

WHO Regional Office for Africa | ESPEN

ESPEN-DP-SOP-05

# Schistosomiasis: processing of endemicity and preventive chemotherapy data

Expanded Special Project for Elimination of Neglected Tropical Diseases (ESPEN)

|                           |                                                                                                                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Document type</b>      | Standard operating procedure — data processing                                                                                                                                                                             |
| <b>Reference</b>          | ESPEN-DP-SOP-05                                                                                                                                                                                                            |
| <b>Version and status</b> | Draft v0.1, for internal review                                                                                                                                                                                            |
| <b>Date</b>               | 19 October 2026                                                                                                                                                                                                            |
| <b>Prepared by</b>        | ESPEN Data Team, WHO Regional Office for Africa                                                                                                                                                                            |
| <b>Scope</b>              | Endemicity, population requiring PC, PC with praziquantel, coverage and cumulative rounds of schistosomiasis (SCH), by age group, at implementation unit (IU), country and regional level, 2013–2025                       |
| <b>Data sources</b>       | Harmonised IU endemicity and population (SOP-01); JRF PC data for praziquantel alone and with albendazole or mebendazole; class of JRF version (SOP-04); ESPEN contemporary IU endemicity (2020); list of redistricted IUs |
| <b>Outputs</b>            | SCH analytical tables at IU level (by target population), country and regional level                                                                                                                                       |
| <b>Processing scripts</b> | Steps 1.7 and 1.9 (Annex A)                                                                                                                                                                                                |
| <b>Related documents</b>  | SOP-00; SOP-01; SOP-04 (class of JRF version); SOP-07                                                                                                                                                                      |

## Abbreviations

|            |                         |                |                                |
|------------|-------------------------|----------------|--------------------------------|
| <b>ALB</b> | Albendazole             | <b>Pre-SAC</b> | Pre-school-age children        |
| <b>IA</b>  | Impact assessment       | <b>PZQ</b>     | Praziquantel                   |
| <b>IU</b>  | Implementation unit     | <b>SAC</b>     | School-age children            |
| <b>JRF</b> | Joint Reporting Form    | <b>SCH</b>     | Schistosomiasis                |
| <b>MBD</b> | Mebendazole             | <b>STH</b>     | Soil-transmitted helminthiasis |
| <b>PC</b>  | Preventive chemotherapy |                |                                |

## 1. Purpose and scope

This procedure describes how the SCH data reported by countries are processed into the ESPEN SCH analytical tables, by age group (pre-SAC, SAC and adults) and in total. Because countries adopted the updated WHO monitoring and evaluation categories for schistosomiasis and STH [1] at different times, the population requiring PC is calculated with one of two rule sets, chosen for each country and year according to the reporting scheme of its JRF. The WHO guideline on control and elimination of human schistosomiasis provides the programmatic background [2].

## 2. Data sources

Table 1. Data sources

| Source                                   | Content used                                                                                                                                                                            |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Harmonised IU dataset (SOP-01)</b>    | SCH endemicity category, population by age group, population requiring PC by age group reported by the country                                                                          |
| <b>JRF, PC sheets</b>                    | Population targeted, treated and coverage by age group for praziquantel with albendazole or mebendazole (PZQ+ALB/MBD) and praziquantel alone (PZQ)                                      |
| <b>Class of JRF version (SOP-04)</b>     | Earlier or updated reporting scheme of each country and year                                                                                                                            |
| <b>Contemporary IU endemicity (2020)</b> | Reference classification of the SCH status of each IU, updated at a regional workshop with national programme and data managers (end of 2019) on the basis of the survey data available |
| <b>List of redistricted IUs</b>          | As in SOP-02                                                                                                                                                                            |

## 3. Definitions

Table 2. Terms and indicators

| Term                                    | Definition                                                                                                                                       |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Categories of the earlier scheme</b> | High prevalence (50% and above); moderate prevalence (10–49%); low prevalence (less than 10%); endemic with unknown prevalence.                  |
| <b>Categories of the updated scheme</b> | Prevalence 50% and above; prevalence 10–49%; prevalence 1–9%; surveillance (prevalence less than 1%).                                            |
| <b>Other categories</b>                 | Unknown; non-endemic; not reported.                                                                                                              |
| <b>Programme coverage</b>               | Population treated (limited to the population requiring PC) / population targeted × 100, by age group and in total.                              |
| <b>Epidemiological coverage</b>         | Population treated (limited to the population requiring PC) / population requiring PC × 100; zero when the population requiring PC is below 100. |
| <b>PC round; effective PC round</b>     | IU-year with total programme coverage above zero; of at least 75% (by age group in the tables by target population).                             |

## 4. Processing steps

### 4.1 Reconciliation of reported endemicity (2013–2019)

The contemporary IU classification (2020) results from a regional workshop held at the end of 2019, to which national programme managers and data managers were invited, which updated the endemicity status of each IU on the basis of the survey data available. It is used as a benchmark and applied retrospectively to the years before the workshop (SOP-02, Section 4.1). For 2013 to 2019, a reported category "Unknown", "Endemic/prevalence unknown" or "Non-endemic" takes the contemporary category of the IU when one exists, and a reported high, moderate or low prevalence becomes non-endemic when the contemporary classification is non-endemic. In the contemporary classification, an IU listed without a recognised category is treated as non-endemic; IUs not listed in it keep the category reported. From 2020 onwards the reported category is kept.

## 4.2 Import and combination of the PC data

- The PZQ+ALB/MBD and PZQ records are linked to IUs as described in SOP-02, Section 4.3.
- Pre-SAC were not reported in the earlier forms: their fields are set to zero for country-years of the earlier scheme and for those without a class.
- For each age group, the population targeted and treated of the IU-year are the larger of the values of the two regimens. In the PZQ+ALB/MBD sheet, the SAC and adult population targeted is the sum of the praziquantel-specific and general fields of the group (only one is expected to be filled).
- Totals targeted and treated are the sums of the age groups. Only the figures by age group are used: treatment reported only as a total is not counted. The largest total reported is kept separately and used to choose the regimen of the IU-year.

## 4.3 Population requiring PC

The rule set depends on the class of JRF version of the country and year (SOP-04, Section 4.2). Country-years of the earlier scheme, and those without a class, use the earlier rules; country-years of the updated scheme use the updated rules (Table 3).

**Table 3. Population requiring PC by reporting scheme**

| Category                                                      | Earlier scheme                                                                   | Updated scheme                 |
|---------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------|
| High prevalence ( $\geq 50\%$ )                               | SAC: 100% of SAC; adults: 100% of adults                                         | Values reported by the country |
| Moderate prevalence (10–49%); endemic with unknown prevalence | SAC: 50% of SAC; adults: 20% of adults                                           | Values reported by the country |
| Low prevalence ( $< 10\%$ )                                   | SAC: 33% of SAC; adults: none                                                    | None                           |
| Prevalence 50% and above                                      | As high prevalence, when no value is reported; none when a value is reported     | Values reported by the country |
| Prevalence 10–49%                                             | As moderate prevalence, when no value is reported; none when a value is reported | Values reported by the country |
| Prevalence 1–9%                                               | As low prevalence, when no value is reported; none when a value is reported      | Values reported by the country |
| Surveillance ( $< 1\%$ ), unknown, non-endemic, not reported  | None                                                                             | None                           |

- Earlier scheme: pre-SAC have no population requiring PC; the total is the sum of SAC and adults.
- Updated scheme: the pre-SAC, SAC, adult and total values reported by the country are used; when a value is missing, the population targeted of that group is used instead.

## 4.4 Coverage and rounds

- The population treated of each age group is limited to its population requiring PC.

- When people were treated but the population targeted of a group (or of the total) is missing or below 100, it is set to the population requiring PC (earlier scheme: SAC, adults and total; updated scheme: all groups and total).
- Programme and epidemiological coverage are calculated by age group and in total (Table 2). A PC round is counted when total programme coverage is above zero and an effective round when it reaches 75%.
- Rounds are accumulated by IU from 2013 and new IUs add the rounds counted in their first parent IU in the year before their creation (SOP-02, Section 4.8).

## 4.5 Tables by target population

As for STH (SOP-04, Section 4.7), the IU table is reorganised with one record per target population (pre-SAC, SAC, adults and total), and rounds and effective rounds (coverage of the group of at least 75%) are counted and accumulated for each group. Under the earlier scheme pre-SAC have no population requiring PC, so no round is counted for them.

## 4.6 Country and regional indicators

Country tables sum the IU values over the IUs of the high, moderate, low and unknown-prevalence categories of the earlier scheme and of the categories "Prevalence 50% and above", "Prevalence 10%-49%" and "Prevalence 1%-9%" of the updated scheme (surveillance excluded). The number of IUs requiring PC counts those categories, the IUs of low prevalence (less than 10%) being counted only for years before 2023. This cut-off is the calendar year, not the reporting scheme: from 2023, low-prevalence IUs of country-years processed under the earlier scheme contribute a population requiring PC but are not counted as IUs requiring PC. IUs without a population requiring PC (such as low-prevalence IUs under the updated scheme) contribute their population targeted but no population treated, which lowers the programme coverage of the country. Tables report the IUs by category, the populations requiring, targeted and treated by age group and in total, the IUs requiring PC, with a round and with an effective round, programme and epidemiological coverage by age group and in total (from the summed populations) and the IUs by regimen. Regional tables sum the country values by United Nations subregion (within each WHO region) and year and recalculate coverage.

## 4.7 Finalisation and publication

Categories are given their standard identifiers, values are rounded (coverage to two decimals) and the IU (by target population), country and regional tables are written to the ESPEN analytical database.

# 5. Quality assurance

- The number of IUs by year and reporting scheme, and the source of the class (version of the form or categories reported), are reported at each run.
- IUs processed under the earlier scheme that report a new category with a population requiring PC are listed, since the reported value is not used.
- A country-year with more than one version class stops the processing.
- The results of the linkage of each regimen are reported, and categories not foreseen in the country tables are reported.

# 6. Limitations

- Under the earlier scheme the population requiring PC is estimated from fixed fractions of the age groups by prevalence category, not from the values reported.

- Under the updated scheme the reported total is used and may differ from the sum of the age groups; missing values are replaced by the population targeted, in which case epidemiological and programme coverage coincide.
- The reporting scheme applied to each IU-year is not shown in the published tables.
- Several rounds delivered in a year are counted as one; effective PC is defined on total programme coverage.
- Treatment reported only as a total, without breakdown by age group, is not counted.
- The reconciliation with the contemporary classification is applied to 2013–2019 only.

## 7. Revision

This procedure describes the processing as implemented in the versions of the R scripts listed in Annex A (October 2026). It is revised whenever a decision rule, threshold, category or data source changes, and at least once a year before the new reporting cycle. Each revision is recorded in the table below.

| Version | Date            | Changes                                                                  |
|---------|-----------------|--------------------------------------------------------------------------|
| 0.1     | 19 October 2026 | First draft of SOP-05, prepared from the code of the processing scripts. |

## References

1. World Health Organization. Assessing schistosomiasis and soil-transmitted helminthiasis control programmes: monitoring and evaluation framework. Geneva: World Health Organization; 2024. Available from: <https://www.who.int/publications/i/item/9789240099364>
2. World Health Organization. WHO guideline on control and elimination of human schistosomiasis. Geneva: World Health Organization; 2022. Available from: <https://www.who.int/publications/i/item/9789240041608>

## Annex A. Processing scripts

| Step | Script                    | Role in this procedure                                                                                                                                                       |
|------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.7  | SCH_AT_v05.R              | Sections 4.1 to 4.4 and 4.6                                                                                                                                                  |
| 1.9  | ESPEN_AT_Transpose_v02.R  | Sections 4.5 and 4.7                                                                                                                                                         |
| –    | Functions/JAP_functions.R | Import of the PC sheets (import_mda_scheme), earlier-scheme fields (zero_prior_v4), limitation of treated to required (cap_treated_to_required), rounds by target population |