Strengthening County Level Disease Surveillance and Response: Are There Gaps?

INTRODUCTION

Effective disease surveillance and response systems are critical components of disease prevention and control. A good disease surveillance system provides effective tools and processes to collect, analyze and interpret data to generate useful information on patterns and determinants of disease occurrence in a timely manner for action by policy makers, health managers and health personnel. While the COVID-19 pandemic highlighted gaps in Kenya's routine disease surveillance mechanisms that were filled through parallel COVID-19 specific case reporting, patient tracking and vaccination systems, studies have shown various gaps in County level routine surveillance systems, especially in regard to collection, analysis and use of community level data, the use of data for decision making in Public Health facilities and the completeness of data collected from non-government owned health facilities.

Key issues, Challenges and Policy Options

Are disease Surveillance needs changing? Although Kenya has largely dependent on an indicator-based health facility surveillance systems, there is need to expand and strengthen this approach given disease dynamics. With an increasing number of new infectious disease outbreaks emerging from animals and the environment – including COVID-19, SARS, Ebola, influenza, and the H1N1 swine flu among other examples - there is need to expand disease surveillance methodologies beyond just tracking cases of human disease to closely monitoring trends and triggers in the environment, animals, and other contextual sectors. Using the *One Health* approach, Kenya needs a surveillance system that identifies events and diseases to allow measures to be taken even before human illness. We note the importance of changes in other sectors to human health. For instance, Climate Change has been found to play a key role in facilitating the emergence of novel infectious agents, modifying habitats for vectors and cause various conditions that affect health; Deforestation has been found to increase proximal living of humans and wild animals, thus increasing chance of zoonotic disease transmission; agriculture affects nutrition and child health while education outcomes of mothers have been positively correlated

with child survival. As such, tracking of events and occurrences in other sectors could provide vital early warning information for enhanced disease surveillance, thus saving lives.

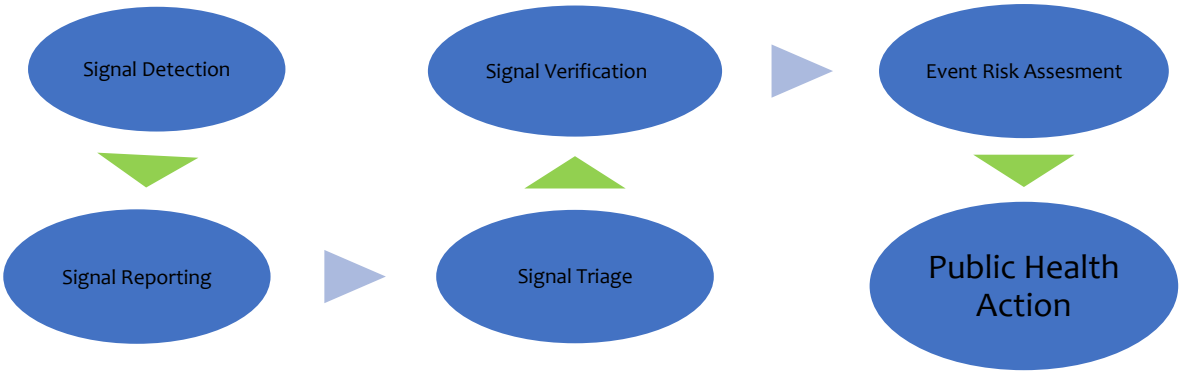
Event-based surveillance (EBS). What is EBS, and do Counties, Sub-Counties, Health Facilities and Communities need to roll out this surveillance system? Over the past decades, Kenya has implemented the Integrated Disease Surveillance and Response strategy as its primary surveillance system. This is an indicator-based surveillance system that monitors routine structured data for selected priority diseases and conditions mainly at health facility level. In order to strengthen surveillance in the Country, the Ministry of Health has recommended the step up of EBS to complement Integrated Disease Surveillance and Response, developed the Kenya Event Based Surveillance Technical Guidelines 2020 jointly with other agencies and working with select County Governments, conducted pilot roll out of EBS in select counties. EBS is the organized collection, monitoring, assessment and interpretation of mainly unstructured ad hoc information regarding health events or risks that present an acute risk to health[1]. EBS targets information from a wide range of sectors, including animal health, the environment and other sectors. There are four types

[1] WHO, *International health regulations*, 2005

of EBS based i) The Hotline/Phone EBS (PEBS); ii) The Media Scanning EBS (MEBS); iii) The Community EBS (CEBS) and iv) The Health Facility EBS (HEBS). The EBS is undertaken through six (6) steps: signal detection, signal triage, signal verification, event risk assessment and public health action. CEBS is rapid collection of information on events within the community by the community members. HEBS is rapid collection of information on events at health facilities by healthcare professionals. PEBS is using dedicated telephone lines to collect information on events of public health concern from the Public, and MEBS includes searching for information on events that present a public health threat from both print and electronic platforms.

Community Event-Based Surveillance (CEBS) was piloted in Siaya and Nakuru counties from September 2019 to May 2020 while Health Facility level Event-Based Surveillance (HEBS) was piloted in three counties (Mombasa, Nakuru and Meru). It is key to note that a number of outbreaks were detected following investigation of the reported signals, including acute flaccid paralysis, scabies, foot and mouth disease (FMD). A foot and mouth disease outbreak in animals was detected through collaboration with the Directorate of Veterinary Services. All these illustrate the value of EBS roll out to supplement IDSR. Despite these, pilot studies noted various challenges, mainly technological challenges in the implementing of m-Dharura - the mobile application that was used in reporting, surveillance interruption due to transfers of trained staff especially given the pilot nature of the activity, and the intense supervision requirement for the initial roll out phases.

Management of event-based surveillance data is a key component of successful surveillance. The Ministry of Health has developed an application that will be used to capture community and health facility information on EBS. This application is called the m-Dharura which has inbuilt validation checks to ensure accuracy and completeness of data. Key next steps in rolling our EBS include: a) Engaging closely with DDSR to roll out EBS within Counties, and strengthen areas where this has been rolled out; b) Capacity building of County, Sub-County, Health Facility and Community level staff on EBS. This should include both technical aspects of the roll out, such as the application use, as well as capacity building to ensure the actors are able to analyze data and utilize generated information to foster disease surveillance and response, as well as give feedback, and c) Monitor EBS as it's rolled out to enable identification of weaknesses and take corrective measures.



Steps in EBS Process

Strengthening reporting? The International Health Regulations (IHR), entered into force in 2007 and to which most countries are signatories provide a solid basis for disease surveillance at a global level. The IHR sets up a number of alert, response, and capacity building mechanisms for the member states to develop and follow, including supporting surveillance and reporting of

potentially pandemic infectious diseases. Locally, various policy and legislation make it mandatory to report priority diseases, the key tool being the Public Health Act Cap 242 which lays down notifiable diseases and mechanisms for reporting these diseases. Although various studies show that Kenya's reporting efficiencies for notifiable diseases is good, there are gaps in regard to regular health data reporting, especially at community level. Community Health Units, which are the primary reporting units at community level often lack reporting tools security, and even in cases where tools are available, utilization of generated data by the wider health system is a challenge. It is key to note that this is a critical level to collect data on community level events, thus needs strengthening. The other key gap in routine data reporting in completeness of data from Private and Faith bases health facilities. There is need for critical evaluation to better understand this issue and put in corrective measures.

Enhancing use of gathered surveillance data for decision making: Data-driven decision-making (DDDM) is defined as using facts, metrics, and data to guide strategic, tactical, and operational decisions that align with set goals, objectives, and initiatives. Strengthening IDSR and EBS must include capacity building initiative that allow actors at all levels to appropriately put to use information available from them from the surveillance systems. This capacity building must thus target all levels – County, Sub County, Health facility and community levels. It is key to note that data analysis varies with level, with each level taking action based on information most appropriate for their action.

CONCLUSION

This paper critically reviews county level capacities in operationalizing event-based surveillance, as well as evidence-based health decision making including at community level, surveillance gaps, health data in emergency contexts, and comprehensive reporting including community, Private health facilities and Faith based health facilities. The paper makes call for county leadership to invest in the roll out of EBS, strengthen disease surveillance at all levels, end foster data use for decision making as well as provides policy suggests to enhancing reporting.