

WHO Regional Office for Africa | ESPEN

ESPEN-DP-SOP-06

Trachoma: processing of survey and mass drug administration data from the global trachoma database

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

Document type	Standard operating procedure — data processing
Reference	ESPEN-DP-SOP-06
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Scope	Trachoma endemicity (TF and TT categories), survey history, MDA with azithromycin, coverage, cumulative rounds and trichiasis surgery at the implementation-unit (IU) level of the global trachoma database, with country and subregional summaries (from 2014)
Data sources	Global trachoma database (GET2020) maintained by the International Trachoma Initiative (ITI); reconciled list of ITI IUs with parent IUs; UN WPP 2024 growth rates; ITI IU boundaries; ESPEN country summary of the previous release
Outputs	Trachoma analytical tables at IU, country and regional level
Processing scripts	Steps 1.8 and 1.9 (Annex A)
Related documents	SOP-00; SOP-07 (trachoma in country summaries and the trachoma and WASH table); SOP-08 (trachoma map layers)

Abbreviations

GET2020	WHO Alliance for the Global Elimination of Trachoma by 2020 (database held by ITI)	PC	Preventive chemotherapy
IU	Implementation unit	TF	Trachomatous inflammation–follicular
ITI	International Trachoma Initiative	TT	Trachomatous trichiasis
MDA	Mass drug administration	WPP	World Population Prospects (United Nations)

1. Purpose and scope

Trachoma data are not reported through the WHO Joint Reporting Form. They are obtained from the global trachoma database (GET2020) maintained by the International Trachoma Initiative (ITI) on behalf of national programmes [1], and processed for the countries of the ESPEN country list, except four countries of the WHO Eastern Mediterranean Region (Section 4.1), at the level of the IUs used by that database. This procedure describes how survey results and treatment data are processed into the ESPEN trachoma tables. The WHO criteria for the elimination of trachoma as a public health problem provide the background for the categories used [2].

2. Data sources

Table 1. Data sources

Source	Content used
Global trachoma database (ITI)	By IU, year and survey: survey type and order, TF and TT categories and prevalence; IU population, population targeted, number treated, coverage and distribution of azithromycin; trichiasis surgery (total, women, men)
Reconciled list of ITI IUs	IUs that are parents of current IUs, link between current IUs and their parent, current TF category of each IU
UN WPP 2024 [3]	National annual population growth multiplier
ITI IU boundaries	Current IUs of countries without data in the trachoma database
ESPEN country summary (previous release)	Country-level trachoma status of countries without data in the trachoma database (SOP-07)

3. Definitions

Table 2. Terms and indicators

Term	Definition
TF category	Category of the prevalence of trachomatous inflammation–follicular of the IU: <5%, 5–9.9%, 10–29.9%, 30–49.9%, ≥50%; or endemicity unknown, suspected endemic, not suspected; or under post-MDA surveillance (Section 4.5).
TT category	Category of the prevalence of trachomatous trichiasis: <0.2%, 0.2–0.9%, 1.0–4.9%, ≥5.0%; or unknown, suspected endemic, not suspected.
Type of most recent survey	Baseline, impact or surveillance survey that provides the current status of the IU, or none.
Eligible IU	IU with TF of 5% or more.
MDA round	IU-year in which azithromycin distribution is reported (or inherited from the parent IU) or in which the recalculated coverage is above zero. Normally one round per IU and year (Section 4.5).
Coverage (IU)	Number treated / IU population × 100.
Geographical coverage	Number of IUs with an MDA round / number of eligible IUs × 100 (country and subregion).
Epidemiological coverage	Population treated / population requiring PC × 100 (country and subregion).

4. Processing steps

4.1 Selection and de-duplication

Records of the countries of the ESPEN country list are kept, except those of Djibouti, Egypt, Somalia and Sudan (WHO Eastern Mediterranean Region). Yemen, which is also in the ESPEN country list, is not excluded. One record is kept per IU, year and survey, giving priority to records with a round number above one, then to records with a reported number treated, then to the largest number treated, and finally to the highest round number.

4.2 IU population

Missing IU populations are estimated within each IU by linear interpolation between reported years and, for years before the first or after the last available value, by applying the national annual growth multiplier (WPP 2024) year by year, forward from the last value and backward from the first; a missing multiplier leaves the value missing. Values of 1 or less are treated as missing. Reported populations are always kept. The estimate replaces only missing values, and is used only to complete the population of IU-years with treatment (Section 4.5).

4.3 Current and parent IUs

The reconciled list identifies parent IUs (units that existed before redistricting) and current IUs, with the parent of each current IU. When a survey field of a current IU (survey, type, order, TF and TT category and prevalence) is missing in a year, it is taken from the record of its parent IU for that year that has a TF category. A parent with several surveys in one year repeats the records of its current IUs; the number of records added is reported. IUs of the trachoma database that are not in the reconciled list are reported and excluded.

4.4 Endemicity of current IUs

1. In each IU and year, trichiasis-only survey records (and records without a survey name) are removed when the IU-year has more than one record, and the record with the highest survey order is retained. The name of any trichiasis survey of the year is kept as the TT survey of the IU-year.
2. A missing TF category is derived from the TF prevalence of the same record: <5%, 5–9.9%, 10–29.9%, 30–49.9% or ≥50%.
3. The results of the most recent survey are carried forward to the following years, so that the status of a year is that of the latest survey up to that year.
4. Years before the first survey of an IU take, for both the TF and the TT category, the current TF category recorded in the reconciled list for the IU or, if it is missing, for its parent.
5. Remaining gaps are classified as "Endemicity unknown" (TF) and "Unknown" (TT).

4.5 Treatment

- Population, population targeted and number treated of 1 or less are treated as missing. When the number treated is missing, the azithromycin distribution value reported for the IU-year is used instead (unless it is 1).
- An IU-year has an MDA round when azithromycin distribution is reported or, when the IU reports no distribution value, when a round is reported for its parent that year, or when the recalculated coverage is above zero.
- For current IUs, when the population is missing and coverage is reported, the population is derived as number treated / coverage (coverage above 2 is read as a percentage). If it is still missing and more than 100 people were treated, the estimated population of Section 4.2 is used. Parent IUs use only the estimated population. When the population targeted is missing and more than 100 people were treated, it is set to the IU population.
- Coverage is recalculated as the number treated divided by the IU population. Cumulative rounds are counted by IU.
- Records of an IU-year that report the same number treated are merged. Records of the same IU-year that report different numbers treated are kept, reported for review, and each one is counted as a round.
- IUs with TF below 5% whose most recent survey is a surveillance survey, which have received MDA before but not in the current year, are classified as under post-MDA surveillance.

4.6 Countries without data in the trachoma database

Countries of the region whose IUs are in the ITI boundaries but not in the trachoma database are added with all their IUs and years, without treatment. Their status is taken from the most recent ESPEN country summary: "not requiring PC" gives the category not suspected (TF and TT); any other value gives endemicity unknown.

4.7 Country and regional indicators

Country tables (from 2014) report, by country and year: the number of IUs; the number of IUs in each TF category; the number of eligible IUs; the number of IUs by type of most recent survey; the number of IUs with a first TT survey in the year; the populations requiring PC, targeted and treated; the number of IUs with an MDA round; geographical and epidemiological coverage; and trichiasis surgeries. The population requiring PC of current IUs counts only IUs of the categories requiring PC (TF $\geq 5\%$). For parent IUs, it counts the IU-years with MDA whatever their category, and the IU-years without MDA whose TF category is not $< 5\%$, unknown, suspected or not suspected. For populations and surgeries, the larger of the totals computed over parent IUs and over current IUs is chosen separately for each indicator, so the numerator and denominator of epidemiological coverage may come from different sets of IUs. Regional tables sum the country values by United Nations subregion (within each WHO region) and recalculate coverage; no total for the whole region is calculated.

4.8 Finalisation and publication

TF and TT categories are given their standard identifiers, values are rounded and the IU, country and regional tables are written to the ESPEN analytical database. The TF and TT prevalence values are withheld from the published IU table; they are kept in the trachoma and WASH table (SOP-07) and in the yearly trachoma map layers (SOP-08). In the published IU table, the field of population requiring PC holds the IU population whatever the TF category; the restriction to IUs with TF $\geq 5\%$ is applied only in the country and subregional totals.

5. Quality assurance

- Records sharing an IU, year and survey are checked after de-duplication; IUs absent from the reconciled list are reported.
- The number of records added when parent survey values are linked to current IUs is reported.
- The numbers of records with no TF category and a TF prevalence, of "NULL" TF and TT categories, of current-IU records with coverage above 2, and of IU-years with MDA in categories not requiring PC are reported for review. TF and TT categories without a standard identifier are not reported.
- The order and names of the output fields are checked before the tables are written.

6. Limitations

- Trachoma tables use the IU geography of the trachoma database, which may differ from the ESPEN IUs used for the other diseases.
- Apart from deriving a missing TF category from the TF prevalence (Section 4.4), the decision rules use only the 5% TF threshold (eligibility and population requiring PC). TT categories are taken as recorded in the database or in the reconciled list.
- Normally one MDA round is retained per IU and year; records of the same IU-year with different numbers treated are each counted.

- In the IU table, the population requiring PC is the IU population whatever the TF category.
- The current category of an IU is applied to the years before its first survey.
- Geographical coverage counts all IUs with an MDA round, including IUs whose category does not require PC, against the eligible IUs; it can therefore exceed 100%.
- Countries without data in the trachoma database are represented with country-level status 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-06, prepared from the code of the processing scripts.

References

1. International Trachoma Initiative. Trachoma data and the global trachoma database [Internet]. Decatur (GA): Task Force for Global Health; [cited 2026 Oct 19]. Available from: <https://www.trachoma.org>
2. World Health Organization. Validation of elimination of trachoma as a public health problem. Geneva: World Health Organization; 2016 (WHO/HTM/NTD/2016.8). Available from: <https://www.who.int/westernpacific/publications/i/item/who-htm-ntd-2016.8>
3. United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects 2024 [Internet]. New York: United Nations; 2024 [cited 2026 Oct 19]. Available from: <https://population.un.org/wpp/>

Annex A. Processing scripts

Step	Script	Role in this procedure
4.1	ITI data feed (outside the R folder)	Loading of the global trachoma database into the ESPEN data store
1.8	Trachoma_AT_v05.R	Sections 4.1 to 4.7
1.9	ESPEN_AT_Transpose_v02.R	Section 4.8
–	Functions/JAP_functions.R	Population completion (fill_pop_growth), duplicate checks