

## Tropical Data: supporting health ministries worldwide to conduct high-quality trachoma surveys

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Monitoring and evaluation are key to tracking progress towards achieving the 2030 targets for neglected tropical diseases (NTDs).<sup>1</sup> Baseline data provide a reference point against which subsequent progress towards targets can be measured. For trachoma, the leading infectious cause of blindness worldwide, the Global Trachoma Mapping Project (GTMP) was the largest series of infectious disease surveys ever conducted. Baseline surveys were completed in 905 evaluation units (EUs; which for trachoma elimination purposes are defined as the normal administrative units for healthcare management, generally with populations of 100 000–250 000 people)<sup>2</sup> across 29 countries, examining >2.6 million people.<sup>3</sup> The results enabled trachoma interventions to be targeted and prioritised, with active trachoma (measured through the clinical sign trachomatous inflammation—follicular [TF]) confirmed to be a public health problem in 341 (38%) EUs and the late-stage, blinding, trachomatous trichiasis (TT) a public health problem in 473 (52%) EUs,<sup>3</sup> with the highest burdens in Ethiopia and Nigeria.

The GTMP also demonstrated the value of health ministries owning the survey process and data,<sup>4</sup> and having a standardised approach with quality control and assurance at every step of the survey process.<sup>5</sup> Its partnership and collaboration to reach a common vision (global elimination of trachoma by 2020) and goal (completing baseline mapping in suspected trachoma-endemic districts) have been an important foundation for work towards the global elimination target.<sup>6,7</sup>

Following the GTMP's conclusion in 2016, Tropical Data was established as its successor, but with an expanded remit to support trachoma impact, surveillance and TT-only surveys.<sup>3</sup> It has built on the GTMP methodologies, adapting them and introducing innovations in light of new international recommendations, user feedback, research and scientific developments. Changes to the Tropical Data methodology up to 2019 have been reported elsewhere,<sup>8</sup> with some key modifications being the use of three-

dimensional (3D) glasses during training for TT diagnosis<sup>9</sup> and follicle size guides to support TF diagnosis in the field,<sup>10</sup> adaptations throughout the survey process to accommodate the change in TT definition agreed upon at the World Health Organization's (WHO's) 4th Global Scientific Meeting on Trachoma that excludes lower eyelid trichiasis<sup>11</sup> and updated WHO/United Nations Children's Fund Joint Monitoring Programme (JMP) water, sanitation and hygiene (WASH) indicators.<sup>12</sup>

Since 2019, Tropical Data's methods have been further developed, in particular with regards to trachoma diagnosis, led by two task teams (one for TF, one for TT). The first major modification has been in the training of trachoma graders, which now no longer requires the diagnosis of live TF cases in the field for the intergrader agreement (IGA) assessment, as a result of TF cases being increasingly rare.<sup>8</sup> Instead, graders are required to pass a six-step certification process, including a photo-based follicle identification test; photo-based IGAs made possible by the photo database developed by partners within the trachoma community (<https://trachomaphotos.tropicaldata.org/>); photo-based trachomatous scarring and TT diagnosis using 3D images; and class- and field-based observed structured clinical examinations (OSCEs) of examination techniques. Furthermore, training materials now include information on how photography can be used to support supervision efforts and reference to resources available to support training of photographers to take good quality images.<sup>13</sup>

The second modification has been for the purpose of improving TT diagnosis.<sup>14</sup> The rarity of this phenotype, combined with the elimination threshold of <0.2% in population-based prevalence surveys, means a single misdiagnosis can have important individual and programmatic implications.<sup>15,16</sup> To address this, in addition to more focus on examination techniques in the grader training and through OSCE assessment, data recorders now enter the number of eyelashes the grader reports seeing touching the

eyeball or having been epilated. The rationale is that counting the eyelash number will help reduce overgrading of TT, improve data recording compared with a dichotomous ‘yes/no’ response that is more prone to data entry errors and enable national programmes to categorise the TT as minor ( $\leq 5$  eyelashes) or major ( $> 5$  eyelashes), which could inform programme planning.<sup>11,17</sup> An additional question has been added to the individual data collection form to record any non-trachoma-related eye conditions that graders may identify and feel should be highlighted as needing treatment or referral, e.g. cataract. Not only does this allow other conditions to be considered within a trachoma survey, but it avoids graders recording a TT diagnosis when there is no TT in order for patients to be flagged for a different eye condition and referred.

A third modification has been to better classify TT unknown to the health system (a critical part of the definition for WHO validation of trachoma elimination). At the Third Global Scientific Meeting on TT in Cape Town, South Africa, in December 2022, national programmes were ‘encouraged to adopt a consistent definition of “health worker” for all trachoma surveys and to train the staff involved in applying this definition. This should enable the identification of a person capable of proposing management’. Where trichiasis is identified, in addition to the standard TT management questions,<sup>13</sup> there is a new hint reminding teams to use the locally agreed definition of a health worker, which has been stipulated in the local protocol. In addition, when trichiasis is present, the grader should look for evidence of a surgical scar, as well as for trachomatous scarring, when looking at the conjunctiva. The presence or absence of a surgical scar can help confirm the answers to the TT management questions (and classification of TT as known or unknown to the health system) through direct verification or further discussion with the person being examined. An ‘aide-mémoire’ has been included in Tropical Data’s resources<sup>13</sup> to support the process and show what questions to ask.

The documentation of these methods and their rationale is important for ensuring that surveys are conducted in an evidence-based, high-quality and transparent way. By 19 March 2024, Tropical Data’s methods had been used in 3714 EUs, across 52 countries. Health ministry publication of their surveys provides a record of how these methods have been put into practice and demonstrate progress over time, as evidenced by the publication on ‘Progress towards trachoma elimination in Nigeria’ by Mpyet *et al.* in this issue.<sup>18</sup> Publication also enables peer review of the survey methods and results before inclusion in their trachoma elimination dossier submission to WHO.<sup>19</sup> Tropical Data has created an online publications writing workshop (<https://tropicaldata.knowledgeowl.com/help/publications-workshop>) to support health ministries in this process. So far, 18 countries have been validated by WHO as having eliminated trachoma as a public health problem.<sup>20</sup> This achievement reflects the efforts of the whole trachoma community in meeting the goal of eliminating trachoma as a public health problem worldwide by 2030.<sup>21</sup>

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