



Ministry of Health

Wastewater Surveillance Programs for COVID-19 and Other Pathogens in Ghana

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Ministry of Health

Outline

- Background
- Environmental Surveillance for Polio in Ghana
 - Criteria, findings etc
- Waste Water Surveillance for COVID-19
 - Objective, Rationale, Findings
- Conclusion and Way Forward

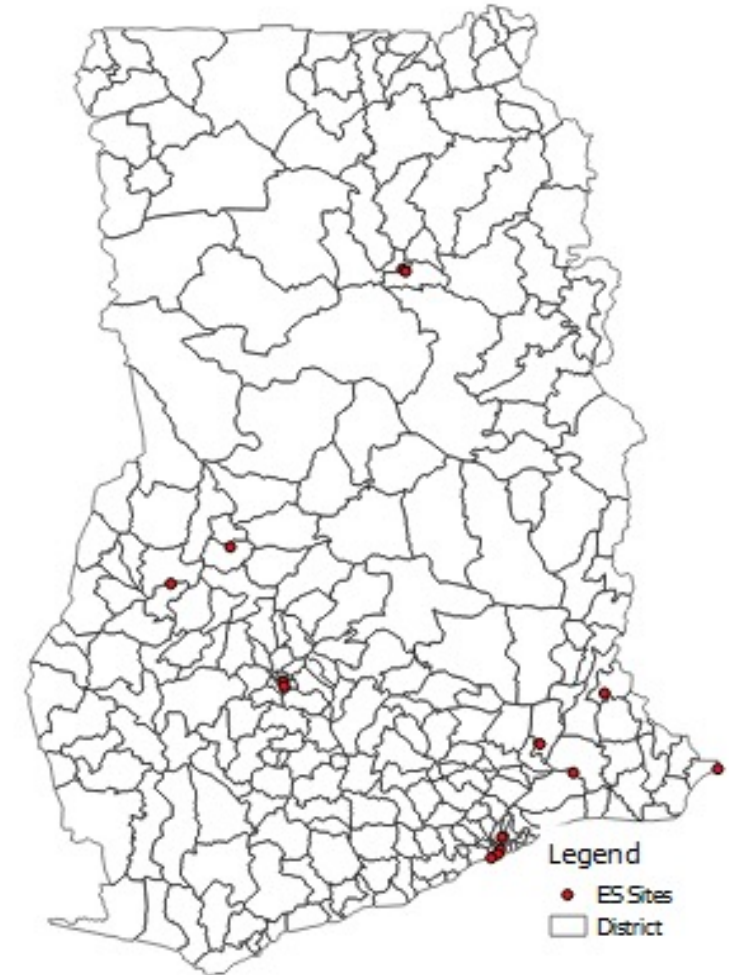
Background

- Ghana has been implementing the Integrated Disease Surveillance and Response (IDSR) Strategy for priority diseases, conditions and events since 2002
- Polio is one of the priority disease conditions in Ghana and Environmental surveillance (ES) has been a key strategy in Ghana's Polio Eradication efforts
- Implementation of Environmental Surveillance for Polio was initiated in 2016
- Environmental surveillance for COVID-19 has also been explored in Ghana

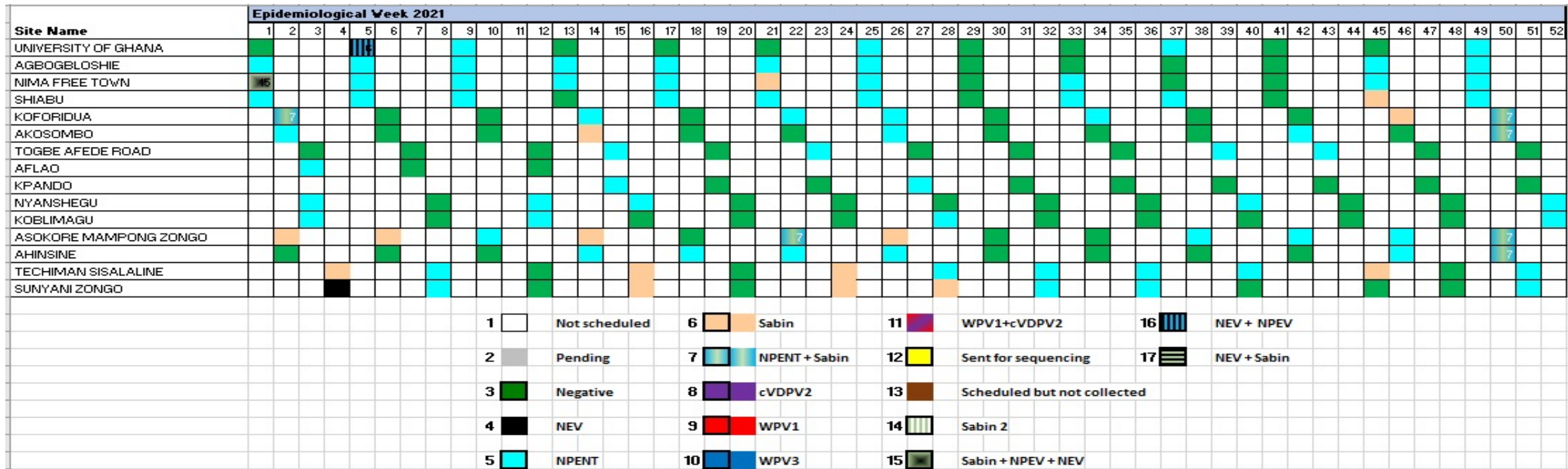


Environmental Surveillance for Polio

- Started initially as a pilot in 2016- six sites in 2 regions
- External Review of AFP surveillance in Ghana in 2017 recommended ES for polio
- 14 Polio ES sites in 7 regions
- Implementation of ES guided by site specific process indicators
- Criteria for selection includes:
 - Classification of areas as high risk for poliovirus transmission with source population between 100,000 to 300,000.
 - Sewer network availability. Where a sewer network is not available, ES should only be started if the major wastewater flow routes contain human faecal material.
 - Absence of industrial waste in the proposed site
 - Poor AFP performance indicators etc



Findings from Environmental Surveillance for Polio in Ghana 2021

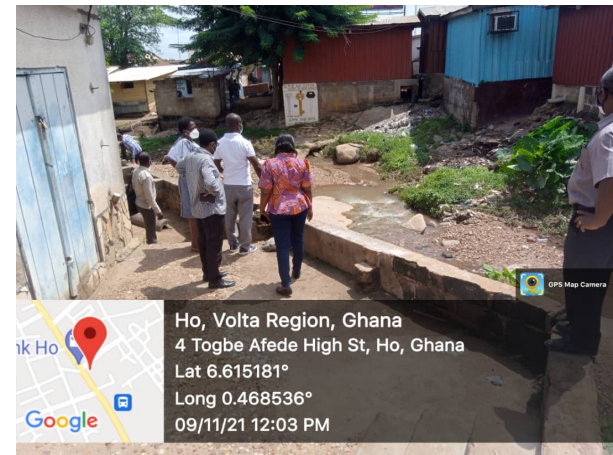


- The first cVDPV isolate from an ES site recorded in July 2019
- cVDPV2 has also been confirmed in 115 environmental isolates from eight environmental surveillance sites in Ghana since the inception of ES for Polio in Ghana

Scoping Visit to ES site in Kpando in Volta region



Capacity Building on ES for Polio in Ghana, Nov 2021



Wastewater Surveillance for COVID-19 in Ghana



Objective and Rationale of Proof of Concept

- To develop a strategy for wastewater surveillance for COVID 19 in low-income urban settings with a mix sanitation solutions.
 - An area served primarily by a sewerage system and wastewater treatment plant
 - An area served primarily by shared public latrine facilities
- Weekly information on changes in SARS-CoV-2 RNA titers in environmental samples in Greater Accra Region.
- Approach
 - **Stakeholder engagement**
 - **Mapping of study sites** to inform local decision making
 - **Capacity building** to support wastewater surveillance
 - Weekly grab samples and RT-qPCR analysis from 2 study sites in Greater Accra Metropolitan Area

Sample collection from Wastewater for COVID-19



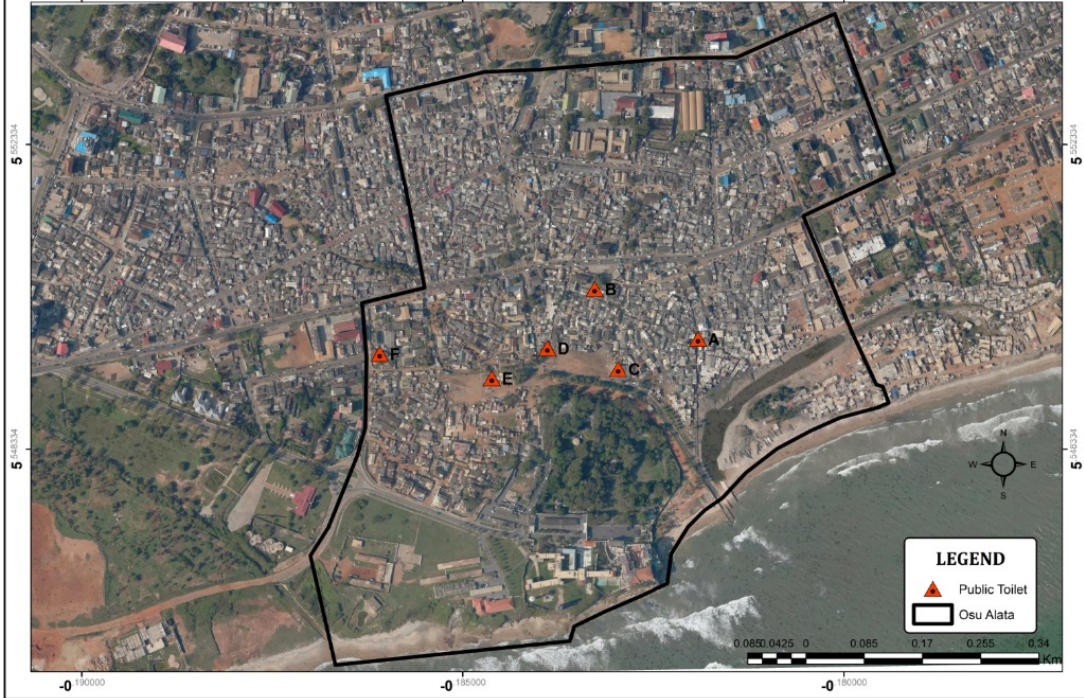
Grab Samples

Moore Swab Sampling

Osu COVID 19 Public Toilet Wastewater Surveillance Dashboard

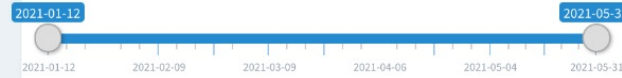


MAP OF DISTRIBUTION OF PUBLIC TOILETS WITHIN OSU ALATA



Locations and wastewater results from six public toilets, Jan– May 2021

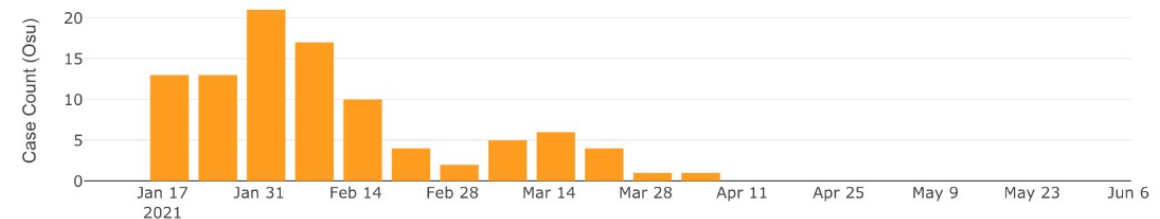
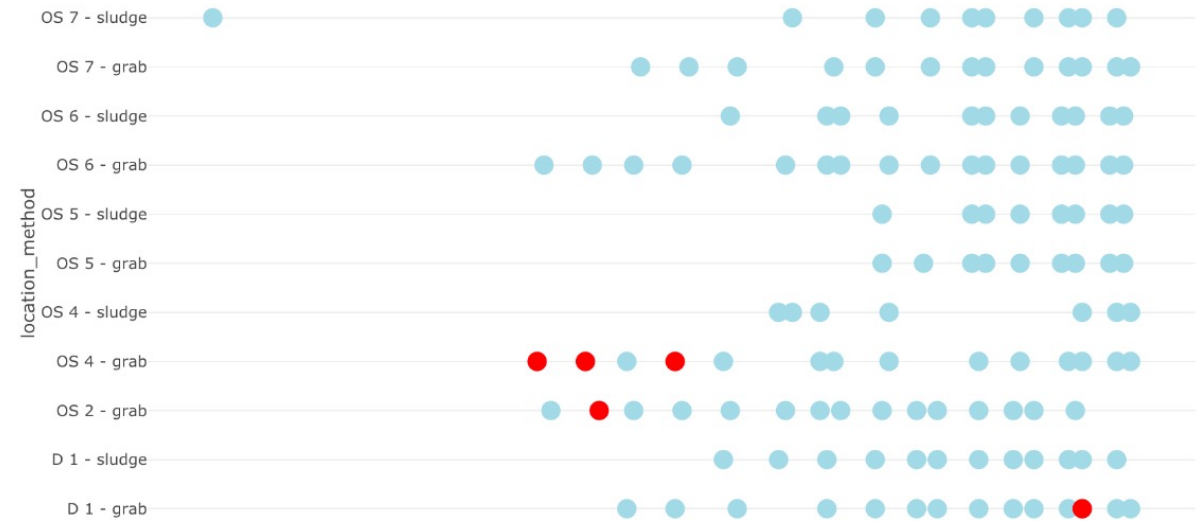
Choose time period



Choose type of sampling sites

Latrine

Wastewater surveillance results and case data of Osu in Accra, Ghana



Conclusion and Way Forward

- Environmental Surveillance currently an integral part of Ghana's efforts at Polio eradication and is a useful indicator for public health risks
- Experiences from pilot projects have guided the expansion of ES sites in Ghana and lessons from wastewater surveillance for COVID-19 guiding further actions e.g. include genomic sequencing
- Need to explore the development of an integrated environmental surveillance strategy that includes other pathogens such as *Vibrio cholera*, Group A Rotavirus and *Salmonella* Typhi
- Further strengthen laboratory capacity for ES
- Develop a curated and integrated data repository, online dashboard, and decision support system

Acknowledgement

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- IANPHI

Thank You!

Mèrci!

Obrigado!

