

CONCEPT NOTE

Schistosomiasis sub-district level data review for shrinking the map; better utilization of available prevalence data and sub-district level planning for selected Francophone countries 23-26 July 2019 and Anglophone countries 13-16 August 2019; Brazzaville, Congo

1. Background

Schistosomiasis transmission has been reported from 78 countries globally. Of these, 52 require wide scale preventive chemotherapy (PC), 41 of which are in the African region where the highest burden of schistosomiasis is found. Of the estimated 220.8 million people requiring preventive treatment worldwide, Up to 201.3 million people are in the African Region, representing 90.4% of the people who require PC for schistosomiasis globally.

Attainment of schistosomiasis control and elimination has eluded the global community for decades due to lack of adequate data and resources. A renewed momentum in the last 2 decades was ignited by the 2001 WHA Resolution WHA54.19 which urged Member States to strive to achieve a minimum target of regular administration of chemotherapy to at least 75%, and up to 100%, of all school-age children (SAC) at risk of morbidity by 2010.

However, by 2010, the target of treating at least 75-100% of all SAC had not been reached, because the required free quality assured medicines and resources for implementation were not widely available. At the time only 30 countries out of 52 requiring PC had implemented mass treatment campaigns with an overall 34.8 million treated worldwide during that period.

The endorsement of the “London Declaration on NTDs” in January 2012 followed by the resolution WHA 65.21 in May 2012 noting the progress made in control of schistosomiasis, called on the Member States to intensify control towards elimination. In the same year, the World Health Organization (WHO)’s neglected tropical diseases (NTD) Roadmap for implementation was launched. These landmarks created a new emphasis for the control with commitments of various partners to support the fight against schistosomiasis. The Merck Group committed to donate increased amount of Praziquantel, the medicine used to treat

schistosomiasis, to reach 250 million tablets per year in 2015 equivalent to 100 million treatments for SAC. Other donors such as USAID, DFID and World Vision committed to support endemic countries with both Praziquantel and funding for implementation. The WHO NTD Road Map set as target to reach the 75-100% coverage of SAC in 2020, and to eliminate the disease in selected countries.

Since the launch of the NTD roadmap, up to 23 countries including Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Gambia, Guinea, Madagascar, Malawi, Mali, Mauritania, Niger, Senegal, Sierra Leone, Togo, United Republic of Tanzania, Yemen, Zimbabwe have commendably reached the $\geq 75\%$ coverage target for schistosomiasis by 2017. A total of 75 million SAC were treated in 2017, representing an unprecedented coverage of 69.4% from the 29 countries who reported data in a timely version.

2. Justification

Despite major commitments by NTD donors and other stakeholders, and commendable progress in the last five years in some countries, major gaps still exist in endemic countries especially in the African region. One of the challenges is adequacy of data to inform implementation of control at community level, as Schistosomiasis is a focal disease.

Concerns have been expressed regarding the suitability of the current endemicity data (which many countries aggregate at district level), for appropriate programme implementation at community level as appropriate. While the number of persons requiring PC was reduced by 42 million following the completion of SCH mapping in 41 countries of the region by 2015, there are major gaps in how the mapping data has been interpreted and implemented in various countries. Further, there are concerns about the extent to which populations are either under treated or over treated with donated praziquantel where data are not adequate or appropriately used to determine focal endemic areas for MDA targeting.

In late 2017, ESPEN commissioned a consultative group in Brazzaville to further support the analysis of implementation based on the mapping data, to review areas that are implementing based on mean District level disease prevalence and requesting for PZQ based on the district level aggregated data, leading to either 'under-treating' or 'over-treating' in focal areas (see example in Table 1).

Table 1:

Delineating current endemicity data to lower administrative levels will help focus SCH treatment, exclude areas that may not need MDA, and expose finer mapping gaps.				
Busia County, Kenya	Overall prevalence = 24.1% (in the current JRSM, this is the prevalence assigned to all the sub-Counties)			
Sub-County	Number of schools	Examined	Positive	Prevalence (%)
Amagoro	2	120	0	0
Amukura	1	60	1	1.7
Angurai	1	59	5	8.5
Budalangi	4	232	118	50.9
Chakol	4	56	3	5.4
Funyula	3	179	43	24.0
Overall	15	706	170	24.1

The table 1 shows that based on overall County prevalence there would be unnecessary treatment in Amagoro sub-County while under or over treatment would affect other sub-counties.

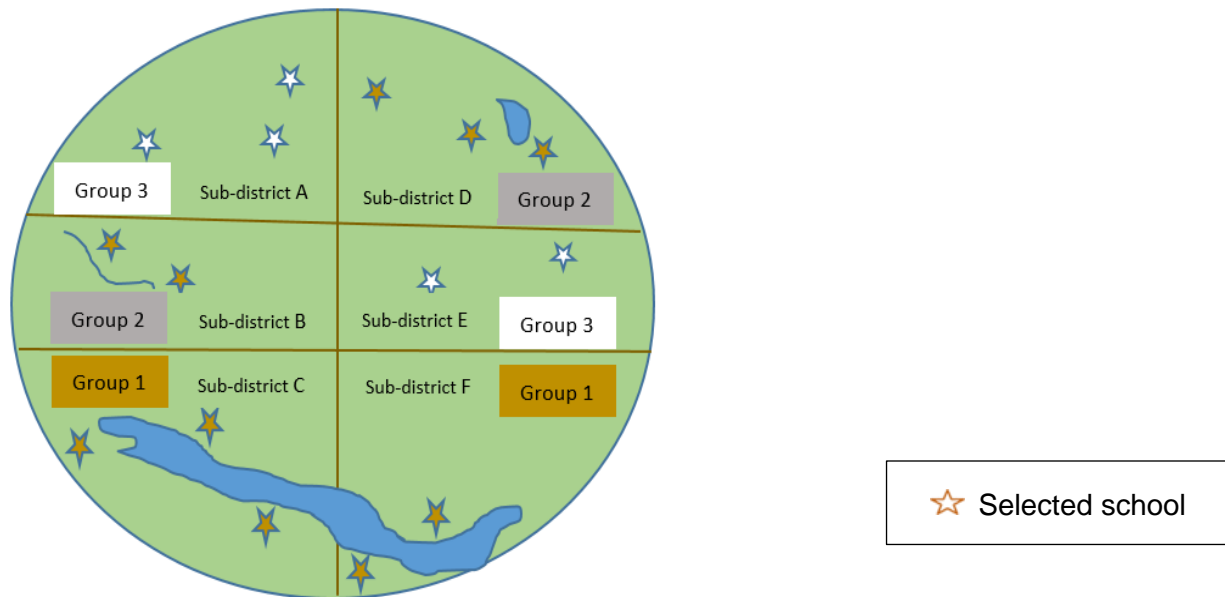
Based on the recommendations from the consultancy, ESPEN more recently in July 2018 trained several NTD data experts who were deployed in countries to provide this sub-district level mapping data delineation alongside other PC-NTDs data priorities. Thus, available data are now since been supplemented with other data sets including the GAHI data set, and other historical data sets availed by countries during ESPEN data support missions between 2018 and 2019.

The updated endemicity data from most countries show that it is possible to shrink the SCH map using the available prevalence data to better address the focal nature of transmission of the disease and focus implementation and resources to where they are needed most at community levels.

One of ESPEN's 4 overarching goals is to ensure that medicines are used effectively and delivered to those that need them by strengthening the supply chain management for donated medicines. Within this context, ESPEN wishes to increase efficiency and scale up by ensuring that countries order the right amounts of Praziquantel, and that only the people that need the medicines are treated.

ESPEN wishes to support countries where analysis can result in improving the optimization of Praziquantel use for mass drug administration (MDA), in line with the basic guidance from AFRO NTD mapping protocol.

Figure 1: AFRO NTD Mapping Protocol: Example of classification of 6 sub-districts into 3 mapping groups within one district



The AFRO NTD mapping protocol presents a minimum guidance for use when resources are limited, such that not every sub-district in a district may be mapped independently. Thus the mapping design provides for combining several sub-districts into up to three mapping units, where transmission is likely to be similar, according to ecological factors affecting schistosomiasis transmission.

The protocol also provides for use of health centre morbidity and parasitological records (e.g. from the national health information system), and on local knowledge or previous survey data. Sub-districts are then, classified into one of the three following categories:

- Mapping Unit 1 (Group 1 sub-districts): Group of sub-districts, within the same district, where schistosomiasis is known to be present.
- Mapping Unit 2 (Group 2 sub-districts): Group of sub-districts, within the same district, where schistosomiasis is suspected to be present.
- Mapping Unit 3 (Group 3 sub-districts): Group of sub-districts, within the same district, where schistosomiasis is suspected not to be present or the presence of schistosomiasis is unknown.

In the few cases where all the sub-districts within a district were all classified as being in group 1 or group 2 or group 3, the entire district would then form a single mapping unit. For each mapping unit, one prevalence should be estimated and all sub-districts in the group classified as non-endemic, low, moderate or high-risk area. One treatment strategy is then decided based on this classification.

Up to 22 countries (Angola, Botswana, Burundi, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Eritrea, Gabon, Kenya, Lesotho, Liberia, Madagascar, Mauritania, Mauritius, Sao Tome and Principe, Seychelles, South Sudan, eSwatini, The Gambia, Zimbabwe) were supported between 2012 and

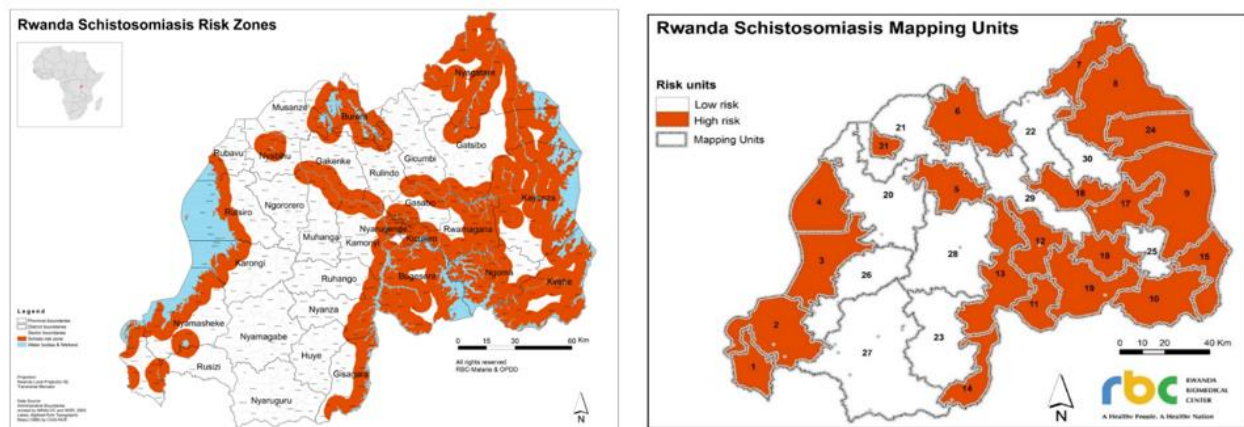
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2015 by the AFRO NTD mapping project to implement mapping using the NTD mapping Protocol, while in other countries, data were already available from previous surveys.

The quality of assigning mapping units determined the quality of the mapping prevalence data and the MDA implementation. Assigning mapping and implementation units can be based on having a clear local knowledge of the ecology of sub-districts, or can be supplemented by the use of GIS technology. Several studies conducted in different countries have found that GIS was helpful to predict SCH prevalence in non-surveyed areas using models including different parameters (epidemiological/ survey data, water bodies, wetlands, population density, temperature, rainfalls, altitude, etc). Even though many parameters are often considered for risk prediction modelling, knowledge of fresh water bodies and population densities associated with them are basic considerations.

For example, in Rwanda GIS tool was used to create a 5km buffer zones around all permanent water bodies.

Figure 2: Creation of Rwanda risk zones and mapping units for Schistosomiasis



Contiguous groups of sub-districts (sectors) inside the same 5km buffer zone were grouped into high-risk mapping units, while contiguous sub-districts with little or no area in buffer zones were grouped into low-risk mapping units.

Recognizing the gaps that still exist in the knowledge of the focal transmission areas based on current data, ESPEN's current focus is to support countries to more efficiently utilize available mapping data, to better allocate Praziquantel and other resources only where needed as much as currently feasible, to move praziquantel to lower levels of implementation where applicable.

It is hoped that this process will help countries to more efficiently focus PZQ distribution at sub-district levels (lowest possible demographic units) as a first step towards community level implementation within current data and resources. It will also expose sub-district level refinement mapping gaps that can be addressed in a stepwise approach based country specific strategies and on available resources.

Country selection criteria:

- Population requiring PC higher than 2.5 million persons, and therefore where impact in shrinking the map can be significant.
- Availability of sub-district level data, or possibility to obtain the same in good time.

- Preliminary analysis showing that further sub-district level analysis and planning can shrink the country map using currently available data.

3. Objectives of the workshop

- Conduct sub-district level analysis using spatial prevalence data supplemented by GIS technology district by district, to describe districts that should adjust their implementation strategy to shrink the country SCH map
- Update sub-district level planning for participating countries
- Revise PZQ needs based on endemicity review using available data
- Update JRSM based on sub-district (lowest demographic unit possible) data

4. Expected outcomes

- Updated sub-district level implementation planning for participating countries
- Updated PZQ needs based on endemicity review using available data
- Updated Joint request for selected medicines (JRSM) based on prevalence data delineated to sub-district levels

5. Method of the work

- Plenary sessions with presentations and discussions to clarify gaps
- Facilitated group work to review data and revise JRSM where needed

6. References and background documents

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2. Accelerating work to overcome the Global impact of neglected tropical diseases - A roadmap for implementation. Geneva, World Health Organization, 2012.
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ANNEX 1: Data Analysis Requirements

ANNEX 2: Data Analysis Tools

ANNEX 3: Country Data Analysis Samples

ANNEX 4: Agenda of the Workshop

ANNEX 5: WHO/AFRO NTD Mapping Guide 2014 (Revised in March 2018)