



Researchers of Noguchi Institute watching pathogen. From endemic diseases to three major infectious diseases, research in the affected area will protect the whole world.

Terror Broke out Suddenly Establishing a Network for Prevention in our Entire Society

The largest Ebola outbreak in history started at the end of 2013. What can Japan do with countries in Africa to confront this disease? We followed the Japanese cooperation which covers from front-line treatment to local health policies.

A HOSPITAL WITH INSUFFICIENT EQUIPMENT AND MANPOWER COURAGEOUSLY ACCEPTED PATIENTS

While Liberia celebrated the end of Ebola outbreak in May and continues to stay at zero transmission of the Ebola Virus Disease (EVD), Sierra Leone is in its turn on the verge of conclusion. In Guinea, on their side, the vaccine trial is ongoing in hope and fear. Relatively calm summer seems to promise the end of Ebola crisis in the near future, but the nothing is over for medical personnels.

"Over 100 patients suspected for Ebola died while I was working in a clinic near Monrovia", said Nicholas Blidi, who had worked for Clara Town State Clinic as a director until last summer. As there were no medical doctors permanently stationed in the medical center where Blidi was working, at the peak of the epidemic the staff was unable to check if the patients were infected or not due to confusion. Blidi, who is a nurse, appealed to his colleagues and told them that "the role of medical workers is to respond to God's call and serve people" and continued to accept patients, when the staff was afraid of being infected with Ebola.

However, clinic had only one non-contact thermometer for over 150 patients a day. As the clinic was in a poor region, supplies did not easily reach them. Sanitary conditions were poor and 80 percent of the houses in the region did not have toilets. Under such

severe conditions, medical workers at Clara Town State Clinic continued treating the patients based on their teamwork. "I told the locals to contact the hospital if they find two symptoms of EVD. Also, as a result of promoting the importance of handwashing for preventing Ebola, it has been taking root as a new health habit", he said.

In 2013, Blidi underwent training for perinatal, neonatal and pediatric medicine in Japan. He said that he could utilize his experience in Japan as a support when he led a team in the fight against Ebola. "Since the Ebola virus is transmitted through direct contact with infected blood, some medical workers did not want to attend delivery in which bleeding cannot be avoided", he said. Blidi continued to protect the town, using all his knowledge.

In addition to training from a long-term perspective, JICA also provides emergency training in response to the current outbreak of Ebola. In training which was conducted in Côte d'Ivoire in March 2015, JICA gave lectures and simulations about understanding the situation, regional control, and emergency treatment response during the period of outbreak of Ebola for French speaking African countries. JICA also simultaneously created a roadmap for measures to prevent Ebola in Côte d'Ivoire.

The people who led the training were the specialists, scholars and members of the emergency intervention team in the Democratic Republic of the Congo (DRC) who had experienced seven Ebola outbreaks in the past. "Steady preventive measures before the outbreak are important in the fight against Ebola in Africa", said Noriaki Ikeda, a JICA expert who serves as an advisor to The Ministry of Public Health of the DRC. Experts and international organizations in countries including Senegal, Togo and Mali participated in the training and have contributed to the collaboration and enforcement of countermeasures in those countries.

THE OLDEST HIGH-LEVEL RESEARCH INSTITUTE IN WEST AFRICA

While JICA implements training to support medical personnel, who are fighting on the front line, and provides materials, Japan also focuses on establishing a backup system.

For Japanese, topics related to disease in Africa remind us of Hideyo Noguchi. Noguchi is a great



An informative banner in Kotoka airport, Accra. The airport is the air gateway of Ghana.

Blidi, in training in Ghana, will return to Liberia to help his people as medical staff.



He fought against Ebola in Liberia with his team during the outbreak.



Since its establishment in 1979, Noguchi Institute is the front runner of infectious diseases studies.

INFECTIOUS DISEASES: GHANA

Level 3 Laboratory (P3 Lab), built in 1999 with JICA's aid. It is still one of the most important medical facility in the West Africa.



Prof. Ampofo is one of the key person of Ebola countermeasure in Ghana. The equipment in this room enables real-time analysis of the specimen.



A nurse visits a mother and her child for medical checkup 48 hours after the delivery. Community nurses maintain the health care of the village.



man known to most Japanese as a pioneer of Japanese medical scientists who contributed to improving public health in the world. Noguchi overcame serious burns on his left hand, traveled all over the world and devoted his life to research on a number of infectious diseases including syphilis and leishmaniasis in the beginning of the 20th century. His portrait is on the thousand yen note in Japan today.

Accra, the capital of Ghana, is where Noguchi was infected with yellow fever and died. Although we were told that Accra had become cooler since the rainy season had begun, the temperature was still at 35°C. As soon as we got off the plane, our glasses fogged up due to the difference in temperature and humidity. At the moment we entered the airport building, a panel with the sign of "Ebola Alert" came into sight. We were allowed to go to immigration only after an infrared camera confirmed that we did not have any fever.

Professor William Ampofo, Head of the Virology Department of the Noguchi Memorial Institute for Medical Research, University of Ghana (hereafter "Noguchi Institute") pointed out, "Ghana borders on Togo, Burkina Faso and Côte d'Ivoire and has much traffic of people from Ebola affected countries".

"In response to the WHO warning of the Ebola outbreak in Guinea in March 2014, the National Tech-

nical Coordinating Committee (NTCC), in which the Noguchi Institute participates, developed a response plan for Guinea. The Noguchi Institute has become the center for monitoring and inspection", he said, and guided us to a bio-safety level three research facility (P3 Laboratory). "Since the laboratory was established by assistance from Japan in 1999, it has been the only experimental facility with a high level of safety in West Africa for a long time. This facility usually handles viruses such as bird flu and HIV and is ready to accept suspected infected samples from Ghana and neighboring Togo and Benin", he said. It has accepted about 150 samples and diagnosed them immediately. Fortunately, it undetected all of the six viral hemorrhagic fevers (VHFs) which are unique to Africa including yellow fever and Marburg virus disease, as well as Ebola virus. Professor Ampofo participated in the WHO medical team which was sent to Conakry, the capital of Guinea, and worked for eight weeks. "The atmosphere in the field was incredibly calm and I felt that those who fear it do not know the actual situation since they are far away. I also personally experienced the tragedies caused by the lack of understanding of the disease, including the tragedy in which eight members of the medical team who were implementing educational activities were killed by local people during my stay", said Professor



It happens that the activity takes form of educational activities in cooperation with local hospital. JICA is working with partners from different level of healthcare system.

Ampofo, looking back at his stay in Conakry. "Today, people can proactively transmit information thanks to the development of an information network. It is important not to spread incorrect information and to continue to face reality, along with improving people's access to medicine", he said.

IMPROVING LOCAL HEALTH SYSTEM WHICH DETERMINES PREVENTION AND RESPONSE

Tsunenori Aoki, a JICA expert who serves as a policy advisor for local health in the Ghana Health Service, points out that the problem in countries where the outbreak of Ebola has spread this time is that the local health system for regional containment to prevent active virus transmission was not fully in place. "Virus containment can only be realized after a system starts functioning in which a health/medical worker who has direct contact with locals finds a suspected case in the region and contacts a hospital or administration as necessary", he said.

Since 2000, Ghana has developed a facility called CHPS in which two local public health nurses stay permanently and for 24 hours a day, with a ratio of one center per 1,500 residents. It provides local nurses who work with the locals to prevent and raise awareness about disease, and forms a pyramid

of services by establishing a state hospital and a county hospital for all ten states and 216 counties in the country. The region in which CHPS is functioning at the targeted level has not yet reached half of the country; however, it prepares for emergencies by further improvement and development of the National Health Insurance Scheme (NHIS) to decrease the cost burden for the patients.

"Unfortunately, such a healthcare system is not fully in place in the three Ebola-infected countries. Also, such a system cannot be completed in a single day even if they have a current outbreak. Nevertheless, Japan has steadily advanced measures to prevent future outbreaks by implementing training on Universal Health Coverage (UHC) and training for human resource development in cooperation with international organizations such as the World Bank and WHO", explained Aoki.

"The world is one village. Infectious diseases are not someone else's problem or 'the fire across the river'", was the warning we heard from all medical personnel in Ghana. Japan and Africa have progressed with cooperation at every level including local health, hospitals, research facilities, administration and human resource development. Continuing such steady efforts will be the largest 'breakwater' against severe infectious diseases including Ebola.



Aoki supports the development of healthcare system in the local authority.