

Implementation of an integrated management of skin NTDs in Ghana: Experiences from the laboratory

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Background:

Task shifting of skills to Community Health Volunteers has been identified for successful implementation of the integrated skin NTD strategy. A strengthened health system including greater access to diagnostic confirmation is advocated. In 2018 an integrated case management of neglected tropical disease (CM-NTD) was implemented in Ghana through support of ANESVAD. This included support for three laboratories for diagnostic confirmation of suspected cases of Buruli ulcer (BU), leprosy and yaws. The expected outcome for this programme is establishment of improved capacity and laboratory diagnosis of these diseases through strengthening of systems at the national, district and community level. We present here a laboratory perspective of work carried out in 9 districts that provided samples for diagnostic confirmation.

Methods: A cohort of district health workers and community health volunteers from each district was trained on an integrated approach to identifying Buruli ulcer, leprosy and yaws. The teams were also trained on sampling, packaging and transport of samples to the laboratory. Communities and schools within their respective districts were visited for awareness raising and all persons with skin lesions suspected to be Buruli ulcer, yaws or leprosy were examined. The socio-demographic information and characteristics of lesions were collected using the WHO SkinNTD 01 form. All suspected cases of yaws were screened with syphilis RDT and confirmed with the DPP test on the field. Samples were also collected from lesions and sent to the reference laboratory. A descriptive analysis of the epidemiological, clinical and laboratory variables as well as mapping of all cases were done with Excel and QGIS.

Principal findings: In the study period, samples from 316 suspected cases were received between the period of August – December 2018. The median (IQR) age was 32 (13-53) for BU, 12 (10-15) for Yaws and 43 (24-59) for leprosy.

Of the 286 BU suspected cases, 76 (27%) were confirmed by PCR. There were 12 cases of clinical leprosy, 8 DDP confirmed yaws of which 2 were further confirmed as *H. ducreyi* by PCR. Interestingly, when the data was stratified according to where sampling was done for BU cases, those taken at the BU clinics had a significantly high PCR positivity rate compared to those obtained in the community, 62% versus 9%, $p < 0.0001$.

Discussion/Conclusion:

There is the need for further training of health teams also targeting other more common skin disorders (e.g scabies, impetigo, fungal infections) that are likely to be captured as differential diagnosis to improve results of confirmation for Buruli ulcer. For BU and Leprosy where POC tests are not available ‘clinical expert panels’ consulted through mobile technology or other may help to improve clinical diagnostic sensitivity as well as reduce requests for tests thereby provide savings for laboratories.