RWANDA

Nasopharyngeal swab collection at Gihundwe District Hospital sentinel site.

HIGHLIGHTS

- Shipped samples to a WHO Collaborating Center (CC) for the first time.
- Performed characterization of other respiratory pathogens for the first time using RT-PCR Multiplex.
- Completed manuscript summarizing six years of influenza surveillance in Rwanda.
- Performed antigenic characterization of influenza viruses circulating in Rwanda for the first time and identified their relation to the annual influenza vaccine compositions.

OVERVIEW

CDC supports the Rwanda Biomedical Center (RBC) in preparedness and communication, surveillance and disease detection, and response and containment to improve Rwanda's capacity to identify and manage outbreaks of avian and pandemic influenza. The influenza surveillance network in Rwanda is currently composed of six sentinel surveillance sites (two referral hospitals and four district hospitals), and the Rwanda Biomedical Center/National Reference Laboratory Division (RBC/NRL) serves as the National Influenza Testing Centre and the Rwanda Biomedical Center/Epidemic Infectious Diseases Division (RBC/EID) as the support coordination institution.

SURVEILLANCE

Sentinel surveillance for severe acute respiratory illness (SARI) and influenza-like illness (ILI) is implemented in pediatric, adult, and maternity inpatient and ambulatory wards. Epidemiological data along with respiratory samples are collected and analyzed to characterize patients. From October 1, 2013 to September 30, 2015, 2,956 cases including 2,594 (88%) SARI and 362 (12%) ILI cases were identified. Of these, 239 (8%) tested positive for an influenza virus: 181 (76%) and 58 (24%) were influenza A and B virus, respectively. Among influenza A viruses, 131 (78%) were A (H3N2) and 50 (28%) were A (H1N1)pdm09.

The network reports weekly to WHO FluNet and has strains posted to GISAID. The program is working to establish virus isolation capacity to achieve National Influenza Center (NIC) status and determine estimates of burden of disease for medically-attended influenza for use in policy decision making.

SURVEILLANCE ACTIVITIES

- Collected data and developed a protocol and data collection tools for estimates of burden of disease for medically-attended influenza.
- Conducted eight quarterly supervisory visits to the sentinel sites.
- Investigated and confirmed two suspected outbreaks of ILI and SARI due to influenza A (H1N1)pdm09 virus.
- Reviewed the Integrated Disease Surveillance and Response (IDSR) framework to include both ILI and SARI case definitions according to WHO's new case definitions.

LABORATORY

Since 2008, the National Reference Laboratory, situated in Kigali, has been the National Influenza Testing Centre. The laboratory is a Biosafety Level II (BSL-2) with some enhanced BSL-3 procedures. It has supported the influenza surveillance system network with RT-PCR assays for detection of influenza A and B viruses and avian influenza A (H5N1) virus using CDC-provided primer/probes and protocols.

The NRL has also performed detection of other respiratory pathogens using multiplex RT-PCR reactions that detect the following pathogens: influenza A and B viruses, coronaviruses (HCoV) NL63, 229E, and OC43, parainfluenza viruses 1-4, human metapneumovirus (hMPV) A and B, adenoviruses, enteroviruses, respiratory syncytial virus (RSV) A and B, rhinoviruses, parechovirus, bocavirus, *Mycoplasma pneumoniae, Streptococcus pneumoniae, Haemophillus influenzae* and *Staphylococcus aureus*.

LABORATORY ACTIVITIES

- Tested 2,956 respiratory specimens (362 ILI/2,594 SARI cases) for influenza with a detection rate of 8% (239/2,956).
- Submitted a total of 53 positive samples to the WHO CC Atlanta as part of WHO's Global Influenza Surveillance and Response System (GISRS).
- Reported weekly testing results to WHO FluNet.
- Participated in six supervisory visits and provided logistical support to sentinel hospitals in the influenza surveillance network.

PREPAREDNESS

The occurrence of Ebola virus disease (EVD) outbreaks in West Africa triggered a high level response. CDC in collaboration with the Ministry of Health and other partners such as USAID (EPT, PREDICT), WHO, and partnering ministries and institutions such as the Rwanda Biomedical Center/Epidemic Surveillance and Response Division (RBC/ESR) and RBC/NRL actively participated in preparedness and response activities.

PREPAREDNESS ACTIVITIES

- Developed and tested the National Emergency Preparedness and Response Plan.
- Updated standard operating procedures (SOP) for detection, confirmation, and management of potential specimens from persons suspected of having EVD or other viral hemorrhagic fevers.
- Participated in Ebola virus (EBV) preparedness and response meetings.
- Participated in EBV simulation exercises.

TRAINING

CDC continued to provide technical assistance and training to build organizational capacity at the sentinel sites and national levels to ensure optimal functioning of the sentinel surveillance system, quality of data, prompt data analysis and information sharing, and integration of the ISS into the national integrated disease surveillance and response system for effective transition from a donor-funded to a country-led program.

During the reporting period, the following trainings were organized and/or attended:

- Multiplex PCR Testing at the National Institute for Communicable Diseases (NICD), South Africa for two laboratory technicians from the National Reference Laboratory.
- Influenza Surveillance Refresher Training at the University Teaching Hospital of Butare for 20 health care workers.
- Medical Burden of Disease Estimates Training for 12 health care providers.
- Data Analysis Training using STATA software facilitated by CDC Rwanda for four senior influenza surveillance staff at Rwanda Biomedical Center.
- Advanced RT-PCR Training in Antananarivo, Madagascar was attended by one laboratorian.

INFLUENZA VACCINE ACTIVITIES

No influenza vaccine-associated activities have been implemented during the reporting period.