other's different cultures, languages, and mission but it's far more multi-disciplinary than just that. We have even in the smallest ways within the Public Health Community really failed to work effectively to work with our partners in animal health. Clearly we must do that. We have really not been very successful at working across levels of government local, state and Federal let alone working on the International front but in the final analysis strategies that will be meaningful and effective against the threat of infectious diseases must be international. We simply will fail if we don't understand that International cooperation and collaboration is the cornerstone of success.

So let me then, we want to leave some time for questions and answers, just highlight a couple of things. One, and I know there was a discussion this morning and unfortunately I wasn't here for it so I hope that I'm not being repetitive or saying something that is clearly untrue based on information you heard this morning. For this issue of Health and Security it both represents a potential for enormous synergy Health and Security but also the potential for some discordance Health verses Security. And I think we have to recognize both the opportunities and the pitfalls as

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we move forward along a path I think we must pursue which is the stronger and deeper integration of Health and Security concerns. Obviously there are enormous problems that we face in the realm of health and in the context of this panel in the realm of infectious disease. Health Programs can make an enormous difference. We're not doing all the things that we can do to address critical health problems that day in and day out take an enormous burden on populations around the world. We're not doing all the things that we as a nation can and should be doing to protect the Health of our own nation in the most selfish of ways by investing in Global Public Health and Health Programs either. And we also are not thinking about Health as a Strategic tool to deal with some of the very troubling problems around the world today that help to foster terrorism and make terrorism take hold as a philosophy and ideology. So I see this as a critical moment to use Health in new and creative ways as a Humanitarian effort to address very real, very critical problems but also as a bridge to building new relationships of trust between individuals, communities and nations. As a mechanism to enable our country, which I think, is finding itself in a difficult place internationally to lead with the strength but not a military strength but strength in Health and Science. We are still at the forefront of Public Health, Medicine and Scientific Research today and we ought to share our wealth

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both because there are so many in need but also it gives us an example to but the best possible face on America today at a time when it is critically needed and at a time when even our traditional allies are starting to wonder. So I think we ought to embrace this new concept but we must do it recognizing that using Health as a tool of diplomacy does have its complications. We are attracted to using Health in many ways as a tool of diplomacy because it's a value that's commonly shared. It's a common good and it's something with immediate and long-term benefits and when practiced in the best possible way is non-ideological but there are also the dangers that as you start to use health as a tool in your Foreign Policy it can get distorted. You can even potentially undermine the ability of Health Programs to do good if they are seen in the context of political ideology in particular but a set of Foreign and Policy goals that may not always be in true concert with Health needs and goals. Due to the time I won't belabor all those points but just put them on the table.

The other thing that I just want to underscore is the issue of Political Will. Political Will matched by adequate resources. Dollar resources, human resources and good will. You know, Steve talked about the HIV/AIDS epidemic and how it has become reframed in the National Security concern and that I think is very important. It is also very striking to

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recognize that the numbers were clear long ago in terms of the magnitude of the epidemic and the incredible toll it was going to take particularly in the poorest parts of the world. But it wasn't until it was really until it was being felt day to day in terms of the impact of economic productivity and social and military stability that action was really taken. So how do we get some of these critical issues on the radar screen of the critical Policy Makers and National and International Leaders? We have to wait for the tsunami as what Garret was saying to recognize and address core problems that are taking lives and burdening communities day in and day out. We've got one example right now that I just have to mention and then I will close, which is flu. We now know the sequence of the 1918 flu that caused that worldwide pandemic which we would be so much worse today in the age of Globalization. We know that the Avian Flu is enormous and worsening problem and it's only a matter of time before we see a strain that's transmissible human to human. And we know that every year we don't make enough vaccine even for the high-risk population in this country, let alone the broader population. So what are we doing? You know we should be investing in this. We know this will take more lives than any terrorist acts that we've ever seen if there is a worldwide flu pandemic. We should be investing in the development of new technologies for a flu vaccine and insure

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adequate production capabilities for flu vaccine. as among our national, our highest national priorities and yet year after year we have problems with our production. We're surprised by shortages. One minute we have excess capacity and one minute we have shortages. Nobody seems to be taking the leadership. Maya Copa the guy that was responsible many years ago when I was at HHS, for trying to develop a pandemic flu plan but the time is now. These issues are so important and I just applaud the organizers of this conference for putting this issue on the table, for making us think about Health in new ways, trying to bring together Health and Foreign Policy communities and I think this is the future. Thank you. [Applause]

SHARON HRYNKOW: Thank you Peggy. And please join me in thanking our entire panelist. [Applause]. We do have time for a few questions so please Queue-up and as you are Queuing up I want to note one Arab Proverb that occurred to me as you were speaking Peggy and it goes like this. He who has health has hope, he who has hope has everything. And so as we think about Health and Terrorism that proverb springs to mind. Laurie.

LAURIE GARRETT: Quick question but Steve great talk. Do you think any members of Congress understand what the policy ramifications would be in a budget tightening period, cutting ARV Funding overseas and do they understand that

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we're in this multi-decade commitment here and two, Charles if, I agree with you, I'm very, very, very worried that as G&P Growth skyrockets in Asia people are eating more meat and animal husbandry there is insane. Are there any international mechanisms in place or could you envision what they would be to try and promote safer animal husbandry practices particularly in poultry in that region of the world, and how would we do that, how might that work to minimize the Avian Flu and then given the Avian Flu it's probably come. My question to David and Peggy is, the 1918 strain was sequenced in a BSL three-level laboratory in Wisconsin. The entire sequence was published with viral genes identify in the open literature. Number one, should we be doing experiments like that in BSL facilities and Number Two should the identities have been published?

SHARON HRYNKOW: Well let's just go down the row here.

MALE SPEAKER: The question that you raise Laurie about the gravity and longevity and long-term commitment by the government in the case of the HIV/AIDS is 2 million people on life sustaining drugs for these which are no cure I think [inaudible] term and is that understood when we look at the pressures of the certainties around the cost of sustaining. I don't think we've gotten there on that. I don't think it's has quite registered that putting 2 million people

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on this kind of life support of life extending treatment to become a foreign policy if you were to scale it down it would be devastating to the people involved and devastating to the creditability to the states and its only a fraction of the [inaudible] step. In general the decisions that were made recently to dramatic step up our commitment to the National HIV/AIDS Control were ones that were made on a moral basis and on a strategic bases. Iraq drove that process the evidence of it and the long-term implications are only now beginning to see them. There are some people [inaudible] but we've not really come to that serious focus of discussion.

CHARLES RIEMENSCHNEIDER: On the Agriculture side there are a number of, we've done a lot of work on good agriculture practice now that [inaudible]. The problem is how do you get them adopted in the countries. And interesting development in the last week that Vietnam decided to ask for more international assistance because they have been somewhat reluctant to really ask for serious international [inaudible] influenza outbreak there to the extent that this is an opportunity to bring in and to start to institute some of those good agriculture practices with appropriate levels of bio-security effort but it took us a long time in this country and we're fortunate to do so that our agriculture basically is pretty diverse from your other population is in the country and in Asia that is not going to be the case and

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economic development there is, you're right is going to create a tremendous problems but I think eventually it's going to see a lot of the breakdown of the village poultry operations and liking for more of what we would call more bio-secure poultry production in there in order to meet the demand. The only they're going to be that way and those processes will be somewhat more efficient and maybe it will be economics that end up driving it in the end more than government policy.

MALE SPEAKER: Just two points on whether this sequence should be published. I think we actually as a society haven't figured that out yet. On the one hand in order for us to protect ourselves, particularly on the flu but also on other pathogens that we're concerned about for terrorism but not that we couldn't be for flu terrorism is the at the very nexus of our concern is in the midst of that you have life and death. In order for us to protect us better we have to understand what they are. At the same time while we understand what they are that is what in effect creates the death. So you are right there at the center of helping us improve our health but at the same time creating the opportunity for harm. I personally believe we should airing on more openness for one thing it's my understanding of the threat that while it is conceivable for folks to have the capacity to sequence and create pathogens whether unique

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or otherwise it's not easy as one might imagine. There are folks and annual contest for sequence for creating the unique pathogens in graduate programs. Graduate students can do some of this but we're talking about quite simple pathogens. What we have to think about as a society down the road and down the road it's not as clear as the technology becomes more prevalent and as the information becomes more prevalent. I think we as a society need to think about are there things that are particularly, give one particularly pause such as publishing how you might make influenza virus more viral. I'm not sure that helps us in any capacity. Some people might have a difference of opinion but people do figure that out for example, the mouse pox and we had a conference a couple of years ago to look at this questions at the National Academy and a number of publishers said we formed their publication policies, the Academy of Sciences, and said look we need to have at least the awareness that the National Security Implications for Research and I think we need to start there and think broader as we go forward.

SHARON HRYNKOW: We have time for only one more question. One more question and we'll go here. And I'll ask our remaining two questioners to come on up during the break and get your question in.

LAURA SEVAGE: Laura Sevage from the Institute of Medicine. My question is for Charles Riemenschneider. As you

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know the United States and other countries use screening at Ports of Entry to try to prevent the introduction of diseases by animals and your talk made me wonder if you felt this is the best of resources in prevent a set of [inaudible] Public hosting it again in the animal arena I'm wondering it that is the case. Do you think it is an effective use of resources and if so what are some key elements of these programs so that they can be implemented effectively especially given volume of trade these days at the ports with huge cargo containers coming in everyday.

CHARLE RIEMENSCHNEIDER: Well certainly it is very difficult to inspect, I think the FDA inspects a percentage of all of the food imports into this country and even when I came back from my trip in December from Asia having been on farms and everything else I went through and checked the mandatory boxes on my form when I came in and I was asked a few questions and they said, I cleaned my shoes and I promised I wouldn't go on a farm for a couple of weeks. So the intentional introduction of some of these, that's probably not going to do much for that but I think at this point the main thing that we can do is invest in trying to prevent it in the sources of origin because it is always going to be a lot cheaper and easier to do that than it is to try to stop it once it gets to a border or a ship or something.

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SHARON HRYNKOW: All right then in closing I think this has been a very rich discussion and the Global House Agenda includes a very important infectious disease component. I want to have a final word on the Chronic Disease Agenda. Remind us all that the Global Health Agenda includes the Chronic Diseases, Cardiovascular Disease, Stroke and I do want to point out that today is National Wear Red Day which is mark and remind us all that the number one killer of women in this country is Heart Disease, five Hundred Thousand women per year. So with that I want to thank you on behalf of the whole panel for your attention. Thank you very much. [Applause]

[END RECORDING]