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**BEFORE THE
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT
MANAGEMENT, THE FEDERAL WORKFORCE, AND THE
DISTRICT OF COLUMBIA
COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
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USAID appreciates the opportunity to discuss the critical issue of infectious disease surveillance and USAID's global efforts to strengthen the ability of countries to detect and respond to infectious diseases.

Research has consistently identified a powerful link between investments in improving health status and a nation's economic, social, and political development; I personally have seen the impact of health advancements, many of which are due, in large part, to the generous support of the American people.

My comments begin by discussing the broader topic of infectious disease surveillance and USAID's activities in this area, and then focus more specifically on the topic of emerging zoonotic diseases. My comments reflect the work and vision of USAID's programs in these areas, which are summarized here:

- First, our programs strengthen surveillance systems by building developing country capacity to detect newly emerging diseases.
- Second, our programs focus on fully implementing both arms of the surveillance loop, that is, early detection and rapid and effective response.
- Third, recognizing the increased threat of diseases of animal origin, our programs are fostering critical links between human and veterinary public health.

- And finally, interagency collaboration is a vital element in our efforts to address the issues we are discussing today.

Undoubtedly, diseases are not only significant public health threats – they also jeopardize international commerce, development, and security. It has been estimated that SARS cost the global economy between \$30 - \$100 billion.¹ The influenza pandemic of 1918 killed between 50 - 100 million people. A similar pandemic today would kill many millions and devastate the global economy for years to come. The social and economic disruptions caused by outbreaks of this magnitude are capable of destabilizing governments and contributing to the increased threat of international terrorism.

One important realization of the public health community is that the security of any country depends on the ability of all countries to maintain an effective public health infrastructure. This includes the ability to detect rapidly disease outbreaks as well as the ability to respond to those outbreaks in a timely and effective manner. In this way it is in the national interest of the United States to support capacity-building activities in developing countries in order to strengthen their ability to control infectious diseases before they spread globally.

This call for support to capacity-building activities is emphasized by the International Health Regulations, which urge all member states to build, strengthen, and maintain the systems needed to detect, track, and report on any disease that is considered a “public health emergency of international concern.” USAID is in a critical position, through our disease control programs and our surveillance assistance, to help countries develop these capacities.

USAID has taken on this challenge through several of our programs targeting health system surveillance capacity. The GAO report being released today captures some of our central efforts in surveillance system capacity building, such as our support for Field Epidemiology Training Programs (FETPs) and Integrated Disease Surveillance and Response (IDSR). In addition to the areas mentioned in the report, USAID’s disease

¹ Sadique MZ, Edmunds WJ, Smith RD, Meerding WJ, de Zwart O, Brug J, et al., Precautionary behavior in response to perceived threat of pandemic influenza. *Emerg Infect Dis* [serial on the Internet]. 2007 Sep [9/26/07]. Available from <http://www.cdc.gov/EID/content/13/9/1307.htm>

control programs are also making important contributions to building surveillance capacity. A few examples of this work include:

Polio

Since 1985, USAID has spent approximately \$290 million for polio surveillance in over 40 countries in Africa, South Asia, the Near East, and Newly Independent States (former USSR). These funds have created a global network of 148 national and regional laboratories capable of isolating, serotyping, and in many cases, genetic sequencing of polio viruses. The robust surveillance systems created for polio have been used to support identification of other outbreaks, for example, meningitis in Ethiopia and yellow fever in Liberia.

Tuberculosis

In the area of Tuberculosis (TB), USAID has made significant investments in computerized electronic TB registries, global TB monitoring and surveillance, multi-drug resistant TB surveillance, and TB monitoring and evaluation. In over 200 countries, this global surveillance program is building local multi-disease capacity to collect data and use it effectively to manage patients and programs.

Malaria

The goal of President's Malaria Initiative (PMI) is to reduce malaria-related mortality by 50% by reaching 85% coverage of the most vulnerable populations (pregnant women and children under five) with proven malaria prevention and control interventions in 15 sub-Saharan African countries: insecticide-treated bednets (LLINs); indoor residual spraying with insecticides (IRS); intermittent preventive treatment for pregnant women (IPTp); and prompt treatment of malaria with artemisinin-based combination therapy (ACTs). The PMI is an interagency initiative led by USAID with HHS/CDC as a key implementing partner.

Surveillance of malaria is an essential part of this initiative including establishing and/or supporting national sentinel surveillance sites to collect information on malaria-associated morbidity and mortality and for entomological and epidemiological monitoring. Sentinel sites are typically located in both malaria endemic and epidemic areas. PMI is supporting

health worker training in malaria diagnostics and case management to improve the quality of reporting from these sites.

PMI focus country malaria operational plans also support epidemic surveillance and response, building on national malaria control program strategies. The need for early detection and rapid response requires strengthened health information systems at district level and resources to ensure the availability of additional malaria treatments and insecticides for household spraying in the event of an epidemic.

In a few PMI countries, pilot efforts are underway to explore the feasibility of community-level surveillance systems to track and report on morbidity and mortality at the household level in catchment areas.

In the first 18 months, the PMI reached about 10 million people with lifesaving prevention or treatment services in the existing seven focus countries. The remaining eight focus countries are scheduled to begin activities in FY08. The PMI obligated \$30 million in FY06 and \$135 million in FY07 in the focus countries.

Avian Influenza

Initially funded in 2005 through supplemental appropriations, to date, USAID has programmed approximately \$345 million to limit the spread of avian influenza and prepare for a possible pandemic. USAID works with its partners to improve disease surveillance and diagnostic capacity for rapid detection of AI in animals and humans in affected countries. In Indonesia, where AI is endemic in poultry, USAID supports a community-based surveillance approach, and has mobilized participatory disease surveillance and response (PDS/R) teams in 188 districts across Java, Bali, Kalimantan, Sulawesi, and Sumatra that routinely visit villages and collect essential surveillance data and samples for laboratory analysis. In total, 2,438 Indonesians currently work in the field in 598 surveillance teams, 593 response teams, and 28 combined surveillance/response teams. USAID also works with the Wildlife Conservation Society through the Global Avian Influenza Network for Surveillance (GAINS) to increase surveillance of wild migratory birds and track the movement of AI globally. GAINS contributors work in 28 countries around the world, conducting mortality surveillance, AI sampling, and wild bird censuses. Through GAINS, more than 10,000 samples have been collected for H5N1 analysis and census data

from nearly 103 million bird observations has been made available via an open database and mapping system. During its first year, the GAINS program also trained more than 800 people in wild bird handling, sampling, and/or data collection related to controlling the spread of the H5N1 virus.

These surveillance activities have substantially increased the availability of scientific information about the H5N1 virus, including whether genetic changes have occurred that could increase its threat to humans. This information is also being used in early-warning systems, which help notify at-risk countries about the movement of AI and the nature of the risk they face. For example, GAINS releases confirmation of high pathogenic AI-positive test results within 24 hours so alerts can be disseminated.

While the primary focus of our disease-specific programs is to control the diseases contributing to the majority of mortality worldwide, the activities carried out with these resources are designed to also create long-term surveillance capacity to deal with other infectious diseases, including those of animal origin. For example, USAID has provided technical assistance to national avian and pandemic influenza preparedness task forces in 57 countries to build planning capacity within governments that will allow those countries to efficiently respond to an outbreak of any infectious disease.

Finally, USAID communications programs are working to support mass media campaigns and targeted outreach to generate awareness about the threat of infectious diseases such as avian influenza. These campaigns can be applied to similar disease prevention and food safety issues. For example, simple messages, like those emphasizing proper hand washing after handling poultry and proper farm cleaning and caging practices transcend avian influenza prevention and reinforce messages regarding the prevention of other zoonotic and food-borne illnesses.

Since these disease-specific programs are implemented by many partners within the US Government and the private sector, collaboration is a critical element to our success. Therefore, I would like to mention a few examples of how USAID is collaborating to build better surveillance capacity.

- In collaboration with HHS/CDC, USAID's Global Health Bureau has provided substantial support to the training of field epidemiologists through Field Epidemiology Training Programs

(FETP). Since 2001, USAID, in coordination with HHS/CDC, has been providing direct support to a number of national FETPs. Recently, USAID, working with four African programs and the HHS/CDC, provided the seed funds for the formation of the African Field Epidemiology Network (AFENET). AFENET, established in 2005, has quickly become a critical element of promoting improved public health training in the African region. Its member network of five field epidemiology training programs in Africa (Ghana, Uganda, Kenya, Zimbabwe, and South Africa) has trained hundreds of African epidemiologists who are an important human resource in local and national efforts to detect and respond to infectious diseases. In fact, approximately 95% of all Africa FETP graduates remain in government service as public health practitioners at local, district, and national levels. AFENET's continued promotion of high quality epidemiology training has crystallized into a resounding desire for many African countries to start their own FETPs, including Ethiopia, Tanzania, southern Sudan, a regional francophone program in West Africa, and Nigeria.

USAID's Avian Influenza Program is providing technical and financial support, along with CDC, the government of Nigeria and AFENET, to develop the first field epidemiology training program in Africa that integrates veterinary medicine, laboratory training, and field epidemiology into a combined program. This innovative approach will serve as a model for other countries in Africa to improve the integration of animal and human health professionals in a manner that will facilitate more effective and efficient ways to address zoonotic diseases such as avian influenza.

- USAID has been providing support to and collaborating with HHS/CDC to support the World Health Organization's Integrated Disease Surveillance and Response (IDSR) strategy in Africa since 1996. The IDSR strategy aims to improve the availability and use of surveillance and laboratory data for control of priority infectious diseases that are the leading cause of death, disability, and illness in the African region.
- DOD's field laboratory stations provide critical support to several of USAID's programs in countries such as Nigeria, Peru, Egypt,

and Indonesia. For example, in Indonesia we supported NAMRU-2 to expand human influenza surveillance to areas experiencing animal outbreaks.

- USAID is also partnering with a number of NGOs in support of infectious disease surveillance. As noted earlier, USAID is working with the Wildlife Conservation Society to establish the Wild Bird Global Avian Influenza Network for Surveillance. USAID has also recently established a grant with the International Federation of the Red Cross to develop better humanitarian response procedures for NGOs in the face of a potential pandemic of avian influenza.

Zoonotic Diseases

One of the most important lessons in human health of the last thirty years is that the human population is facing an increasing risk from infectious diseases of animal origin.² Human-animal interactions have always been a critical factor in the transmission of disease. Of the 1,415 pathogens that infect humans, 62% originated in animals.³ Examples of these diseases include SARS, Avian Influenza, HIV/AIDS, Ebola, and the West Nile Virus. A variety of factors are contributing to this phenomenon, including international travel, global trade, human behavior, rapid microbial adaptation, increasing interaction among humans and domesticated food animals, and changing climates and ecosystems. Although the emergence of many of these diseases is difficult to forecast, (there were three influenza pandemics in the 20th century), we are comfortable in saying that the regular appearance of new infectious diseases of animal origin is virtually inevitable.

Several recent outbreaks have demonstrated how our previous investments to strengthen multi-disease surveillance in the region facilitated critical detection and response of zoonotic diseases. For example, this past spring an outbreak of Rift Valley Fever, a rare disease with the potential to cause severe disease in both humans and livestock, occurred in East Africa. In

² Marano N, Pappiaoanou M. Historical, new, and reemerging links between human and animal health. *Emerg Infect Dis* [serial on the Internet]. 2004 Dec [9/25/07]. Available from <http://www.cdc.gov/ncidod/EID/vol10no12/04-1037.htm>

³ Kruse H, Kirkemo A-M, Handeland K. Wildlife as source of zoonotic infections. *Emerg Infect Dis* [serial on the Internet]. 2004 Dec [9/25/07]. Available from <http://www.cdc.gov/ncidod/EID/vol10no12/04-0707.htm>

Tanzania, one of several affected countries, collaboration among USAID, CDC, WHO, FAO, and others led to rapid detection, which permitted a timely response by the Government of Tanzania (GOT) to control the outbreak. The GOT acknowledged that their ability to mobilize a response was greatly enhanced by the relationships that were fostered over the past year between the Ministry of Health and the Ministry of Agriculture by the USAID avian influenza program. A similar example is unfolding in the Democratic Republic of the Congo (DRC) where detection and control of an outbreak of Ebola is being facilitated by our avian influenza program. In both cases, control measures included the provision of personal protective equipment (PPE) provided to protect against pandemic influenza.

Of course, surveillance data is most useful when it leads directly to an appropriate response that prevents adverse events. USAID programs are based on this principle and seek to connect the collection and analysis of data to a tailored and appropriate response.

These examples underscore the fact that zoonotic diseases can appear with little or no warning. Since we cannot predict what disease may be emerging next, there is an urgent need to build capacity to prepare for any newly emerging disease.

Accordingly, USAID is moving forward with a more comprehensive surveillance and response program to address this issue. We are further integrating surveillance into our existing programs. We are also working to integrate veterinary and human health in a way that will enhance prevention and control strategies for zoonotic diseases. In addition, we have commissioned the Institute of Medicine at the National Academy of Sciences to convene an expert consensus committee to consider the challenge of achieving sustainable global capacity for surveillance and response to emerging diseases of zoonotic origin such as SARS and avian influenza. The committee will review the emergence and spread over the last several decades of a diverse range of agents of zoonotic origin. They will study the causes underlying this growing phenomenon, trends in these factors, and the implications for long-term domestic and international development and security.

It is anticipated that the IOM's findings, which will be released in 2008, will guide programming for zoonotic diseases in a way that builds sustainable surveillance capacity for the early detection of global health threats.

Together with our partners, USAID remains a key supporter of programs in infectious disease surveillance. Through our partnerships with other USG agencies, the private sector, and certainly the support of Congress, we will continue to improve the capacity of developing countries to detect and respond to infectious diseases.