

Optimizing Focal Interventions for Schistosomiasis

Session Date & Time:	Tuesday, November 19; 1:00 PM to 4:00 PM
Session Location:	MGM Grand Ballroom Salon C
Session Description:	Operational research has highlighted the need for a more targeted and multi-sector intervention approach for neglected tropical disease (NTD) programs towards schistosomiasis due to the focality of transmission. The World Health Organization (WHO) has commissioned working groups to define use cases and develop data collection protocols that will enable NTD programs to generate the data they require to inform decisions on implementing targeted intervention strategies. The session will introduce the use cases that define specific decision needs and provide an update on progress by the working groups. Participants will then engage in structured group work to determine and prioritise the operational research questions relating to each use case and those determining the country needs to effectively implement on a sub-district level.
Session Chairs:	Neerav Dhanani and Amadou Garba
Session Rapporteur:	Jaspreet Toor, NTD Modelling Consortium

KEY DISCUSSION POINTS

Neerav Dhanani (SCI) opened the session and highlighted the objectives for the session:

- How can the research community support WHO and ESPEN goals for more targeted treatments?
- How to implement additional interventions to complement targeted treatment (and what are they?)
- What are the implications for monitoring and evaluation (M&E)?
- How to integrate M&E into the health system?

Amadou Garba (WHO) presented an update on the WHO technical working group protocols for remapping and impact assessment of schistosomiasis. The goals are to develop survey protocols for mapping of schistosomiasis to identify communities at risk of the disease and ensure that available resources are targeted to treat all affected communities while excluding non-endemic communities where treatment is not required, and to develop impact assessment survey protocols to assess progress in achieving morbidity control. The protocols take multiple factors into consideration including sampling approach, sample population, survey location, time of survey, prevalence metric, diagnostic methods and integration into health systems.

Four use cases have been developed: Use case 1: rapid assessment of schistosomiasis prevalence; Use case 2: assessment for targeted treatment of schistosomiasis and stop mass drug administration (MDA) decision; Use case 3: impact assessment for schistosomiasis; Use case 4: post-MDA surveillance for schistosomiasis. A summary of the suggested working groups protocols was shown with details on the diagnostic to be used, sample sizes/age groups, frequency of survey, survey unit, number of survey sites, exclusion criteria and site selection.

Pauline Mwinzi (WHO-ESPEN) presented a sub-district level data review for shrinking the map with a focus on better utilization of available schistosomiasis prevalence data to plan MDA targeted at sub-district levels (or the lowest possible administrative level for which demographic data is available). 41 countries in Africa are endemic for schistosomiasis. The geographical coverage varies across countries, for example, Algeria needs re-assessment of their situation, Mauritius needs validation of elimination as a public health problem, and some countries still need to start MDA. A significant amount of the regional schistosomiasis endemicity data comes from the AFRO NTD mapping project (2012-2015). In many countries preventive chemotherapy is based on district level overall prevalence which leads to over- and under-treatment of areas.

Using subdistrict level data, preliminary analysis has shown potential for shrinking the map and adjusting where praziquantel is distributed. There are updated regional schistosomiasis data on the ESPEN portal and data sharing is improving (since 2018, teams of trained data experts have supported data compilation of data sets available in countries). ESPEN is working with countries to revise praziquantel needs based on map shrinking using the available data. A data quality check has been formed so data can be assigned a quality category. A decision tree has been developed to show how to use data and environmental suitability to determine the treatment strategy. They are using old mapping data that is also available and new geographic information system (GIS) maps by ESPEN. Sub-district local knowledge data collection forms are available.

Comparing endemicity by district and subdistrict prevalence, analysis of treatment strategies so far has shown adequate treatment in 61.1% and inadequate treatment in 38.9% (overtreatment

in 25.9%, undertreatment in 13%). Ongoing activities include finalizing subdistrict data for the remaining 18 countries.

Ekoue Kinvi (WHO AFRO) presented a subdistrict (sub-implementation unit) data analysis methodology developed by ESPEN using the decision tree. Three categories of datasets are needed: epidemiological, demographic and geographic. By collecting the necessary data, they can estimate populations and medicines required. Advantages of subdistrict level implementation are adequate treatment and preventing over/under-treatment.

Good-quality data which can then be cleaned and analysed are needed. Available data to be reviewed are from the ESPEN schistosomiasis global database, ESPEN portal, country database and partners database. They have assigned grades to each diagnostic test. Various options for final endemicity: sub-implementation unit (IU) endemicity; highest adjacent endemicity; IU endemicity; JRSM endemicity; not endemic by environmental suitability; need further assessment.

Mahamadou Traore (schistosomiasis coordinator, Mali) presented on the country experience of the ESPEN targeted treatment initiative. *S. haematobium* baseline mapping (from 1994) has prevalence data across age-groups including school-aged children and adults. They also have baseline prevalence data from 2004-2005 and re-evaluation data from 2014-2017 following years of MDA.

Following data review workshops in Brazzaville in July 2019, they have looked at endemicity by district and subdistrict (low to high levels). There are subdistricts with unknown prevalence. Praziquantel treatment adjustment is needed as there was over- and under-treatment occurring. Needs: additional praziquantel sources for adults at risk, vector control and more training.

Maurice Odiere (TAC-SCH, Kenya) presented an update on shrinking the Kenya schistosomiasis map (on behalf of Sultani Matendecheo). Current application through the joint application package (JAP) is based on using district-level prevalence. They have reviewed Kenya sub-district site level datasets with the aim of adjusting implementation to lower levels than is currently being applied. The country is continuing with validation of this national data analysis with district program managers.

Subdistricts have been categorized into nonendemic, low/moderate/high district mean prevalence, and unknown. They found that using district mean prevalence, 84.1% subdistricts have adequate treatment, 9.6% subdistricts are being over-treated and 6.3% subdistricts are being under-treated. They also looked at praziquantel allocation and estimated 274,118 drugs

being misused. They compared data from the Joint Request for Selected Medicines (JRSM), district data and subdistrict data and found that high prevalence areas start to stand out as we move to subdistrict level data, thereby shrinking the map.

Issues raised:

- For Kenya, was there any concern from local country, program managers and/or health workers when going back and remapping?

Maurice: This process is ongoing so more feedback will come. They are relying on those with knowledge of local epidemiology and data are still being validated. A workshop was held and attended by high level MOH staff (as they are using WHO recommendations, likely to be no concerns for population). From next year they will implement new strategy.

- There seems to be two different approaches underdevelopment by WHO ESPEN and WHO – will they be used together (integrated) or compared?

Pauline & Amadou: ESPEN is focusing on how current AFRO data can be used, whereas WHO is developing protocols which will allow areas to focus treatment to where it is needed.

KNOWLEDGE GAPS IDENTIFIED

- How are the WHO protocols taking diagnostics with varying sensitivity into account?

Amadou: This has been discussed by the group. We are open for a rapid diagnostic test to come which can be used.

- For the ESPEN approach, as sampling strategies involve some error, have calculations been done to see if subdistrict errors are smaller than district level errors?

Pauline: Sampling 5 sites per district. They are looking at how representative this is for the site to see how confident they can be in making the next steps.

- Will vector mapping be incorporated as there is currently an absence of snail mapping that has been mentioned?

Pauline: Countries that have snail mapping data were able to exclude areas that they had not seen the disease in.

RECOMMENDED NEXT STEPS

Two groups were formed to discuss the WHO protocols and the WHO-ESPEN data approach.

Actions and gaps identified in the WHO group:

- Can we re-assess the treatment strategy before waiting 5-6 years?
 - a) *There is evidence from recent SCORE studies that the treatment strategy can be re-assessed sooner than the WHO recommendation of 5-6 years (for example, using year 3 prevalence).*
 - b) *NTD Modelling Consortium work has shown that not all settings (particularly lower prevalence settings) need 5-6 years annual treatment before reaching morbidity control/elimination as a public health problem if there has been good coverage and adherence so re-evaluation could be done earlier in such settings.*
- How is non-endemic defined?
There needs to be a clear definition of non-endemic so we know how to classify these areas.
- We need to ensure that we are not always sampling the same areas and that we are not excluding non-endemic areas completely.
There are concerns around only surveying endemic communities.
- How will old Kato-Katz data be compared to new circulating cathodic antigen (CCA) data?
- The WHO working groups for the protocols still have work to do and the protocols need further clarification before they can be implemented in the field.

Actions and gaps identified in the WHO ESPEN group:

- In terms of refining data, when is in depth mapping required? Is it more cost-effective to use current data or collect new data?
 - a) *Defining areas where there is a benefit to collecting more data through midterm assessment, for example IUs with poor quality data or high starting prevalence.*
 - b) *When is it appropriate to use the dataflow strategy to assign treatment and when is more in-depth mapping required?*
 - c) *When is it more cost effective to use the data flow map or to collect new data?*
- It is costly to collect data. What is the best way to compile local knowledge?
- How accurate is local knowledge? Can the relationship between qualitative local knowledge and survey prevalence be modelled to validate?

- Is it possible to integrate data from frontline health services to the dataflow strategy?
- Is it possible to follow the suggested dataflow when there are no shapefiles for a country's subdistricts?