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Streamlining Antimicrobial Resistance Data in Zambia

Timely and accurate antimicrobial resistance (AMR) surveillance is essential for tracking resistance trends and guiding both public health and clinical treatment decisions. In Zambia, the coordination of surveillance efforts is aided using a single laboratory information management system (LIMS), where all public health laboratories input information about clinical specimens. Microbiology testing data are aggregated in the Open Laboratory Data Repository (OpenLDR) hosted by the Ministry of Health.

For AMR surveillance, however, laboratories must submit AMR data to WHONET for management, analysis and reporting to the WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS). Until recently, this required a separate, manual data entry process that often led to a long backlog—up to six months at one of the main hospitals. In addition, the needed data were often fragmented, split across different reports and reported in a format that was incompatible with WHONET. Such data entry backlogs delayed AMR analysis and prevent timely alerts.

Leveraging Existing Tools

In partnership with the Ministry of Health, Center for Infectious Disease Research, Zambia National Public Health Institute and others, the Association of Public Health Laboratories (APHL) informatics team in Zambia helped come up with a solution for handling AMR data management and streamlining the flow of information, from collection all the way through analysis and reporting.

The group identified a tool within WHONET, called BacLink, that could be leveraged to import data from different systems. Since all laboratories already feed data into OpenLDR, this single centralized solution would enable data to be imported from all the testing laboratories into WHONET.

APHL's Zambia team worked with laboratory partners to identify the needed data elements and a format that could be imported into WHONET via BacLink. They also set up automations to upload the data on a preset schedule—for example, monthly or weekly—to allow regular and timely updates. Local country microbiology teams received training to use BacLink within their laboratories.

Above: Participants at a WHONET training.

Contact APHL

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Looking to the Future

In some cases, the tool captures a richer dataset than was previously being reported, such as zones of inhibition and minimum inhibitory concentrations. The additional data can enable further analysis, as well as the development of antibiograms—summaries of how susceptible a specific microorganism is to a range of antimicrobial drugs. Despite global CSLI recommendations that antibiograms be updated annually, the last one completed in Zambia was in 2015. With more comprehensive AMR data, APHL is now working on new antibiogram guides for the two largest hospitals to help clinicians identify the most effective treatment options for patients.

With the BacLink system in place, this tool can now be scaled nationally—to any laboratory that uses the LIMS.

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