TechnoHealth Surveillance

Newsletter

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From Editors' desk

Dear reader,

Welcome to Volume 2, Number 6 of the *TechnoHealth Surveillance*. The Southern African Centre for Infectious Disease Surveillance (SACIDS) conducted stakeholder show-casing events for adoption of *AfyaData* to support disease surveillance systems in Tanzania, which is presented in this issue.

In this issue we highlight on reflections from round table discussion between the SACIDS Community-based Disease Outbreak Detection and Response in East and Southern Africa team and the Emergency Operation Centre of the Ministry of Health Community Development, Gender, Elderly and Children to strengthen community-based disease surveillance in Tanzania.

We also share reflections from the Epidemiology in Complex Emergencies course that was held in France in June 2017.

In addition, we highlight on lessons learnt from the latest Ebola outbreak which occurred in the Democratic Republic of Congo in May 2017.

We are looking forward to your feedback and comments on this and other issues of the *TechnoHealth Surveillance*.

Kindly do not hesitate to share with us stories on health related events occurring in humans, animals and environment which can be considered for publication in our newsletter.

Enjoy your reading!

SACIDS conducts stakeholder show-casing events for adoption of AfyaData to support disease surveillance systems

From June 13th to 15th, 2017 a team of Information, Communication and Technology (ICT) programmers and Epidemiologist from the Southern African Centre for Infectious Disease Surveillance (SACIDS) met with stakeholders responsible for human and animal disease surveillance in Kilosa, Ulanga and Malinyi district councils in Morogoro region in the Eastern-Central Tanzania.

The meetings were in the respective districts to introduce to key stakeholders the SACIDS programme aiming at enhancing community-based disease surveillance using digital technology in Tanzania. In each district, a meeting was preceded by brief introduction of the programme to the respective District Executive Director.
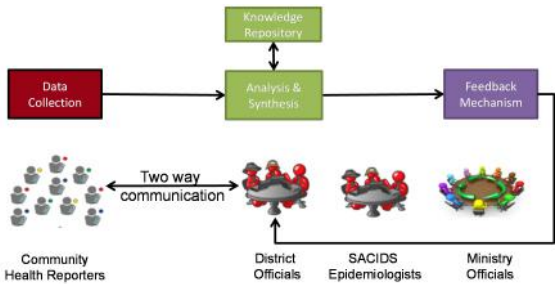
The members responsible for disease surveillance in the districts who participated in the meeting included the District Medical Officer, District Veterinary Officers, Livestock Field Officers, Integrated Disease Surveillance and Response Focal Persons, representatives from the District Council

Health Management Team, data analysts from livestock sector and laboratory technician from human health sector.

SACIDS, through financial support from the Skoll Global Threats Fund (SGTF), has developed open-source digital disease surveillance tool (branded as *AfyaData*) to enhance early detection, timely reporting and prompt response to health events in human and animal populations and environment. *AfyaData* is designed to support capture and submission of health events at community and health facility levels. The system is compatible with existing official disease surveillance systems in Tanzania and therefore has potential to complement national surveillance efforts.

AfyaData system has been deployed in Ngorongoro and Morogoro Urban districts in Arusha and Morogoro

regions, respectively to support general disease surveillance for both endemic and epidemic-prone diseases of humans and animals. In addition the system has been deployed to support surveillance of cholera and other diarrheal disease events in Morogoro Urban, Mvomero and Kilosa districts in Morogoro region, and Temeke and Kinondoni districts in Dar es Salaam region.

During the meetings, demonstration was conducted on the performance of *AfyaData* and the rolling out plan to support disease surveillance in humans, animals and environment in Kilosa, Malinyi and Ulanga.

The meeting participants had opportunity to share the challenges in the current disease surveillance system, which is largely paper-based, and also identified specific areas which need support. The need to transform disease surveillance systems from paper-based to digital system was underscored in all the three district councils. In addition to the need for digital support in the surveillance of endemic and epidemic prone diseases, specific areas which were presented for support in the human health sector included the system to support timely capture of human mortality data at the community level, environmental surveillance for potential disease risk factors to enhance early warning, rumors surveillance and official disease reporting system.

The delegates from human health in Kilosa were of the opinion that the mortality data is severely under-reported in the district. "….*only a small fraction of mortalities* (in humans) *occurring in the community is registered, which largely represents the deaths which occurred at the health facility level. A total of 107 community health workers (CHWs) in our district have been trained only on specific disease programs including HIV/AIDS and tuberculosis, and there are few trained on maternal and child health care. In addition, the CHWs are using paper-based system to report health events, and it takes long for the district to receive reports from remote locations. Support in digital disease surveillance is really needed in the district. We will appreciate if you could support community-based disease surveillance in all wards in the district*". These were remarks made by staff from the human health sector in Kilosa.

Specific needs on the animal health sector included digitization of official disease reporting system and establishment of digital abattoir surveillance system to capture health events before and after animals have

been slaughtered. "...I see AfyaData being of potential support in the timely detection and reporting of animal health events in my district. It will keep my office live on data access, response and documentation. I have been calling the Livestock Field Officers (LFOs) to acquire reports on animal disease events in the community and it takes considerable amount of time for me to do this. In addition, it has remained challenging to keep records of telephone conversations being made with LFOs. We have a person responsible for data management in our district. However, data received are not of good quality and not submitted to him on regular basis. A digital system like AfyaData that collects geo-referenced data will enhance contact tracing which is important for rapid response and cost-effective use of resources". These were remarks made by the District Veterinary Officer in Kilosa.

"....I have been much impressed by the system that you have demonstrated. We always run out of disease surveillance forms and we have been craving for digital solution for diverse coverage of animal health events. We hope the proposed system has potential to link and integrate data from various sources including those which collect data on agriculture and livestock using one type of form. Please,

let us see how we deploy the proposed system for sustainable operation in our area". These were remarks made by staff from the animal health sector in Ulanga district council.

Furthermore, instant access to data by all authorized individuals in close-to-real time mode was considered an important element of AfyaData.

"....I am pleased with possibility for all stakeholders from community, livestock field officers, district, to national levels to access data at the same time without having to wait for paper-based submissions which take long time to reach the national level". These were reflections from the District Veterinary Officer in Ulanga district.

"....we are currently using a paper-based system that is tedious to complete and some LFOs in the remote locations do not submit the report at all, especially during the rainy season as roads are hardly passable. I believe the proposed AfyaData system that you have just demonstrated will simplify collection and access to livestock disease data. We hope that the AfyaData system can also support the LFOs to report on animal sales in the local livestock markets". These were reflections from the animal health sector staff in Malinyi.

As we go to press, preparation is underway to deploy AfyaData system to enhance early detection, timely reporting and prompt response to health events in human and animal populations and environment in Kilosa, Malinyi and Ulanga.

SACIDS and Emergency Operation Centre join efforts to strengthen community-based disease surveillance in Tanzania

The Southern African Centre for Infectious Disease Surveillance (SACIDS) and Ministry of Health, Community Development, Gender, Elderly and Children staff from section responsible for managing the Emergency Operation Center (EOC) met on June 8th, 2017 in Dar es Salaam to develop a joint strategy to enhance community-based disease surveillance in Tanzania. A round table discussion was conducted to explore on how the EOC could use *AfyaData* as a rumors and event management tool.

As the community awareness of public health importance grows, the EOC is challenged with the increased rumors and/or information of public health importance being reported. It becomes harder to keep track, manage and monitor these events in a timely fashion. As a result, potential public health threats become complicated to manage and prompt decisions become harder to make as data access, aggregation and analysis is untimely conducted and epidemiological intelligence is scattered.

Realizing the need for computerized workflow management to streamline and reduce timeframe for information flow from informant, tracking, monitoring and analysis to enhance timely access and prompt response to public health events, initial discussions highlighted on the potential areas where SACIDS will support the EOC functions including to:

- Digitize all data capture activities of the entire rumor lifecycle including, but not limited to, data mining using social media, receiving rumors via email, SMS and phone calls.
- Create an easy to use web interface for rumor management. This includes capture, curating, scanning, filtering, tracking and reporting.
- Make data available to EOC at near to real time.
- Integrate an intelligent report creation and management system, to enable on the fly report creation.
- Couple the information system with an event-trigger system that may send out alerts (SMS/email) immediately when a certain condition is met.

Epidemiology in Complex Emergencies course was conducted in Annecy, France on June 19-23, 2017. This five-day course was organized by the Connecting Organizations for Regional Disease Surveillance (CORDS) and funded by Skoll Global Threats Fund (SGTF). A total of 24 participants from the field of epidemiology and public health attended the course, and they were from Vietnam, Cambodia, Laos, Tanzania, Uganda, Zambia, Democratic Republic of Congo, Albania, Hrvatsko, Montenegro, Jordan, Israel, Burkina Faso, Palestine, Sudan and Madagascar countries. One of the participants, Dr. Calvin Sindato, was from the Southern African Centre for Infectious Disease Surveillance in Tanzania. The course was managed by 11 facilitators with diverse experience in complex emergencies and they were drawn from EpiConcept, CORDS, SGTF, EpiCentre, Médecins Sans Frontières, Center for Diseases Control and Prevention and the World Health Organization.

The main objective of the course was to strengthen participant's knowledge and skills on response to communicable disease outbreaks in the context of complex emergency situation. The course aimed to prepare epidemiologists and public health specialists to contribute to the multidisciplinary and international response to complex emergencies, and to apply skills to serve public health interventions. Mixed methodologies were used to run the course including short lectures, interactive case studies in small groups, challenges solving approaches, movies and round table discussions.

The contents of the course included identifying public health priorities in complex emergency settings, carrying out rapid assessment, pros and cons of various sampling strategies during complex emergencies, mortality surveys, role of mobile device data collection in complex emergencies, setting up a surveillance system, interpreting surveillance data, setting an alert and response system, carrying out contact-tracing, and social mobilisation and risk communication during complex emergencies.

The contents of the course were in line with strategies of the Community-based Disease Outbreak Detection and Response in East and Southern Africa (DODRES) project being implemented by SACIDS with financial support from SGTF. The project is based on a theory of change that aims at enhancing early detection, timely reporting and prompt response at community level and thence national, regional and global levels using

participatory and digital technology approaches. These initiatives were shared briefly with participants of the epidemiology in complex emergencies course in Annecy, France, and they were made aware of the open source digital disease surveillance tool, *the AfyaData*, developed by SACIDS.

Vigilance at all levels would enhance timely ringing of the alarm bell on public health emergencies

Effective response to public health emergencies depends largely on the health system that has been structured to enhance early detection and timely reporting of health events including rumors at all levels i.e. from the community to national and international levels. Lessons learned from the most recent Ebola outbreak that was confirmed in the Democratic Republic of Congo (DRC) in May 2017, have heightened our awareness of the need for health care system readiness and response capabilities and capacities at all levels.

Sharing the experience during the Epidemiology in Complex Emergencies course that was held in Annecy, France on June 19-23, 2017, the Medical Emergency Coordinator, Axelle Ronsse, from the International Medical Organization Médecins Sans Frontières/Doctors Without Borders (MSF) highlighted on the potential impact of trained vigilant staff to curtain disease outbreaks. It is believed that the

recent Ebola outbreak in DRC was not widely spread, one of the reasons being the prompt identification and notification by a nurse at the health center in the northeast of the DRC where an index case occurred. This was considered an essential step to alert the health system and triggered early coordinated response to containing the spread of the outbreak in the community and health care facility settings.

More about the recent Ebola outbreak in DRC: The index case was presented at the local health facility in Likati Health Zone northeast of DRC with body weakness, vomiting, bloody diarrhea, blood in urine and bleeding from the nose, and later the patient died. Both the motorcyclist who transported the patient and the person who was attending the patient developed similar clinical manifestations, and they also died. The outbreak occurred in the remote location with limited access to health care, and where there were no phone-lines, cell phone reception or electricity.

These observations highpoint on the need to scale up social mobilization, community engagement and risk communications at all levels for effective control of public health emergencies at the point-source. Public health education and campaigns are likely to be more effective when implemented during the inter-epidemic periods. The fact that disease outbreaks typically erupt in communities located in remote areas that are hard to reach and that do not have reliable communications, calls for deployment of fit-for-purpose innovative and participatory approaches to enhance early detection and reporting of health events in near-to-real time.

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