



TROPICAL DATA

Training system for
trachoma prevalence surveys

VERSION 3

ICTC

International Coalition
for Trachoma Control

Contents

Foreword	4
Acknowledgements	5
Note for training coordinators: selecting and preparing trainers.....	6
Definitions of terms	7
Index of abbreviations	8
1 Introduction	9
2 Before training starts: being an effective trainer	11
3 Before training starts: practical issues for trainers and the training coordinator	13
4 Selection of personnel.....	17
5 Training schedule	19
6 Trainer's notes for each module	22
A. Opening of training.....	22
B. Introduction to the grader qualifying workshop.....	22
C. WHO simplified trachoma grading system	23
D. Practice slide sets and IGA test with slides.....	24
E. Examination techniques 1.....	26
F. Grading in the field.....	27
G. Practice IGA test in the field and review of incorrectly graded subjects	28
H. IGA test	30
I. Introduction to the recorder workshop	31
J. Review of hard copy of data collection forms (recorders only)	31
K. Using the Androids & Recorder Reliability Test (recorders only)	44
L. Overview of Tropical Data, trachoma and prevalence surveys	47

Please note

The Tropical Data training system includes this manual, a number of PowerPoint presentations and various other electronic tools. These training system components are intended to complement each other and should be deployed as a complete system.

Please contact
admin@tropicaldata.org
for access to the complete training system.

M. Cluster sampling & household selection	48
N. Recorders demonstrate Androids to graders.....	49
O. Obtaining consent	49
P. Examination techniques 2 (graders only)	50
Q. Practise working together	52
R. Field practice for teams.....	54
S. Supervision (for all trainees, proposed supervisors & coordinators) ...	55
T. Graduation and review of survey plans.....	57
7 After training finishes: clearing data from the Androids	58
Annex 1. Cluster sampling and household selection – Aide memoire	59
Annex 2. IGA test form for slides.....	60
Annex 3. IGA test form for the field	61
Annex 4. Using the kappa calculator	62
Annex 5. Photos of water source categories	63
Annex 6. Photos of sanitation facility categories.....	65
Annex 7. Survey form.....	67
Annex 8. Referral form.....	71
Annex 9A. Practice Recorder Exercises.....	72
Annex 9B. Recorder Reliability Test.....	75
Annex 9C. Absentee Form	79
Annex 10. Instructions for viewing 3D images	80
Annex 11. 3D Photo & Trichiasis Diagnosis Practice	82
Annex 12. Supervisor form/checklist	86
Bibliography	87



Kate Holt/ Sightsavers

Above

A pupil demonstrates the use of a leaky tin to wash their hands and face as part of their hygiene campaign that helps to prevent trachoma.

Foreword

In order to achieve trachoma elimination, it is important to know where interventions against trachoma are required and where they are no longer necessary. This is only possible with a comprehensive global map of trachoma that is updated as new data become available, and in which the district-level prevalence estimates have been generated using methodologies that are accurate and repeatable. Producing quality-marked data using internationally agreed survey systems and processes is essential.

The World Health Organization (WHO) recommends that the following trachoma prevalence surveys take place:

- **Baseline surveys:** to determine the need for trachoma elimination interventions (five years of “AFE” where TF is $\geq 30\%$ in 1–9-year-olds, three years of “AFE” where TF is 10–29.9%, and one year of “AFE” where TF is 5–9.9%); S interventions are needed where the prevalence of trachomatous trichiasis (TT) unknown to the health system is $\geq 0.2\%$ in ≥ 15 -year-olds);
- **Impact surveys:** conducted 6-12 months after the last round of Mass Drug Administration (MDA), to guide the need for further interventions;
- **Surveillance surveys:** conducted at least two years after an impact survey has shown the TF prevalence to be $< 5\%$ in 1–9-year-olds.
- **TT-only prevalence surveys** can also be conducted. These are standardised surveys that are rarely required, but are recommended in certain epidemiological contexts. Please refer to the Tropical Data TT-only survey manual for more information on these as they are not covered in this manual.

This training system is intended to be used to train, in a standardised way, the staff needed to complete such surveys, at baseline, impact and pre-validation surveillance stages. It provides the certified trainer with a complete programme for selecting and training field teams to undertake surveys of trachoma, together with selected water and sanitation indices, using cluster sampling methodology. Theoretical teaching has been kept to a minimum, focusing on what field staff “must” know.

This manual is primarily aimed at trainers and supervisors of survey field staff, but programme managers are also strongly encouraged to become familiar with the manual and, if possible, to attend the training programme.

This training system conforms with WHO trachoma survey guidelines. It is adapted from the training system of the Global Trachoma Mapping Project (GTMP), with new material and refinements added based on the GTMP and Tropical Data experience. Other previous publications informing the design are listed in the bibliography. We are extremely grateful to the people who contributed to those previous efforts and who added, revised or tested new material, without which this training system would have been much harder to produce. We have attempted to list all contributors to the development of new material in the acknowledgements.

Good luck with your training, and with your surveys!

Acknowledgements

The GTMP training system was drafted by Paul Courtright, Katie Gass, Susan Lewallen, Chad MacArthur, Alex Pavluck, Anthony Solomon and Sheila West. This Tropical Data training system is a revision of version 3 of the GTMP training system, with updates and refinements made by Paul Courtright, Michael Dejene, Emma Harding-Esch, Cristina Jimenez, Colin Macleod, Caleb Mpyet, Alex Pavluck, Anthony Solomon and Rebecca Willis.

Other individuals who helped to plan the GTMP training system, created materials used to develop it, commented on drafts, participated in field testing, and provided feedback on implementation that led to the current system were: Agatha Aboe, Liknaw Adamu, Wondu Alemayehu, Menbere Alemu, Neal Alexander, Robin Bailey, Ana Bakhtiari, Amir Bedri, Berhanu Bero, Sophie Boisson, Simon Brooker, Chris Brown, Clara Burgert, Matthew Burton, Simon Bush, Kurt Dreger, Paul Emerson, Diana Paola Gómez Forero, Michael Dejene, Allen Foster, Solomon Gadisa, Teshome Gebre, Esmael Habtamu, Danny Haddad, Erik Harvey, Jeremy Hoffman, PJ Hooper, Richard Johnston, Khumbo Kalua, Jonathan King, Elizabeth Kurylo, Tom Lietman, Silvio Mariotti, Patrick Massae, Richard Le Mesurier, Addis Mekasha, Rick Tom Millar, Beatriz Muñoz, Jeremiah Ngondi, Nicholas Olobio, Stephanie Ogden, Joseph Pearce, Saul Rajak, Serge Resnikoff, Hillary Rono, Virginia Sarah, Alemayehu Sisay, Jennifer Smith, Hugh Taylor, Jo Thomson and Yael Velleman.

Funding for development of the GTMP training system was provided by the United Kingdom's Department for International Development through a grant to Sightsavers, and by Pfizer through a grant to the International Trachoma Initiative.

The revision of the GTMP system to become the Tropical Data system was made possible thanks to assistance from: the ENVISION project, led by RTI International and funded by the United States Agency for International Development; the International Trachoma Initiative; The Queen Elizabeth Diamond Jubilee Trust; Sightsavers; the United Kingdom's Department for International Development; and the World Health Organization.

Key updates in version 3 include: changes reflecting the new definition of TT agreed at the 4th Global Scientific Meeting on Trachoma; updated water, sanitation and hygiene (WASH) questions in accordance with the Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP); greater emphasis on TS and trichiasis training; and a greater emphasis on supervision.

Suggested citation: Courtright P, MacArthur C, Macleod CK, Dejene M, Gass K, Harding-Esch EM, Jimenez C, Lewallen S, Mpyet C, Pavluck AL, West SK, Willis R, Solomon AW (2019). Tropical Data: training system for trachoma prevalence surveys. International Coalition for Trachoma Control: London.

Note for training coordinators: selecting and preparing trainers

In addition to village guides, drivers and supervisory staff, the trachoma survey teams recommended in this training system include two cadres: graders and recorders. Training therefore requires at least two trainers: one to train the graders and one to train the recorders. To ensure quality, you should ensure that your grader trainees are trained by Tropical Data-certified grader trainers, and that your recorder trainees are trained by Tropical Data-certified recorder trainers. Tropical Data (www.tropicaldata.org) holds periodic training-of-trainer events, and will be pleased to help you train your trainers. But how should people be selected to be trained as trainers?

Candidate grader trainers should be very experienced in grading trachoma in the community using the WHO simplified grading system. They need not be ophthalmologists: experienced ophthalmic nurses or ophthalmic assistants may be ideal. Candidate recorder trainers should be experienced in data collection and be thoroughly familiar with the operation of a smartphone. However, being good at performing a task is not enough to qualify an individual to be a good teacher for that task.

*Choose candidate trainers who have both a strong skill set for the tasks at hand **and** an ability to impart that skill set to others.* Ideally, both grader and recorder trainers will have had previous experience in training others. Section 2 describes elements of being an effective trainer.

During the first two days of training (the grader qualifying workshop), one grader trainer will be required for every four grader trainees, as this is the maximum number that can be taught effectively by one trainer in the field. If there are not enough grader trainers to train all grader trainees at the same time, additional workshops may need to be held.

Even if they have experience in training teams for trachoma surveys, **both grader trainers and recorder trainers should ensure that they are completely familiar with all the details in this manual before commencing training.** This is likely to require up to six hours spent studying the manual. Some things have changed since the GTMP!

Please ask your trainers to follow this training system as closely as possible.

Definitions of terms

Clusters: geographically defined collections of households used to construct a sampling frame in a cluster-sampling strategy.

Corneal opacity (CO, a sign in the WHO simplified trachoma grading system): easily visible corneal opacity over the pupil, so dense that at least part of the pupil margin is blurred when viewed through the opacity.

Data approver: the individual (at the Ministry of Health or equivalent) with responsibility for reviewing and approving survey data.

District: for trachoma elimination purposes, a district is defined as the normal administrative unit for health care management, which for purposes of clarification (generally) consists of a population unit between 100 000–250 000 persons.

Evaluation unit (EU): the population unit selected for implementation of trachoma surveys. This is a more politically neutral term than “district”, and avoids the confusion that can arise when locally-defined administrative districts are much larger or smaller than the recommended population unit for surveys. EUs generally encompass a population of 100 000–250 000 persons.

Global Trachoma Mapping Project: the project, funded by the United Kingdom’s Department for International Development and the United States Agency for International Development, that carried out global baseline mapping of trachoma from December 2012 to January 2016.

Grader: in this training system, an individual given responsibility for examining community residents for clinical signs of trachoma in a trachoma prevalence survey.

Impact survey: an EU-level trachoma prevalence survey done 6–12 months after completion of the last programmed round of azithromycin mass drug administration in that EU.

International Coalition for Trachoma Control: a coalition of non-governmental, donor, private sector and academic organisations working together to support the WHO Alliance for the Global Elimination of Trachoma by 2020.

Inter-grader agreement (IGA): the degree of agreement among different graders. Cohen’s kappa coefficient is a conservative statistical measure of inter-observer agreement for qualitative parameters that takes into account the agreement that would occur by chance.

Kappa: see Inter-grader agreement.

Pre-validation surveillance survey: an EU-level trachoma prevalence survey done two years after the last impact survey in that EU showed a TF prevalence in 1–9-year-olds of <5%.

Programme manager: the individual with overall responsibility for planning and executing activities related to trachoma elimination.

Recorder: in this training system, an individual given responsibility for ensuring that data collected in a trachoma survey is reliably captured for later analysis.

Supervisor: in this training system, an individual given responsibility for overseeing the work of a number of graders and recorders and assisting them where necessary.

Surveillance survey: see pre-validation surveillance survey.

Survey coordinator: the individual with responsibility for deploying trained graders and recorders to undertake trachoma surveys in one or more EUs, and ensuring that all necessary logistical arrangements are in place so that those surveys can be conducted successfully.

Trichomatous conjunctival scarring (TS, a sign in the WHO simplified trachoma grading system): the presence of easily visible scars in the tarsal conjunctiva.

Trichomatous inflammation—follicular (TF, a sign in the WHO simplified trachoma grading system): the presence of five or more follicles at least 0.5mm in diameter, in the central part of the upper tarsal conjunctiva.

Trichomatous inflammation—intense (TI, a sign in the WHO simplified trachoma grading system): pronounced inflammatory thickening of the upper tarsal conjunctiva obscuring more than half the normal deep tarsal vessels.

Trichomatous trichiasis (TT, a sign in the WHO simplified trachoma grading system): at least one eyelash from the upper eyelid touches the eyeball, or evidence of recent epilation of in-turned eyelashes from the upper eyelid.

Training coordinator: the individual with overall responsibility for identifying, inviting and preparing trainers and trainees; choosing and booking the training venue; choosing and preparing sites for field-based training sessions; and making other logistical arrangements necessary for this training system to be successfully implemented.

Trichiasis: at least one eyelash (from either the upper or lower eyelid) touches the eyeball, or evidence of recent epilation of in-turned eyelashes (from either the upper or lower eyelid).

Tropical Data: a service that helps countries to collect globally standardised, high quality data by providing epidemiological, training, logistical and data management support to national programmes carrying out all types of cross-sectional surveys on trachoma.

WHO simplified trachoma grading system: a trachoma grading system designed for use in population-based surveys or for the simple assessment of the disease at community level.

Index of abbreviations

CO	corneal opacity
EU	evaluation unit
GTMP	Global Trachoma Mapping Project
ICTC	International Coalition for Trachoma Control
IGA	inter-grader agreement
SAFE	surgery, antibiotics, facial cleanliness, environmental improvement
TF	trichomatous inflammation—follicular
TI	trichomatous inflammation—intense
TS	trichomatous scarring
TT	trichomatous trichiasis
WHO	World Health Organization
WASH	water, sanitation and hygiene

1 Introduction

Trachoma is the leading infectious cause of blindness. It causes blindness by scarring the eyelids, which ultimately turns the eyelashes inwards so that they scratch the eye. Trachoma is controlled through the “SAFE” strategy, which comprises Surgery for in-turned eyelashes, Antibiotics to clear infection, and Facial cleanliness and Environmental improvement to reduce infection transmission. Using SAFE, the World Health Organization (WHO) and its partners plan to eliminate trachoma as a public health problem by 2020.

“S” is offered to individuals, while “A”, “F” and “E” are community-based interventions applied to whole populations. WHO recommends that the unit population for these interventions should be the normal administrative unit for health care management, nominally “districts” of 100 000 to 250 000 people. “A”, “F” and “E” are indicated for five years before re-survey in districts in which the prevalence of the inflammatory sign “trachomatous inflammation—follicular” (TF) in 1–9-year-old children is 30% or greater. Where the prevalence of TF in 1–9-year-olds is 10–29.9%, “A”, “F” and “E” are indicated for three years before re-survey. Where the prevalence of TF in 1–9-year-olds is 5–9.9%, a single round of “A”, plus “F” and “E”, are recommended before re-survey. Knowing the prevalence of TF is therefore critical to allow programmes to plan where and for how long the community-based SAFE components are required. Knowing the prevalence of in-turned eyelashes (trichiasis) is important to allow programmes to plan requirements for surgical services. Trachoma surveys therefore need, as a minimum, to measure the prevalence of TF and trichiasis.

This training system was created to train graders and recorders for the collection of a minimum data set necessary to estimate the prevalence of TF and TT in baseline, impact, or pre-validation

surveillance surveys for trachoma. Partly to help trachoma programmes establish the current need for the “E” component of SAFE, and partly reflecting interest from the WASH community to harness the power and reach of these surveys to inform efforts in their sector, data on WASH variables are also collected. Further data of interest to national programmes or their partners (such as information on other neglected tropical diseases) can also be incorporated, but detailed training materials for (and consideration of the logistical implications of) such additions are required.

This training system is designed to train teams to use electronic data collection on Android smartphones in the field. Doing this has significant advantages over recording data on paper forms with subsequent manual data entry.

A high proportion of time in this trachoma survey training system is spent maximising inter-grader agreement (IGA) between grader trainees and certified grader trainers in grading TF. It is very important that the IGA test that determines whether grader trainees “pass”, enabling them to participate in survey work, is conducted using real subjects in the field, rather than with photographs or slides. **Passing this IGA test is difficult, and some trainees, even if they have previous trachoma grading experience, will not pass.**

Therefore, the first two days of training are intensive sessions for grader trainees and have been labelled the “grader qualifying workshop”. Only those grader trainees who pass the IGA test in the field on day 2 of the grader qualifying workshop will go on to the team training on days 3, 4 and 5. If it is expected that the trainee will play another role in the survey, such as field coordinator or supervisor (see page 18 for requirements for supervisors), dependent on previous training and field experience, a trainee who does not pass the IGA test may nevertheless be able to continue for



Kate Holt/Sightsavers

Above

Mary Mureru holds out one of the azithromycin tablets she is taking as part of a mass drug administration programme for trachoma elimination

the duration of the training. It is important to emphasise that even if such a trainee stays, as they have not passed the IGA test they will not be certified as a grader. Grader trainees should be aware of this from the time they are invited to attend training; grader trainers and programme managers are responsible for informing trainees who do not pass the test that they are not qualified to continue.

As already mentioned, for programme decision-making purposes, the important parameters to measure are the prevalence of TT and the prevalence of TF. In this system, graders are asked to grade trichiasis, TF and TI: TI has been included so that graders are not tempted to diagnose TF if they see conjunctival inflammation but cannot see five or more follicles in the central part of the upper tarsal conjunctiva, and to guard against future changes in international guidelines. In an eye diagnosed as having trichiasis (upper or lower

lid), the grader should determine whether “trichomatous conjunctival scarring” (TS) is present or absent on the conjunctiva, if it is possible to evert the eyelid. (In eyes that cannot be everted due to stiffness, the lid should be graded as “not able to grade”.) Graders will also need to ask for information on previous management of trichiasis. These questions amongst other things, enable the trichiasis diagnosis to be confirmed by the grader and recorder and help future-proof against changes in international guidelines.

Field-based IGA testing is only done on TF, because in most endemic areas, the prevalence of trichiasis and TI is so low that meaningful IGA testing for the latter two signs would be extremely difficult.

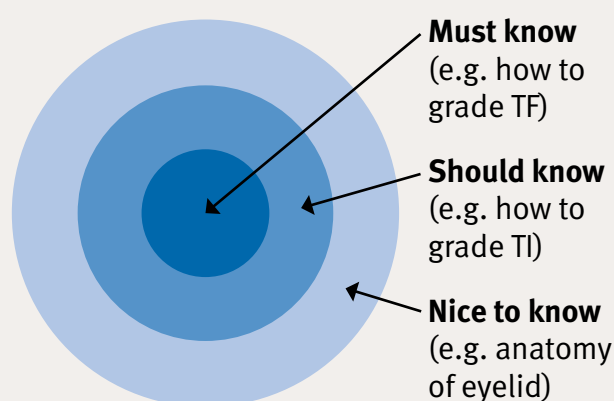
2 Before training starts: being an effective trainer

Train to meet the objectives, not to demonstrate your own skill set. Use a “trainee-centered” approach focused on the objectives of the training. An effective trainer will 1) consider what the trainee already knows; and 2) consider what the trainee needs to know in order to do the required task. This approach relies on the required task being well defined, so that objectives can be set for each step of training. In the case of trachoma surveys, the tasks required are well defined; it is up to you to make sure that trainees completing the course have the knowledge and skills they need to perform those tasks. Highly educated people sometimes tend to “over-train” others, that is, to try to teach trainees everything they know. Such an approach is not the best way to meet training objectives. The goal is not to turn the trainees into “trachoma experts,” but into excellent trachoma graders and recorders.

Keep in mind the “target concept” of teaching, as shown in Box 1. For any particular skill or piece of information that you consider passing on to trainees, decide whether it is something that they must know, something they should know or something it would be nice for them to know.

Emphasise the things in the first and second category – and especially the first. This will be particularly important in training the recorders, some of whom may not come from the health sector, and who do not need to understand much about clinical trachoma to do their jobs well.

Box 1 The target concept of teaching



Use a variety of ways to share and impart knowledge. The learning objectives are based on tasks required in trachoma surveys and are defined for each day of training. The manual outlines several different teaching methods, including

- Discussions that can be highlighted with PowerPoint slides
- Role play scenarios for trainees
- Practical exercises for trainees
- A system for evaluation of and feedback to trainees

Wherever possible, avoid lecturing from slides; instead get the trainees involved and make them part of the training: this will be more effective than even the most articulate lecture. Skills are much more readily transmitted by demonstrating and doing, rather than by listening to a lecture.

Do not read slides to the class. When slide-based lectures are provided, it is still possible to involve trainees in interactive ways. For example, rather than simply going through a list of risk factors for trachoma, you could show the heading “Risk factors for trachoma” and then ask the class to suggest some. Following this interaction, a slide can be shown that lists the risk factors, for reinforcement. A trainer who knows the material will be able to guide the trainees, prompting them to suggest many correct responses without the trainer being intimidating or unkind. Asking your trainees questions requires them to be active in the learning process, and done politely and respectfully, it is a good technique to draw out the shy and to wake up the sleepy. It will also provide you with information as to whether your trainees understand the material or not.

Incorporate trainees’ backgrounds and experience into the training experience. This acknowledges trainees’ existing level of expertise, engages them in building on that knowledge, and creates a comfortable and respectful learning environment. Even if trainees’ pre-course level is that they have only heard of trachoma, this can be a foundation.

Use every opportunity for role play and practice. Teaching trainees how to evert eyelids by practising on each other in the training setting helps avoid the possibility that grader trainees will inadvertently use rough techniques on children. Handing out survey tools and having recorder trainees apply them to each other, and using role playing to practise tough situations provides an experience, rather than just a

handbook of guidelines. Preparing some key scenarios ahead of time and (where available), using those already provided in this manual, can help guide the role play and allow for larger discussions to occur among the trainees. Allow enough time for debriefing and discussion on the learning or take-away points from the activity, this will help reinforce the key learning objectives and improve understanding of the key concepts. Role play can also highlight areas that need further reinforcement of learning.

It is important to consider the groups that you form for role play activities. Sometimes groups constructed arbitrarily will work well, but at other times you may consider purposefully pairing individuals together, such as a trainee who has participated in Tropical Data surveys before with a new trainee.

Role play can occur on several levels. Some examples include:

- One-on-one between two trainees
- Small group of trainees with some role playing and others observing and providing feedback within the group afterwards
- Larger group of trainees with guided discussion

Use evaluation tools to gauge progress. In this training system, a final evaluation tool to certify that the trainees are qualified to carry out the required tasks for their job is mandatory. It is possible that some trainees simply cannot perform those tasks. Trainers must certify that trainees who pass have met the standard, and thus are eligible to participate in the surveys as graders or recorders.

3 Before training starts: practical issues for trainers and the training coordinator

Trachoma surveys require considerable planning and preparation to ensure that the necessary official clearances have been obtained, field teams have everything that they need on hand at the time they need it, and the communities they intend to visit are prepared to welcome them. Similar planning and preparation are required for the field-based component of training. These tasks are the responsibility of the training coordinator. Trainers should ensure that they have been completed, or field-based training sessions may be difficult or impossible.

Classroom-based training sessions also require considerable practical preparation.

It is therefore recommended that, before training starts, you ensure that:

1. The necessary official clearances have been obtained

Requirements for ethical clearance for trachoma surveys will vary from country to country. Ethical clearance for surveys themselves may not be required because they can be conceptualised as being a programme activity; however, obtaining formal review of the protocol by an ethics committee in advance of fieldwork is best practice to ensure that the proposed methods are locally acceptable, will help make the results publishable, and is strongly recommended.

Ideally, the National Trachoma Task Force or Neglected Tropical Disease Task Force will have taken the lead in communication and coordination

with all relevant national, regional, and district personnel; outlined the planned survey locations and schedules; and assisted in obtaining all the necessary ethical and political clearances.

2. Guidelines for obtaining consent for examination are understood

Official clearances do not equate to getting consent from individuals for clinical examination. Obtaining informed consent (in the local language) from each person to be examined is the responsibility of the survey team. In planning for surveys and survey training, it is important to discuss with local officials and decide who can give informed consent, and whether this consent can be verbal or must be written.

3. An appropriate training site has been selected

If at all possible, training should take place at a site where trachoma is endemic, to provide ample opportunity for practising trachoma grading in the field. Avoid conducting training elsewhere, such as in a capital city, just because it is convenient for the trainer or trainees. A good training site has the following characteristics:

- Is close to some rural communities in trachoma-endemic areas.
- Has two rooms so that graders and recorders can be given role-specific training in parallel. At least one of these rooms should be able to be made dark to ensure that clinical slides of trachoma signs project clearly.



Above Delivering personal hygiene education, Pakistan

- Has enough chairs and tables for trainees and trainers.
- Has electricity (or a generator) for a projector.
- Has facilities for tea and lunch so that trainers and trainees do not have to travel long distances at break times.

4. Practice schools or villages and IGA test villages are selected and prepared

This training system includes a lot of field practice and multiple IGA tests on children. Locations for these activities need to be determined and arranged in advance. Village leaders and school headmasters and teachers need to be contacted and provide agreement to assist. Try to find a location where you can include at least 5 (but no more than 35) children with TF - this may need a grader trainer to undertake some pre-screening of children to include in the IGA test. Be sure to provide some form of gift (e.g., school supplies for schoolchildren) for people who agree to be examined in practice and pilot settings.

5. Android smartphones prepared for use

The Androids should be purchased or obtained from Tropical Data. SD cards should be loaded and SIM cards purchased. The Tropical Data app and project-specific forms should also be downloaded and checked prior to the start of training.

6. Local officials are informed

Informing local officials of the training (and upcoming survey, if appropriate) is necessary. Ideally, they should be engaged in the process as much as possible.

7. Drivers and vehicles for field-based training sessions are arranged

The number of drivers and vehicles required will depend on the number of trainees and trainers that need to be taken to the field each training day.

8. All the materials required for training are available

Ensure that the following materials and equipment are ready for the training:

- Two LCD projectors (sometimes sessions running in parallel both need one)
- Two laptop computers (for projecting PowerPoints, using the LCD projector; and for taking to the field for the IGA tests) with connecting cables, power adaptor and extension cords
- PowerPoint presentations
- Microphone and amplifier if the group (or the training space) is large
- Flip chart (or a whiteboard) and markers
- Photocopies of paper forms for IGA testing – Annexes 2&3 (may need two per person in case repeat IGA tests are needed for some)
- Excel “Kappa calculator (field)” (requires Excel 2007 or higher)
- Photocopies of Annex 7 (Survey form) for each recorder trainee
- Photocopies of Annexes 9A and 9B (practice exercises and reliability test) for recorder trainees
- Torches (1 torch for each grader) and spare batteries
- 2.5x loupe (*Optivisor* recommended; 1 for each grader)
- 3D goggles (1 for each grader trainer and trainee)
- Alcohol gel hand disinfectant (or gloves)
- WHO simplified trachoma grading scheme cards (1 per grader)
- Follicle size guide stickers
- Cotton swabs (for single-subject use on individuals whose eyelids are very difficult to evert)
- Android smartphones (1 for each recorder and supervisor(s), plus 1 for the recorder trainer); with appropriate surveys loaded and SD cards and SIM cards in place
- Extra battery packs (1 for each Android)
- Chargers (1 per Android) and surge protectors (1 per Android)
- Notebooks (1 for each grader and each recorder)
- Rain-proof carry bags (1 for each grader and recorder)
- If rain is likely, umbrellas or rain gear
- Pens (3 for each recorder)
- Tetracycline eye ointment (or azithromycin) to give to subjects found to have active trachoma or presumed bacterial conjunctivitis
- Laminated photos of the water source and sanitation facility categories (1 copy of Annex 5 and 1 copy of Annex 6 for each recorder)
- Laminated sheet listing the trichiasis questions in the local language (if the forms on the Android are not in the local language)
- Referral forms – optional template in Annex 8 (for subjects incidentally found to have ophthalmic or general medical problems)
- Stamp and stamp pad for referral forms (if required locally; 1 for each team – or forms could be stamped after photocopying, in advance of fieldwork)
- Clip-boards (1 for each recorder)
- Sticky labels or name badges (to number children during IGA testing)
- Thank-you gift for subjects participating in training field work (consider pencil, pen, soap, sweets; to be decided locally)
- Consent forms (if required)
- Certificates of attendance for trainees

Personal items may also be necessary if trainers and trainees are expected to stay away from home overnight as part of training.

9. PowerPoint slide sets D1-D4 have been checked on your computer and projector

Each set of clinical images has been graded by multiple expert graders, and the grades are supplied in this training system. The grader trainer(s) should check that they display well on the projection system that you have.



Above Thumbs up! Students line up to have their eyes examined for trachoma in the Solomon Islands.

10. Trained TT surgeons are available to treat patients identified in the survey

It is unethical to conduct a survey that identifies patients who have TT without having the personnel and supplies available to treat them. Sufficient trained TT surgeons must be readily accessible to residents of areas in which surveys are planned.

11. Pathways for referral of patients to medical services are defined

The training coordinator should identify local eye care and health care providers, determining to whom and how patients with trichiasis, cataract or other medical problems diagnosed during training should be referred. A list of individuals discovered during training field

work to have trichiasis should be generated, and a plan made for providing services to them. Responsibility for generating this list belongs to the graders. Arrangements should be made to treat trichiasis patients without cost to the patients themselves.

12. Per diem rates for fieldwork have been agreed and communicated to trainees

There is no point in training individuals who do not want to undertake fieldwork at the set per diem rate. If no one wants to undertake fieldwork for the set per diem rate, the rate may be too low.

13. Sufficient trainees are invited

Because not all grader trainees will pass the grader qualifying workshop, you will need to invite ~30% more grader trainees than you anticipate needing for the actual survey work. See Section 4 for advice on selecting trainees. Grader trainees should bring their normal health service ID cards, if they have them, to wear during fieldwork. Recorders will also be required to pass a recorder reliability test, so you may want to invite 1 or 2 additional trainees than you anticipate needing.

14. Recorder trainees have been assigned Recorder IDs

These are four-digit numbers, one of which will be assigned to each recorder trainee. To obtain recorder IDs, please email a list of the recorder trainees' names to support@tropicaldata.org, at least five business days before the start of the training week.

15. Trainers are identified and kept informed or involved with organisation and coordination

Trainers should be identified and confirmed as early as possible, to aid planning and to maintain the necessary trainer to trainee ratios. If international trainers are attending the training, ensure plans are communicated in advance of their arrival. Ensure that time is allowed once they arrive and before the training starts for all trainers and coordinators to meet and finalise preparations.

4 Selection of personnel

Each survey team will include at a minimum one grader, one recorder, and a community guide. It is possible that other people (such as a driver) may also assist the team in the community. Local circumstances will dictate whether other people should be added to the team.

To ensure high quality standards are maintained, it is usually preferable for a country to train fewer teams and have them move around, rather than train many teams that all work in parallel.

However, the more teams you have, the faster the work can be completed.

A decision on the optimal number of teams must be made at country level.

1. Generic requirements

Conducting trachoma surveys requires people with a number of generic skills. All team members should know how to interact well with residents of rural communities. This means some fluency in the local language, an understanding of the importance of greetings, and good interpersonal communication with village leaders, individuals being examined and their families. Community residents volunteer their time to participate in training and surveys and must be considered our partners in this work: survey teams must treat them with respect. Both graders and recorders should be able to walk long distances and work long hours in the field.

2. Requirements for grader trainees

Ideally, grader trainees will have already been trained and certified through the GTMP and/or Tropical Data. For previously trained graders who qualified over a year ago or who have not been active for over a year, a refresher training should be undertaken in these circumstances, (please contact admin@tropicaldata.org to discuss). If certified graders are not available, individuals who have some previous experience grading trachoma may be easier to train than those without experience, but grader trainers must be prepared to “un-train” bad grading habits if necessary. General nurses or medical assistants, or other health care workers, can be trained as graders, but they may take longer than individuals with ophthalmic experience to demonstrate proficiency in everting an eyelid

RTI International



Above Mactar Sissoko, a Senegalese Master Trainer, explains the purpose of the surveys to community leaders.



Above Trachoma prevalence survey, Viet Nam.

without touching the cornea. Grader trainees should have good near vision, using presbyopic spectacles if needed. If possible, you may want to consider confirming this by asking for evidence, or conducting a brief visual acuity test. Grader trainees need to be informed in advance that the first two days of training are a grader qualifying workshop, and that not all will score well enough to qualify as trachoma graders for the survey.

3. Requirements for recorder trainees

Recorders must be able to read and write, and have excellent attention to detail and communication skills. Prior experience with smartphones is strongly recommended. People selected for training as recorders need not be health care personnel, but experience working in a health or data related field, is helpful. A refresher training is advised for previously trained recorders who have not been active for over a year.

4. Requirements for supervisors

Ideally, a survey supervisor should be an ophthalmologist or other highly-skilled eye care worker who, by virtue of their skills, experience, and personal relationships, commands respect

and authority. It is strongly recommended that supervisors have been certified as GTMP or Tropical Data graders or recorders. At the very least, they should have attended the training and have studied the training manuals and survey protocol in detail to have the appropriate knowledge to ensure fieldwork is conducted in the right way. Ideally, they should also have previous field supervision experience.

Good supervisors should have the following skills:

- Ability to problem-solve quickly
- Ability to command respect
- Lack of fear of reprisal in the event that they need to “fire” a team member
- Good clinical skills (if a qualified grader)
- Good communication skills

5. Requirements for community guides

Within each survey community, a community guide will be needed to help the team. The guide’s role includes introducing the team to survey households, providing crowd control, and assisting the team in other ways, as needed.

6. Requirements for drivers

If as part of the rental agreement drivers are provided by the organisations that provide vehicles, there may be no possibility of choosing drivers who are willing to assist the survey teams with the survey work in the community. If drivers can be involved, it is likely to be helpful to have them join part of the training, in order to understand the purpose of and overall plans for the survey. Where possible, the driver may help the team in the community in the following ways:

1. Assist with introductions in the community
2. Assist with crowd control
3. Assist with holding children if guardians are not available
4. Encourage families or children from selected households who are not at home but who are in the village at the time of the team’s visit, to find the grader and recorder before the end of the day, with the help of local village residents.

5 Training schedule

The first two days for graders are a grader qualifying workshop. Grader trainees who pass the field based IGA test on day 2 will go on to the team training on days 3, 4 and 5. Recorder trainees begin training in the classroom on day 1. Modules shaded yellow take place in the classroom; those shaded green take place in the field.

Day 1: Grader qualifying workshop I

Time	Activity	Module (PowerPoint if applicable)
0800-0845	Opening of training (including registration & brief introductions) with recorders	A
0845-0900	Introduction to the grader qualifying workshop	B (B)
0900-1000	WHO simplified trachoma grading system	C (C)
1000-1015	Break	
1015-1215	Practice slide sets and IGA test with slides	D (D1, D2, D3, D4)
1215-1300	Examination techniques 1	E (E)
1300-1345	Lunch	
	Travel to the field	
1 hour	Grading in the field	F
1 hour	Practice IGA test in the field & review of incorrectly graded subjects	G
	Return from the field	

Day 2: Grader qualifying workshop II

Time	Activity	Module
	Travel to the field	
0900-1000	Practice IGA test in the field & review of incorrectly graded subjects	G (repeated)
1000-1200	IGA test	H
1300-1400	Lunch	
1300-1600	Repeat IGA tests* if needed	H (repeated)
	Return from field	

* If you believe that some of the trainee graders would pass on a repeat attempt, the IGA test may be repeated. **No more than two total attempts to pass should be allowed.**

Day 1: Recorder training workshop

Time	Activity	Module (PowerPoint if applicable)
0800-0845	Opening of training (including registration & brief introductions) with graders	A
0845-0930	Introduction to the recorder workshop	I (I)
0930-1000	Review of hard copy of data collection forms	J (J)
1000-1015	Break	
1015-1300	Review of hard copy of data collection forms cont.	J (J)
1300-1400	Lunch	
1400-1545	Review of hard copy of data collection forms cont.	J (J)
1545-1600	Break	
1600-1700	Review of hard copy of data collection forms cont.	J (J)

Day 2: Recorder training workshop

Time	Activity	Module (PowerPoint if applicable)
0900-1030	Using the Androids	K (K ₁)
1030-1045	Break	
1045-1230	Using the Androids cont.	K (K ₁)
1230-1330	Lunch	
1330-1500	Using the Androids cont.	K (K ₁ &2)
1500-1515	Break	
1515-1700	Using the Androids cont.	K (K ₁ &2)

Day 3: Team training I

Time	Activity	Module (PowerPoint if applicable)
0830-0945	Overview of Tropical Data, trachoma and prevalence surveys	L (L)
0945-1100	Cluster Sampling & Household selection	M (M)
1100-1115	Break	
1115-1145	Recorders demonstrate Androids to graders	N
1145-1245	Obtaining consent	O (O)
1245-1345	Lunch (then split into two groups)	
	Graders	Recorders
1345-1515	Examination techniques 2	Recorder Reliability Test
		P (P) [graders] K (K3) [recorders]
1515-1530	Break	
1530-1700	Examination techniques 2 cont.	Recorder Reliability Test (review)
		P (P) [graders] K (K3) [recorders]

Day 4: Team training II

Time	Activity	Module
0830-1030	Practise working together	Q
1030-1045	Break	
1045-1330	Field practice for teams (includes travel time)	R1
1330-1430	Lunch	
1430-1600	Field practice for teams (review)	R2
1600-1615	Break	
1615-1715	Supervision	S

Day 5: Team training III: graduation and review of survey plans

6 Trainer's notes for each module

For each module the following have been included where relevant:

- Module summary
- Objectives
- Learning objectives
- Duration of module
- Location
- Materials for use during the module
- Handouts
- Training procedures

A. Opening of training

Module summary: This is the opening session for all participants.

It may be important to have officials formally open the training. This should be scheduled to occur during this session, along with brief introductions. Given the amount of material to be covered, if officials are delayed, it may be best to start the separate grader and recorder modules first, and then reconvene to accommodate a formal opening of the training when officials arrive.

Objectives:

1. To formally open the training.
2. To introduce trainers and trainees to each other.
3. To give the necessary logistical announcements for the week.

Duration: 45 minutes (day 1, 0800-0845)

Location: classroom

Training procedure:

1. Welcome participants to the training course.
2. Ask each participant (and trainer) to introduce themselves.
3. Ensure any necessary announcements are made regarding organisation and logistics for the week.

B. Introduction to the grader qualifying workshop

Module summary: Trainees attend workshops with a variety of expectations about the nature of the workshop and what they will gain from participating. These expectations may be different from the intentions of the organisers, and if not discussed at the beginning of the workshop may cause confusion or dissatisfaction, and hinder the learning process. This is particularly true for the grader qualifying workshop, where grader trainees will find out whether they can pass a test to continue on to further training as a grader as part of a survey team.

It is critical that participants understand that not all will qualify as a grader. For individuals who do not qualify, if it is expected that they will still play another role (such as field coordinator or supervisor) in the survey, dependent on previous training and field experience, they may be able to continue for the duration of the training. It is important to emphasise that even if such trainees stay, if they have not passed the IGA test, they will not be certified as graders.



Dominic Nahr/Magnum/Sightsavers

Above Women line up to be examined for signs of trachoma, Ethiopia.

Objectives:

1. To determine the expectations trainees have in attending the workshop and their communication needs.
2. To present the agenda for the grader qualifying workshop.

Duration: 15 minutes (day 1, 0845-0900)

Location: classroom

Materials: pens, flip chart, computer, projector and PowerPoint A

Training procedures:

1. Brainstorm expectations with the participants, recording responses on the flip chart paper. "Expectations" are what the trainee hopes to learn or achieve by attending the workshop.
2. When there are no more expectations, review each of the listed ones and discuss which will be met, which can be partially

met and which will unfortunately not be addressed.

3. Show PowerPoint A, reinforcing the above by indicating where participants' expectations will be met, where adjustments can be made to try to meet other expectations and how some expectations will not be met.

C. WHO simplified trachoma grading system

Module summary: This module presents the signs of the WHO simplified system for community assessment of trachoma. The module uses a PowerPoint presentation that will introduce grader trainees to the system, describing its five signs and indicating the role of each sign in the survey work.

Objectives:

1. To introduce trainees to the WHO simplified trachoma grading system, and its relevance to the survey.
2. To familiarise trainees with the clinical signs: trichiasis (upper or lower lid), TS, TF and TI, using slides.

Duration: 1 hour (day 1, 0900-1000)

Location: classroom

Materials: computer, projector and PowerPoint C

Training procedure:

1. This training will rely on PowerPoint C, which describes the WHO simplified trachoma grading system. Start the PowerPoint presentation.
2. Make sure the room is dark enough that the clinical pictures show up well. If the room cannot be made dark enough, then you will need to use a computer screen for the training. Depending on how many trainees you have, this may make it difficult for all of them to see the slides clearly.
3. Go through the slides one by one.
4. Ask frequently if the participants have any questions about the pictures or the WHO simplified trachoma grading system.

D. Practice slide sets and IGA test with slides

Module summary: This module is the first step in the standardisation process, which in the end will allow you to determine which grader trainees qualify to participate as graders in the survey. This module relies on images, whereas future modules will require actual fieldwork examining real eyes. Grading images is much easier than grading in the field, and if a trainee cannot achieve good agreement with the trainer at this point, further training on people may not be indicated. The signs that will be discussed will be trichiasis (upper and lower lid), TS, TF and TI. At the end of this module trainees will complete an IGA test for TF using the Trachoma IGA test app, to

both test their knowledge and to familiarise trainees with the IGA testing process.

Objectives:

1. To introduce to grader trainees the concept of inter-grader agreement.
2. To train grader trainees to identify the clinical signs of trachoma, with a focus on trichiasis (upper and lower lid), TS, TF and TI in images.
3. To assist grader trainees to differentiate trachoma from other conditions.
4. To begin the process of identifying grader trainees who will be unable to participate as graders in the survey.

Learning objective: By the end of this module, the trainees should be able to achieve a kappa of ≥ 0.7 for diagnosis of TF on slides.

Duration: 2 hours (day 1, 1015-1215)

Location: classroom

Materials: computer, projector, PowerPoints *D1* and *D2*, 1 Android with the Trachoma IGA test app loaded for each grader trainee. If conducting the IGA using projected slides instead of the app, use PowerPoint *D3* and photocopies of Annex 2. If a retest is needed for either method, use PowerPoint *D4* with photocopies of Annex 2.

Training procedure:

1. Discuss with participants the meaning of IGA and the importance of standardisation within a survey.
2. Explain that the outcome of the IGA test will determine who continues and who does not.
3. Explain in detail how the IGA test will be conducted.
4. Explain that this module will involve grading slides, and that further practice and IGA testing will be done examining real people.
5. Explain to the trainees that in the first set of slides (PowerPoint *D1*), they will discuss the clinical signs together.

6. After taking the trainees through the first few slides of PowerPoint *D1*, begin to ask individual trainees to suggest what condition they think is being presented, and why.
7. At the end of PowerPoint *D1*, begin PowerPoint *D2*. Ask individual trainees to describe what they see and to justify their findings. Ask other trainees whether they agree with those opinions and if not, to explain why not.
8. At the end of PowerPoint *D2*, give each trainee an Android, and explain to the trainees that they will independently determine whether TF is present or absent in each slide shown in the Trachoma IGA test app. Make sure they understand what is being asked of them, and how to operate the Android.
9. Ask each trainee to enter their full name in the field provided in the Trachoma IGA test app.
10. Explain to the trainees that a score will be used to determine if their IGA is acceptable or not. They will need a score of 0.7 or better to continue the training. At the discretion of the trainer, those who achieve <0.7 may receive additional training and take the IGA test again. Those who do not pass the IGA test cannot proceed.
11. Stress to trainees that this is independent work, and they are not to look at others' Androids. Looking at others' Androids will result in dismissal from training. Remind them that in the field, no one will help them grade, and in any case, other trainees may not have the correct answers!
12. Allow 20 minutes for the IGA test to be completed.
13. At the conclusion of the IGA test period, collect the Androids from trainees and record the score shown on each.
14. **If projected slides are used instead of Androids**, use PowerPoint *D3* to administer the IGA test. As each slide is



Kate Holt/Sightsavers

Above 50-year-old Seleiya Makoi has her eyesight tested before undergoing trachoma surgery, Kenya.

presented, read out the number of the slide so that the trainees can be certain that they are recording their grades against the correct slide number. Allow 20 seconds per slide; give a 5-second warning before changing slides. Each trainee should fill in an IGA test form (Annex 2) as they look at each slide. At the conclusion of the IGA test period, enter each trainee's answers into the spreadsheet "Kappa calculator (slides 1).xls", to calculate each trainee's score. Full details of how to use the spreadsheet are given in Annex 4.

15. If the trainee achieves a kappa <0.7 and you think that the trainee may pass with a little more instruction and a re-test, you may repeat PowerPoint *D1* and/or PowerPoint *D2* and do another IGA test using PowerPoint *D4* and "Kappa calculator (slides 2).xls".

E. Examination techniques 1

Module summary: This module requires grader trainees to examine the eyes of their fellow trainees using a loupe, in preparation for examining subjects in the field. Trainees will learn to first look for trichiasis (upper and lower lid), before everting the eyelid to examine the tarsal conjunctiva. Trainees will learn to use the follicle size guides, which are stickers printed with 5×0.5 mm diameter dots. They are applied to each thumbnail to provide a direct reference for TF diagnosis. Trainees will use a loupe for all eye examinations, in order to become familiar with grading using a loupe from the earliest possible point. Trainees will learn and maintain proper hand-cleaning technique after each examination. This module is a combination of a PowerPoint presentation and demonstration, with the trainees then practising on each other.

Objectives:

1. To ensure the grader trainees know the necessary steps of cleaning hands before examining an eye.
2. To ensure the graders know how to apply and use the follicle size guides.
3. To train the graders in the method for everting an eyelid.
4. To provide an opportunity for the graders to practise using a loupe and a torch.

Learning objectives: By the end of this module, the trainees should be able to:

1. Demonstrate proper hand-cleaning techniques.
2. Demonstrate application of the follicle size guides using the pre-bend and firming down actions, and their use for TF diagnosis.
3. Demonstrate the steps of examining the eyes (starting with right eye, assessing the eyelid, everting the eyelid; repeat with left eye).
4. Quickly and painlessly evert the right and left eyelid of a subject.
5. Demonstrate the use of loupes and torch while examining the eyelid.
5. Trainees should put a follicle size guide on each thumbnail. Highlight that follicle size guides can stay on for several days without falling off and so to reduce wastage, encourage trainees to keep them on for the duration of the training if possible. When in the field, they should wear them for multiple days before replacing with new ones.
6. Ask for a volunteer. Once a volunteer has come to the front of the room, clean your own hands. Explain that the

Duration: 45 minutes or more depending on the baseline skills of participants (day 1, 1215-1300).

Location: classroom

Materials: loupes (at least one per pair of trainees), torches, alcohol gel, follicle size guides, PowerPoint *E*

Training procedure:

1. Distribute a loupe, torch and a number of follicle size guides to each trainee. Trainees should put on their loupe, and keep it on for the rest of the module.
2. Show PowerPoint *E* to the trainees.
3. Demonstrate cleaning your hands with alcohol gel. Emphasise: a) thorough cleaning of hands prior to each examination, b) the necessity of letting hands dry prior to touching the eyelid, and c) improper hand cleaning technique poses a risk to people being examined, and is therefore grounds for dismissal.
4. Demonstrate application of the follicle size guides to your thumb nails. This should be done on clean nails. The follicle size guide is removed from the sheet, and bent using the thumb and index finger. It is then stuck to the thumbnail and the edges firmed down with the nail of the opposite thumb. The follicle size guide will then stay firmly attached to the nail, and withstand washing with soap, water and alcohol gel.
5. Trainees should put a follicle size guide on each thumbnail. Highlight that follicle size guides can stay on for several days without falling off and so to reduce wastage, encourage trainees to keep them on for the duration of the training if possible. When in the field, they should wear them for multiple days before replacing with new ones.
6. Ask for a volunteer. Once a volunteer has come to the front of the room, clean your own hands. Explain that the

lid is always examined for trichiasis (upper and lower lid) before everting it, since eversion of the lid may make later detection of mild trichiasis more difficult.

7. Always examine the right eye first, then the left eye. This helps to avoid confusion in recording results.
8. While examining the uneverted eyelid, ask the trainees what they should be looking for, based on the slides seen previously (eyelashes touching the globe, or evidence of recent removal of in-turned eyelashes).
9. Demonstrate how to evert the eyelid using your fingers. (Use of a cotton swab, stick, or any other foreign implement as a fulcrum for eversion should be strongly discouraged. In subjects whose eyelids are very difficult to evert, a cotton swab can be used; it should be discarded after use, and never used on more than one subject.) To evert a subject's right eyelid, place the 4th and 5th fingers of your left hand on the subject's right temple, in order to align your hand with any movement of the subject's head. Ask the subject to look down. Use your 3rd finger to push the subject's right eyebrow slightly upwards, so that the eyelashes are lifted. Grasp the eyelashes between your thumb and index finger, and gently pull them out and down so that a small space forms between the eyelid and the eye. Using the tip of the index finger of your right hand placed in the middle of the eyelid as a fulcrum, pull upwards gently on the grasped eyelashes so that the eyelid everts.
10. To evert a subject's left eyelid, the fingers of your right hand should align, push, grasp, pull and lift, while the tip of the index finger of your left hand should be used as a fulcrum.
11. While examining the everted eyelid, ask the trainees what they should be looking for, based on the slides seen previously and using the follicle size guides.



© Fred Hollows Foundation

Above Protected dug well, Pakistan.

12. Ensure that the eyelid is returned to the normal position after examination.
13. Ask the trainees to form pairs.
14. Invite trainees to practise on their partners, with each person examining their partner's eyelids and then everting each of their partner's eyelids. Remind trainees to clean hands and ensure they have a follicle size guide fixed to each thumbnail before examining their partner's eyes.
15. Demonstrate on a volunteer how to use the loupes and torch in examining an eye.
16. Invite each pair to once again conduct an eye examination on their partner's eyes using loupes and torch.
17. Strongly recommend that trainees ensure that their fingernails are cut short: long fingernails are more likely to pinch the eyelid skin.

F. Grading in the field

Module summary: This module takes the trainees out into a village or school setting to examine children for trachoma. Intense one-on-one instruction should be offered. Prior to this module, the training coordinator should have identified a site, discussed a training visit with school officials or village leaders, and arranged for transport. Decisions will also need to be made as to how participants for examination will be grouped and how the examinations will be managed. This should not be viewed as an IGA exercise.

Objective: To provide the trainees with an opportunity to examine children for trachoma in a village or school setting.



Above Dr Michael Dejene showing families how to apply tetracycline after diagnosis of trachoma, Ethiopia 2018.

Learning objectives: By the end of this module, the trainees should be able to:

1. Demonstrate proper trachoma examination techniques of children, including use of loupes, follicle size guides, and proper hand cleaning.
2. Demonstrate the ability to recognise a healthy eyelid.
3. Demonstrate the ability to recognise TF.

Duration: 1-2 hours (depending on distance to field site; afternoon of day 1)

Location: field – a local village or school

Materials: alcohol gel, loupes, follicle size guides, torches, antibiotics.

Training procedure:

1. Before leaving for the field, explain to the trainees what they will be doing and how it will be organised.

2. Ask the trainees what they expect from this practice and what challenges they may face.
3. If possible challenges are identified, discuss with the trainees how these might be dealt with.
4. Ask the trainees to collect the supplies they will need and check that they have sufficient materials for the module.
5. Upon arrival, meet with the person in charge of the village or school, explain the work and ensure things are organised as needed.
6. Examine the eyes of the first 5-10 children yourself, with the trainees looking on. Discuss each of the cases with the trainees. If none of the first 5-10 children has trachoma, continue to examine children with the trainees looking on until you can demonstrate some signs.
7. Invite trainees to examine children's eyes with other trainees looking on and have the examining trainee relate what s/he sees. **Please note that no child should be examined more than five times** (including by the trainer).
8. The grader trainees should then begin examining children on their own. Supervise the trainees, and verify any cases of TF or TI that trainees identify.
9. If possible, when using a school setting, arrange for younger children to also participate so that graders get experience with young children.

G. Practice IGA test in the field and review of incorrectly graded subjects

Module summary: This module is to help prepare grader trainees for the field IGA test using children.

Kappa scores achieved during Module G will not count. Whereas Module F included open discussion of what was being observed, Module G calls for independent work, but review (with you) of incorrectly graded subjects will continue grader trainees' development as graders. The logistics of this module (and

Module H) demand that each grader trainee examines 50 children, grading just one eye and recording the grades; the grader trainer will also grade the same eye of each child to generate the “gold standard” against which to score individual trainees. (Suggestions for ways to organise the children are given below.) No child should have any eye examined more than five times. Check that each trainee follows the correct procedure of conducting an eye examination.

Objectives:

1. To provide the trainees with further opportunity to examine children for signs of trachoma.
2. To prepare the trainees for the field IGA test to follow.

Learning objectives: By the end of this module, grader trainees should be able to:

1. Know how his/her grading compares to the grader trainer.
2. Reflect on grading disagreements, having had a chance to discuss specific children with the grader trainer.

Duration: 1-3 hours (afternoon of day 1 and morning of day 2)

Location: field. Identify a location that can provide 5-35 cases of TF among 50 children to be examined. A local school may be a convenient location, but may not provide enough TF cases to be included in the set of 50 children to be examined.

Materials: computer with Excel “Kappa calculator (field).xls” loaded, IGA test forms for the field (Annex 3), referral forms, loupes, follicle size guides, torch, pen, clip board, labels for children, antibiotics, alcohol gel, gifts for children after examination

Handouts: checklist of required materials, IGA test form for the field (Annex 3), referral forms

Training procedures:

1. Emphasise that this is only practice and the scores will not count.
2. Explain that each trainee will need to examine one eye (either the right, or the left, as instructed) of 50 children.
3. Explain to trainees that they need to work independently, not sharing any results with their fellow trainees; as before, looking at others' grades could result in dismissal from training.
4. Ask the trainees to gather all required materials using the checklist.
5. Organise the children, ensuring that each child has received a label with an identification number.
6. 50 children should line up and pass down a row of four seated trainees plus the trainer for grading. An assistant can help keep children in line. Make sure there is no sharing of results among the trainees and that the children are treated with respect.
7. After each trainee has examined 50 children, collect the IGA test forms.
8. Look through the forms and identify children for whom there was disagreement. Call these children back, examine them together with the trainees, and discuss disagreements.
9. Give each child a thank-you gift as a reward for their time and patience. Any children found to have active infection should also be given treatment, and a responsible adult told how to apply it.
10. Use “Kappa calculator (field).xls” to calculate kappa for each trainee. (This does not contain any pre-entered gold standard grades, so you will need to enter these. The data entry for your grades and those of the trainees takes time, so you may wish to enlist help from someone to read out the results.)
11. Share the kappa scores with each trainee. You will now have an idea of how much more practice may be necessary.

Notes on organising the field practice/IGA test

When preparing for the IGA practice and test, trainers should avoid pre-screening children in front of trainees to agree on TF diagnosis between themselves because:

1. Children will be screened too many times (each child should be screened a maximum of 5 times, including by the trainer)
2. The trainers have already passed the IGA, certifying them as being able to accurately grade TF
3. If the TF diagnosis is “borderline”, trainers spending more time discussing the diagnosis may indicate to trainees that the child is a “special case” or more likely to be TF positive.

Ideally, you will have 50 children for each set of four grader trainees, with 5-35 of those children having TF. If you have too few children for the number of grader trainees to be tested, four grader trainees can examine the right eyes (only) of 50 children, while another four grader trainees examine the left eyes (only) of the same 50 children. No grader trainee should examine both eyes of any child. A grader trainer should examine both eyes of every child.

Children should be numbered 1-50 on stickers fixed to their clothing or on cards hung around their neck. Children often get out of order while waiting; grader trainers and trainees should check the number of each child before examining them. Graders must clean their hands between examinations.

Finding and demonstrating live cases of trichiasis is not a formal requirement of the training. Doing so would be practically difficult given that trichiasis is generally relatively rare. However, if it is possible, trainers/coordinators should discuss with the community (while doing field practice or during sensitisation for field practice), if there are any known local cases of trichiasis. If yes, ask if those individuals would be happy to be examined by the trainees as part of the practice, in order to be able to demonstrate live examples of trichiasis to complement the training given later in the week.

H. IGA test

Module summary: This module determines which grader trainees qualify to be graders and which do not. Those achieving kappas of ≥ 0.7 for TF will qualify. Those who achieve kappas < 0.7 will not. The module follows the same procedure as the practice IGA test in the field (Module G). If insufficient numbers of graders pass, you will need to decide, in discussions with the programme manager, whether fewer survey teams can be used or new graders will need to be trained in further grader qualifying workshops. If some of those that fail seem to have promise, additional training and testing is encouraged.

However, no more than one additional attempt to pass should be allowed.

Objective: To determine which grader trainees qualify to participate in trachoma surveys.

Duration: 2 hours (day 2), may be repeated

Location: field

Materials: computer with Excel “Kappa calculator (field).xls” loaded, IGA test forms for the field (Annex 3), referral forms, loupes, follicle size guides, torch, pen, clip board, labels for children, antibiotics, alcohol gel, gift for children after examination

Handouts: checklist of required materials, IGA test form for the field (Annex 3), referral forms

Training procedure: See Module G.

Trainees who do not pass should be thanked for their participation and sent home, as their ongoing presence may be a distraction to the continuing trainees. However, if it is expected that the trainee will play another role (such as field coordinator or supervisor; see page 18 for supervisor requirements) in the survey, dependent on previous training and field experience, the trainee may be able to continue for the duration of the training. It is important to emphasise that even if the trainee stays, if they have not passed the IGA test they will not be certified as a grader.

I. Introduction to the recorder workshop

Module summary: Trainees attend workshops with a variety of expectations about the nature of the workshop and what they will gain from participating. These expectations may be different from the intentions of the organisers, and if not discussed at the beginning of the workshop may cause confusion or dissatisfaction, and hinder the learning process. Trainees should also understand that not all may qualify as a recorder. For individuals who do not qualify, if it is expected that they will still play another role (such as field coordinator or supervisor) in the survey, dependent on previous training and field experience, they may be able to continue for the duration of the training. It is important to emphasise that even if such trainees stay, if they have not passed the recorder reliability test, they will not be certified as recorders.

Objectives:

1. To determine the expectations trainees have in attending the workshop and their communication needs.
2. To present the agenda for the recorder workshop.
3. (Optional) Complete introductions.

Duration: 45 minutes(day 1, 0845-0930)

Location: classroom

Materials: pens, flip chart, computer, projector and PowerPoint /

Training procedures:

1. (Optional) If necessary, conduct more detailed introductions to better get to know the trainees and their relevant skills and experience following the opening session.
2. Brainstorm expectations with the participants, recording responses on the flip chart paper. "Expectations" are what the trainee hopes to learn or achieve by attending the workshop.
3. When there are no more expectations, review each of the listed ones and discuss which will be met, which can be partially met and which will unfortunately not be addressed.

4. Show PowerPoint /, reinforcing the above by indicating where participants' expectations will be met, where adjustments can be made to try to meet other expectations and how some expectations will not be met.

J. Review of hard copy of data collection forms (recorders only)

Module summary: This module prepares recorders for the interviews they will conduct at the household. In this module they learn exactly what information is supposed to be captured and what each of the questions actually means.

Objectives:

1. Review the different questions included in the data collection forms and discuss the response options.
2. Ensure trainees have a good understanding of the surveys' WASH elements.

Learning objective: By the end of this module the trainees should be able to explain what data will be entered into each field of the form.

Duration: 5.5 hours (day 1)

Location: classroom

Materials: survey forms (Annex 7, 1 for each trainee), laminated sheets with photos of water source and sanitation facility categories (Annexes 5 and 6), PowerPoint /

Training procedures:

1. Introduce the household data form (Annex 7). Give everyone a paper copy of this to look at so that they get an idea of what will be asked.
2. Explain that consent must have been given before GPS recording begins with the Android.
3. Go through PowerPoint / and the household data form, using the following sections of the manual as the trainer reference.
4. As you go through the slides relating to the water, sanitation and hygiene questions, encourage discussion, and ensure that all trainees develop a common understanding of the differences between the various responses to each question, including agreeing on the key terminology in any relevant local languages.

Section A: Household questionnaire

The details of the household questions are as follows:

Date	Day/month/year that the examination is done (this will be automatically entered by the Android)
Recorder	A four-digit numeric code unique to you (provided by the supervisor/coordinator/trainer)
1. Country	This will be automatically entered by the Android
2. Evaluation Unit	A five-digit numeric code (provided by the supervisor/coordinator)
3. Cluster	A three-digit numeric code (provided by the supervisor/coordinator)
4. Household	<p>Enter the number of the household within the cluster (in other words, if it's the second house visited in the cluster, write "2"), then the full name of the head of the household. This is to help you return if any family members are missing and to identify the household. If the name of the head of the fifth household visited is "Anthony Solomon", you would enter, "5 Anthony Solomon". If many household heads share a common name, it also ensures that the records are easily differentiated.</p> <p>Definition: a discussion should be had to ensure all trainees share a common definition of what a household is. Options include all those who eat from the same pot or those who live under the same roof.</p>
G1-G4. GPS	These fields will be automatically entered by the Android upon clicking the "Record location" button. The Android may take up to 60 seconds to do this. You should stay outside the house while the Android does so.

<p>W1. In the dry season, what is the main source of drinking-water for members of your household?</p>	<p>Responses</p> <p>01 = Piped water into dwelling 02 = Piped water to compound/yard/plot 12 = Piped water to neighbour 03 = Public tap/standpipe 04 = Tubewell/borehole 05 = Protected dug well 06 = Unprotected dug well 07 = Protected spring 08 = Unprotected spring 09 = Rainwater collection 10 = Delivered water (water vendor) 13 = Water kiosk 14 = Packaged water (bottled water, sachet water) 11 = Surface water (e.g. river, dam, lake, canal, pond, stream, irrigation channel) 99 = Other (specify)</p> <p>Note: Responses to these questions should focus on the <u>mode of delivery</u>, not the actual source if this is known and different. For example, the piped water to dwelling in option 1 could come from an unprotected well: for the purposes of this survey we are interested in it being piped into the dwelling. The same applies to option 10 delivered water: even if the source that the vendor gets the water from is known, this detail is not required and option 10 should be selected if it is purchased from a vendor.</p> <p>Definition: a discussion should be had to ensure all trainees share a common definition of what the “dry season” is.</p> <p>Response descriptions</p> <p>01. Piped water into dwelling, also called a “household connection”, is a piped water supply connected with in-house plumbing to one or more taps (for example in the kitchen or bathroom).</p>
--	--

Table continues over page ►

W1. In the dry season, what is the main source of drinking-water for members of your household?

(Continued)

02. Piped water to compound/yard/plot, also called a “yard tap”, is a piped water supply connected to a tap in the compound, yard or plot outside the house.

12. Piped water to neighbour, refers to a household obtaining drinking water from a neighbour's piped water supply (household connection or yard tap).

Definition: a discussion should be had to ensure all trainees share a common definition of what a neighbour is.

03. Public tap or standpipe, also known as a public fountain, is a public water point from which people can collect water. Public taps or standpipes can have one or more taps. They are typically made of brickwork, masonry or concrete and located in public spaces. Households using privately owned taps in a neighbour's yard should be classified as “**piped to neighbour**”.

04. Tubewell or borehole, is a deep hole that has been driven, bored or drilled, with the purpose of reaching groundwater supplies. Boreholes and tubewells are constructed with casing, or pipes, which prevent the small diameter hole from caving in and protect the water source from infiltration by run-off water. Water is delivered through a pump, which may be powered by human, animal, wind, electric, diesel or solar means.

(Boreholes from which water is pumped into an overhead tank which supplies households in the same compound, should be classified as “**borehole or tubewell**”. However, boreholes delivering water to an overhead tank which supplies multiple compounds through a reticulated piped system should be classified as one of the types of “**piped water**”, depending on where the household collects the water.)

05. Protected dug well, is a dug well that is protected from runoff water by a well lining or casing that is raised above ground level to form a headwall and an apron that diverts spilled water away from the well. A protected well is also covered so that contaminated materials (including bird droppings and small animals) cannot enter the well. Water is delivered through a pump or manual lifting device. **Protected wells** may be fitted with a range of lifting devices (for example motorized pumps, hand pumps, ropes and windlasses with buckets), but if the well lacks a cover then it should be classified as “**unprotected well**”.

06. Unprotected dug well, is a dug well that lacks any of the following: a lining or casing that is raised above ground level to form a headwall; an apron that diverts spilled water away from the well; a cover which prevents contaminated materials (including bird droppings and small animals) from entering the well; or a pump or manual lifting device.

07. Protected spring, is a natural spring protected by a “spring box”, made of brick, masonry, or concrete, that is built around the spring so that water flows directly out of the box into a pipe or cistern, without being exposed to runoff or other sources of contamination.

<p>W1. In the dry season, what is the main source of drinking-water for members of your household? (Continued)</p>	<p>08. Unprotected spring, is a natural spring that lacks a “spring box” to protect against run off and other sources of contamination (including bird droppings and animals).</p> <p>09. Rainwater collection, refers to a system whereby rain is collected or harvested from large surfaces (by roof or ground catchment) and stored in a container, tank or cistern until used. Rainwater collection comprises a range of different technologies designed to capture and store rainwater for drinking. Groundwater catchments requiring filtration and unfiltered surface water should be classified as “surface water”.</p> <p>10. Delivered water (water vendor), refers to water sold by a provider who transports water into a community, either in a small tank/drum or in a tanker-truck. Small tank/drum refers to water sold or distributed by a provider who transports a tank or drum with small quantities of water into a community using donkey carts, small motorized vehicles and other means. Tanker-truck refers to water sold or distributed by a provider who transports large quantities of water into a community using a motorized truck with a tank.</p> <p>When water is purchased, even if the original source is known, this option should be selected. The only options that would not apply for buying water and that come under a separate category (“packaged water”) are bottled water, water sachets and water refill stations.</p> <p>13. Water kiosk, refers to a water point from which water is sold in small quantities. Households typically bring their own containers to be filled. Water kiosks are similar to public standpipes, but with a more commercial approach to collecting fees. Water refill stations are similar to water kiosks, but operators typically provide households with dedicated containers that are then sanitised before being refilled. These should be classified as “bottled water”.</p> <p>14. Packaged water, refers to water sold by a provider in the form of bottled water or sachet water. Bottled water is sold by commercial providers in small or large bottles or refillable containers. This does not include water from other sources stored in plastic bottles. Sachet water is similar to bottled water but is packaged in a plastic bag rather than a bottle.</p> <p>11. Surface water refers to open water sources located above ground including rivers, dams, reservoirs, lakes, ponds, streams, canals, and irrigation channels.</p> <p>99. Other: Any other source of water not included in the above.</p>
--	--

<p>W2. How long does it take to go there, get water, and come back?</p>	<p>Enter the number of minutes required.</p> <p>If the water source is in the yard or the dwelling, enter 0.</p> <p>If you do not know how long it takes, enter 999.</p> <p>This question refers to the time taken by the person or persons who usually fetch the water.</p> <p>Note that the question refers only to a single water-hauling trip and does not consider multiple trips in a single day.</p> <p>Where option 1 or 2 was the answer given for the question W1, 0 should be given as the response.</p> <p>Definitions</p> <p>Number of minutes refers to the amount of time needed to get to the water source, obtain water, and return to the household. Socialising time should not be included in the minute value given, unless it is done while queuing for water without extending the queuing time. The minute value is the time for one round trip, not the total time spent per day hauling water. If this amount of time is variable, the respondent's estimated average time is recorded here. Because rural residents may not own watches, it may be useful to compare different time intervals with the time taken for household activities that are local customs, such as boiling rice or completing a coffee ceremony.</p>
<p>W3. In the dry season, what is the main source of water used by your household for washing faces?</p>	<p>Use the response descriptions for drinking water above.</p>
<p>W4. How long does it take to go there, get water, and come back?</p>	<p>This question refers to the time taken by the person or persons who usually fetch the water.</p> <p>Record the number of minutes required, as described above for W2.</p> <p>If the water source is in the yard or the dwelling, enter 0.</p> <p>If all washing of faces is done at the water source, enter 888.</p> <p>If you do not know how long it takes, enter 999.</p>

<p>S3. If you have one or more children under 3 years of age resident in the household, the last time the youngest child passed faeces, what was done to dispose of the faeces?</p>	<p>Responses</p> <ul style="list-style-type: none"> 1 = Child used toilet/latrine 2 = Put into toilet/latrine 3 = Put into drain or ditch 4 = Thrown into garbage 5 = Buried 6 = Left in the open 7 = Don't know 9 = Other 999 = There is no child under 3 years of age resident in the household
<p>S1. Where do you and other adults in the household usually defecate?</p>	<p>Responses</p> <ul style="list-style-type: none"> 1. shared or public latrine 2. private latrine 3. no structure, outside somewhere 9. other <p>Response descriptions</p> <p>1. Shared or public latrine: a shared latrine is any latrine shared between households of non-family units.</p> <p>A shared sanitation facility is a facility used by a restricted number of households. In urban areas and apartment buildings, in particular, several families often share a facility.</p> <p>2. Private latrine: A private latrine is any facility, improved or unimproved, used predominantly by a single family or household. If you allow your neighbours to use your latrine, option 1 should be selected.</p> <p>3. No structure, outside somewhere: This refers to defecation in the yard or plot, or in the bush or field.</p> <p>9. Other: This refers to any other site of regular defecation. This may include “chamber pots” or buckets, or in bodies of surface water.</p>

Table continues over page ►

<p>S2. If private, observation: ask to see the latrine/toilet; If shared, question: ask latrine/toilet type.</p> <p><i>Observation/question:</i></p> <p>What kind of toilet facility do the adults in the household use?</p>	<p>Note that if the household has more than one latrine/toilet, ask which one the adults normally use, and provide responses for that latrine/toilet.</p> <p>Responses</p> <p>01 = Flush/pour flush to piped sewer system</p> <p>02 = Flush/pour flush to septic tank</p> <p>03 = Flush/pour flush to pit latrine</p> <p>04 = Flush/pour flush to open drains</p> <p>05 = Flush/pour flush to unknown place</p> <p>06 = Ventilated improved pit latrine (VIP)</p> <p>07 = Pit latrine with slab</p> <p>08 = Pit latrine without slab/open pit</p> <p>09 = Composting toilet</p> <p>10 = Bucket</p> <p>13 = Container based sanitation</p> <p>11 = Hanging toilet/hanging latrine</p> <p>12 = No facilities or bush or field or surface water</p> <p>14 = Not able to access (only select if <u>unable to observe</u> private latrine)</p> <p>99 = Other (specify)</p>
--	--

<p>S2. If private, observation: ask to see the latrine/toilet; If shared, question: ask latrine/toilet type.</p> <p><i>Observation/question:</i></p> <p>What kind of toilet facility do the adults in the household use?</p> <p><i>(Continued)</i></p>	<p>Definitions</p> <p>A flush toilet has a cistern or holding tank to store water for flushing and has a water seal (which is a U-shaped pipe below the seat or squatting pan) to prevent the passage of flies and odours.</p> <p>A pour flush toilet also has a water seal, but has no cistern and water is poured by hand for flushing.</p> <p>01. To a piped sewer system: is a toilet that flushes excreta to a system of sewer pipes, also called sewerage, which is designed to collect human excreta (faeces and urine) and wastewater and remove them from the household environment. Sewer systems consist of facilities for collection, pumping, treating and disposing of human excreta and wastewater. Losses that occur during transport and treatment cannot be monitored through household surveys.</p> <p>02. To a septic tank: is a toilet that flushes excreta to a water-tight container, normally buried underground away from the dwelling, designed to separate liquids from solids which are then allowed to settle and decompose. Septic tanks are designed to contain and treat excreta in situ and should have at least two chambers separated by a baffle and a T-shaped outlet pipe to reduce the scum and solids that are discharged. The effluent should infiltrate into the subsurface through a soak pit or leach field, or discharge to a sewer system. However most household survey respondents are not able to provide technical information on the design of and construction of storage tanks.</p> <p>03. To a pit latrine: is a toilet that flushes excreta to a covered pit which retains solids. The base and sides of latrine pits may be permeable to allow liquids to percolate into the soil.</p> <p>04. To open drains or elsewhere: refers to households using toilets that discharge into uncovered drains which do not effectively contain excreta thereby exposing the community to faecal pathogens. Flush/pour flush to elsewhere suggests that excreta is not being discharged into a sewer, septic tank or pit latrine), but into the local environment.</p> <p>05. To unknown place: household has a flush or pour flush toilet, but respondent is unsure where the water is taken.</p> <p>06. Ventilated improved pit latrine (VIP): is a dry pit latrine ventilated by a pipe that extends above the latrine roof. The open end of the vent pipe is covered with gauze mesh or fly-proof netting and the inside of the superstructure is kept dark.</p>
--	---

Table continues over page ►

<p>S2. If private, observation: ask to see the latrine/toilet; If shared, question: ask latrine/toilet type.</p> <p><i>Observation/question:</i></p> <p>What kind of toilet facility do the adults in the household use?</p> <p><i>(Continued)</i></p>	<p>07. Pit latrine with slab: is a dry sanitation system that collects excreta in a pit in the ground. The pit is covered by a squatting “slab” or platform that is constructed from materials that are durable and easy to clean (e.g. concrete, bricks, stone, fiberglass, ceramic, metal, wooden planks or durable plastic). The “slab” has a small drop hole, or is fitted with a seat, allowing excreta to be deposited directly into the pit.</p> <p>08. Pit latrine without slab/open pit: is a dry sanitation system that uses a pit in the ground for excreta collection and does not have a squatting slab, platform or seat; has a slab that only partially covers the pit; or a slab constructed from materials that are not durable and easy to clean (e.g. sticks, logs or bamboo), even if they are covered with a smooth layer of mortar, clay or mud. An open pit is a rudimentary hole in the ground where excreta is collected.</p> <p>09. Composting toilet: is a dry toilet into which carbon-rich material (vegetable wastes, straw, grass, sawdust, ash) is added to the excreta and special conditions maintained to produce inoffensive compost. A composting latrine may or may not have a urine separation device.</p> <p>10. Bucket refers to the use of a bucket or other container for the retention of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment, disposal, or use as fertiliser.</p> <p>13. Container based sanitation refers to a system where toilets collect excreta directly in sealable, removable containers (also called cartridges) which are regularly collected by commercial service providers and delivered to treatment.</p> <p>11. A hanging toilet or hanging latrine is a toilet built over the sea, a river, or other body of water, into which excreta drops directly.</p> <p>12. No facilities or bush or field or surface water includes defecation in the bush or field or ditch; excreta deposited on the ground and covered with a layer of earth (cat method); excreta wrapped and thrown into garbage; and defecation into surface water (drainage channel, beach, river, stream or sea).</p> <p>14. Not able to access should be selected where teams are unable to observe a private latrine (for example if the household refuses). This option should not be selected if the response to the previous question was a public or shared latrine and so the toilet type is being asked instead of observed.</p>
--	---

<p>H1. <i>Observation:</i> Is there a handwashing facility in the yard/plot/premises?</p>	<p>Responses 0 = No 1 = Yes</p> <p>Definitions A handwashing facility refers to any facility, formal or informal, that holds water that is used for handwashing. Formal facilities are permanent facilities that may include a sink or reservoir with a tap or bucket, or mobile reservoirs. Informal facilities may include bottles, buckets, or other temporary reservoirs filled with water and arranged for handwashing (tippy tap), or other water sources and reservoirs that are used for multiple uses, including handwashing.</p> <p>0. No: There is no formal or informal handwashing facility in the yard/plot/premises.</p> <p>1. Yes: a formal or informal handwashing facility is present in the yard/plot/premises.</p>
<p>H2. <i>Observation:</i> At the time of the visit, is water available at the handwashing facility? (If there is no handwashing facility, this question will be skipped by the app.)</p>	<p>Responses 0 = No 1 = Yes</p> <p>Definitions 0. No: Though there is a formal or informal handwashing facility present, there is no water available at the facility at the time of observation. This may mean that taps are not working, or sinks, buckets, mobile reservoirs, or tippy taps are present but do not have water in them.</p> <p>1. Yes: water is available at the formal or informal handwashing facility at the time of observation.</p>
<p>H3. <i>Observation:</i> At the time of visit, is soap, detergent, or other cleaning agent available at the handwashing facility? (If there is no handwashing facility, this question will be skipped by the app.)</p>	<p>Responses 0 = No 1 = Yes: soap or detergent (in bar, liquid, or paste form) 2 = Yes: ash, mud or sand</p> <p>Definitions 0. No: Though there is a formal or informal handwashing facility present, there is no soap present at the time of observation</p> <p>1. Yes, soap or detergent (in bar, liquid or paste form): Soap or detergent is present at the handwashing facility at the time of observation. Soap or detergent can be any bar soap, liquid detergent, liquid soap mixture, soap flakes or detergent paste that can be used to clean hands.</p> <p>2. Yes, ash, mud or sand: Ash, mud or sand to assist with handwashing is present at the handwashing facility at the time of observation.</p>

Table continues over page ►

Section B: Census and examination findings

Every resident of the household aged one year and above should be listed in the census. Every resident of the household aged one year and above should be asked to take part in the survey by being examined, providing informed consent is given. Children below the age of one year will not be included.

Recorders should discuss and agree on the definition of a resident (this may also be detailed in the protocol) to ensure everyone shares a common understanding.

During the survey, the grader will describe clinical findings on each consenting household resident to the recorder, usually starting with the head of the household. The recorder will need to record the presence or absence of trichiasis (upper and lower lid), TF and TI for the right eye, then the presence or absence of trichiasis (upper and lower lid), TF and TI for the left eye. In eyes that have trichiasis (upper or lower lid), the answers to two questions about previous trichiasis management and the presence or absence of TS also needs to be recorded. (The presence or absence of CO is not recorded.) If the grader/recorder cannot evert an eyelid, he/she should record TS (where applicable), TF and TI as “not able to grade”. Do not leave any questions blank. The grader should tell the recorder “absent” or “present” for each sign, in each eye. If the grader does not specify their findings for a sign, he or she must be reminded to do so to ensure that all necessary information is collected.



Yenereh Mulugeta/Orbis

Above A certified grader examining a child for trachoma, Egypt

Name	It is not necessary to include the full name of the person being examined: the first name or initials may be all that is necessary. The goal is to be able to identify who has been examined in each household.
Sex	1 = male; 2 = female
Age	In years at last birthday (range is ≥ 1 year). Note: discussion may be useful on how to help gauge the ages of individuals who are unsure of their age. A calendar of well-known national or local events may be a useful guide, for example a great flood or a political milestone.
Examined	Yes (with consent) will enable further information to be collected. Absent, Refused or Other (If any of these options are selected, the next field will ask the recorders to write a note to explain why consent was not given and will end the resident form.)
Upper lid trichiasis (right eye)	If trichiasis (upper lid) is present, additional questions will need to be asked about whether surgery for trichiasis and whether advice to epilate have been offered and taken up, and a further examination to assess the presence or absence of TS in that eye (right eye)
Lower lid trichiasis (right eye)	If trichiasis (lower lid) is present, additional questions will need to be asked about whether surgery for trichiasis and whether advice to epilate have been offered and taken up, and a further eye examination to assess the presence or absence of TS in that eye (right eye)
TF (right eye)	0 = Sign absent, 1 = Sign present, 2 = Not able to grade
TI (right eye)	0 = Sign absent, 1 = Sign present, 2 = Not able to grade
Upper lid trichiasis (left eye)	If trichiasis (upper lid) is present, additional questions will need to be asked about whether surgery for trichiasis and whether advice to epilate have been offered and taken up, and a further examination to assess the presence or absence of TS in that eye (left eye)
Lower lid trichiasis (left eye)	If trichiasis (lower lid) is present, additional questions will need to be asked about whether surgery for trichiasis and whether advice to epilate have been offered and taken up, and a further eye examination to assess the presence or absence of TS in that eye (left eye)
TF (left eye)	0 = Sign absent, 1 = Sign present, 2 = Not able to grade
TI (left eye)	0 = Sign absent, 1 = Sign present, 2 = Not able to grade
Additional notes	

K. Using the Androids & recorder reliability test (recorders only)

Module summary: This module provides recorder trainees with an introduction to the Androids that will be used to collect and transfer data, and provides an opportunity to practise the entry of data ahead of a final recorder reliability test on Day 3. Though most trainees will probably be familiar with smartphone technology, do not assume that everyone is: cover the basics thoroughly.

Objectives:

1. To introduce the Android phones to the trainees.
2. To ensure trainees can accurately collect, enter and upload data.

Learning objectives: By the end of this module, recorder trainees will be able to:

1. Demonstrate how to turn the Android on and off.
2. Demonstrate the use of “Home” “Menu” and “Back” buttons.
3. Demonstrate how to collect GPS data, and how to troubleshoot basic problems (e.g., check that GPS is switched on; check that the Android is not indoors or completely concealed from the sky by trees).
4. Demonstrate how to enter data on households and individuals.
5. Demonstrate how to upload data.
6. Explain the recorder's responsibility for maintaining and charging the phone between survey days.

Duration: 6.5 hours (day 2) & recorder reliability test 3 hours (Day 3).

Location: classroom

Materials: 1 Android for each trainee or pair of trainees, recorder IDs, laptop, projector, Annexes 9A-9C, PowerPoints K1, K2 & K3.

Training procedure:

1. Distribute the Androids.
2. Give the trainees 5 minutes to familiarise themselves with their Android.

3. Give each trainee their recorder ID.
4. Explain that during the surveys, the Android must be checked **every night** to make sure that the data have been sent, then **switched off** and **charged through the surge protector**. Before leaving for the field in the morning, recorders must switch the Android on briefly to make sure that it is fully charged, then switch it off until it is needed.
5. Explain that recorders should not download other apps to the Android, use it for email or Facebook, or otherwise employ it for anything other than collecting trachoma survey data.
6. Explain that recorders should not put a password on the phone.
7. Demonstrate how to turn the Android on and off.
8. Demonstrate how to turn on GPS and ensure trainees are able to do this. (In the location settings it is advisable to select “high accuracy”, as it has been shown to make GPS readings easier to obtain.)
9. Demonstrate how to put the Android in “Airplane Mode”: in “Settings”, press “More...”, then press “Airplane Mode”. (Airplane Mode saves battery in the field as it disables any mobile, data or Wi-Fi connections. However, when the Android is in Airplane Mode, the GPS function will still work.)
Ensure that trainees are able to turn this setting on and off.
10. Ask trainees to turn on their Android.
11. Ensure all trainees are able to “unlock” the Android, turn it off, and turn it on again.
12. Explain that it is only possible to turn off the Android when it is unlocked.
13. Ask trainees to check whether they are connected to the mobile network or Wi-Fi. This will be essential during training and for sending data whilst in the field.

14. Ask trainees to check the date and time settings on the Android are accurate and ensure they all know how to do this. This should be done on any new phone they use to ensure there is an accurate time stamp on each completed form.

Trainer note: For the following steps it is advised to use PowerPoint *K1* to demonstrate use of the Android, ensuring all trainees are following what the trainer is doing on their own Android. An alternative is to connect the trainer's Android screen to the laptop projector to demonstrate the different forms and actions, ensuring the trainees follow on their own Androids.

Whichever method used, do ensure that all trainees are following you at each stage. For small groups you could have them hold up their Androids and show you. Another method is to ask trainees to show the person next to them at each stage.

15. Ask trainees to open the Tropical Data app.
16. A menu will appear with the following items:
 - Fill blank form
 - Send finalised form
17. Explain briefly what each of these items refers to.
18. Ask trainees to select Fill Blank Form by touching that menu item.
19. Point out the keyboard keys: del, numbers, return.
20. Another menu appears with the following four options:
 - <Project name> CLUSTER (where “<Project name>” may be the name of your country, region [in Ethiopia], or state [Nigeria])
 - <Project name> HOUSEHOLD
 - <Project name> RESIDENT
 - <Project name> ABSENT RETURN
 - <Project name> SUPERVISOR
21. Explain to the trainees what each item is.
22. Ask trainees to choose <Project name> CLUSTER.
23. The screen provides a choice to return to previous “prompt” or to go forward to the next prompt (by swiping the screen from right to left).
24. Ask the trainees to go forward.
25. The next screen asks the recorder to enter their recorder ID (and the keyboard immediately appears).
26. Demonstrate typing on the keyboard. Ask a trainee to demonstrate how to find numbers on the keyboard.
27. Take the trainees through completion of each of the forms, in the order CLUSTER, HOUSEHOLD, RESIDENT, ABSENT RETURN, encouraging questions. **During training, the Evaluation Unit code used should be 00000, and the Cluster code used should be 000.**
28. Instruct the trainees that, in the HOUSEHOLD form, when the Android prompts to “Capture GPS data”, the recorder should stand outside the main door of the house and press the “Record Location” button. This function requires that the Android receives signals from satellites, which is harder if there is a roof or trees overhead. (GPS data should be captured after consent is obtained from the head of the household (this will also be covered in module O).
29. Note: If the trainee experiences difficulty in capturing GPS data ensure they are not indoors and instruct them to check the “Location” access in the “Settings” folder on the Android, to be sure that these settings are active. Where possible “Location mode” should be set to “High accuracy”, even when working in airplane mode, as this often results in a better reading.
30. Once the “Record Location” button is pressed, a “Loading Location” box

appears. Once the accuracy is <10m, the recorder should press the small "Record Location" button below the "Loading Location" box.

31. Note that problems with GPS data acquisition usually result in a "false" reading of 999, which will also occur automatically after 60 seconds of an unsuccessful attempt to record the location. In these instances, the recorder should try again, and only if the problem still persists should they move to the next question keeping the false reading. In these cases, the supervisor should be notified of the issue.
32. Instruct trainees that the way that resident records are linked to household records, and household records are linked to cluster records, only works within a single Android. It's therefore important that one Android is used to enter all the data from any one cluster. If, for some reason, more than one Android is used for a cluster, the team will need to enter CLUSTER data into the new Android to be able to select that cluster in a new HOUSEHOLD form.
33. Instruct trainees that the ABSENT RETURN survey is only for enrolling individuals who are both: a) previously entered as being "absent" or "refused" on the Android in use, **and** b) now available for examination.
34. Ask the trainees to think about possible ways to arrange to later examine those who are currently absent, but who will be available later in the day. Answers are likely to include: a) revisit the households later in the day, b) visit children at school, and c) have people come to a central site.
35. A paper record should be used to keep track of people who are absent and expected to return before the team leaves the community. An example form can be found in

Annex 9C – this can be photocopied (at least one per day) or recorders can keep a similar record in their notebooks.

36. When completing a Household form, instruct trainees that **the Head of Household entry must be unique for each Household within a cluster.** This is one reason for entering the number of the household within the cluster, as well as the full name of the head of the household, in the "Household" field. When a new cluster is started, the household numbering should re-start from the number "1".
37. When completing a Resident form, the final "Additional notes" field should be used to record and confirm any referrals or medication given, as well as any other information deemed relevant, for example "tetracycline ointment given".
38. Practise recording all survey data with the Androids. Suggest that trainees demonstrate through role play that they can do all these tasks. Observe them and critique, sometimes taking the role of a grader so that recorder trainees can practise entering clinical data.
39. Alongside the role play, you should also have trainees work through the practice exercises in Annex 9A (with PowerPoint K2). Before submitting each form, trainees should show these to the trainer and the number of incorrect answers highlighted so they can go back to try and correct these.
40. By the end of Day 2 trainees should feel comfortable with the system and should be ready for the test which will take place on the afternoon of Day 3.
41. To conduct the test, either read aloud to trainees the data in Annex 9B in combination with PowerPoint K3, or print a copy each for them to read. All recorder

trainees should do this at the same time, without talking. Please allow trainees to briefly go outdoors when it is time to collect the GPS coordinates for the test. In the case of absentees, trainees must also show their completed paper-based “absent returnee form” (Annex 9C) to earn the necessary marks.

42. Require all of the trainees to show you the summary of each form before they save it in order to check their responses. Trainees that don't show you their responses must be required to re-enter the data. Upon presenting each form, make a note of the number of correct answers which will make up part of their final score. Any subsequent corrections will not receive marks. **A score of at least 90% is required for trainees to become part of a survey team.** Use the recorder mark sheet document K4 (found alongside the other electronic training materials), to check the answers and keep a track of the scores.
43. Following the test, the final session should be used to review the responses, discuss any areas of concern or difficulty and to answer final questions, as well as highlighting what was done well before the team training continues.

L. Overview of Tropical Data, trachoma and prevalence surveys

Module summary: This module provides the trainees with the overall context for the survey work. The basics of trachoma and the WHO-endorsed SAFE strategy for eliminating trachoma will be presented and discussed. It is important that the trainees understand the different components of the SAFE strategy. Though the module relies on a PowerPoint presentation, it is important that you recognise the trainees' previous knowledge and experience by asking them questions prior to presenting information. This also helps you understand their baseline knowledge level, enabling you to tailor the presentation. The surveys for which you are training these trainees are part of a much larger

initiative to maintain up-to-date epidemiological information on trachoma globally, and are key to the drive to eliminate trachoma as a public health problem by the year 2020. It is important to inspire the teams with this vision so that they will realise the importance of their work. PowerPoint L has been prepared to facilitate this.

Objectives:

1. To provide an overview of Tropical Data and explain the importance of standardisation.
2. To present an overview of trachoma, the SAFE strategy, and the indications for undertaking baseline surveys, impact surveys and surveillance surveys for trachoma.
3. To ensure that survey teams understand the global importance of the work for which they are being trained.
4. To present the agenda for training.

Duration: 75 minutes (day 3, 0830-0945)

Location: classroom

Materials: computer, projector, PowerPoint L

Learning objectives: By the end of this module, the trainees should be able to:

1. Describe Tropical Data and how it supports health ministries collect high quality data.
2. State what trachoma is and describe at least three risk factors that predispose communities and individuals to the disease.
3. Name and describe the clinical manifestations of trachoma.
4. Describe the four components of the SAFE strategy and why each is important to the elimination of trachoma.
5. Understand the indications for undertaking baseline surveys, impact surveys and surveillance surveys for trachoma.

Training procedure:

1. Start PowerPoint L.
2. Describe Tropical Data, using PowerPoint L, slides 2-4.
3. The use of Androids to collect data in the field may be new to some trainees. Ask those who have experience using Androids for data collection to describe their

experiences. In particular, ask them to describe some of the advantages of using electronic data capture.

4. Ask recorders if they have heard of trachoma. Some will and some will not. Ask the participants who are familiar with trachoma to explain briefly to the others what trachoma is and explain that more information will be provided in this module. Go through the materials on PowerPoint *L*, slides 5-12.
5. Ask what the clinical signs of trachoma are, again recording responses (Powerpoint *L*, slides 12-19).
6. Ask how trachoma can be eliminated as a public health problem. If the SAFE strategy is mentioned, ask what each component is, noting the responses. Discuss PowerPoint *L*, slides 22-24.
7. Use slide L-25 to point out districts in which trachoma elimination activities are required. In all of these districts, impact surveys and surveillance surveys will be needed. Find the country you are in and see what is known about trachoma elimination, baseline surveys, impact surveys, and surveillance surveys there.
8. Discuss the WHO criteria for elimination of trachoma as a public health problem, as shown on slide L-26. Discuss when baseline surveys, impact surveys and surveillance surveys are required (L-27).
9. Go through each objective of the training (slide L-28). Ask for questions.
10. Discuss what will happen over the next three days (slide L-29).
11. Ask if this fits their expectations and encourage questions and discussion.

M. Cluster sampling & household selection

Module summary: This module provides an overview of trachoma survey principles and begins to focus the information from the previous module into the immediate task at hand, i.e., conducting surveys. This module looks at the two stages of sampling, the first stage of cluster selection and the second stage where households are selected. Annex 1 is designed to complement

this module and to provide an aide memoire for those working in the field.

Objectives:

1. To introduce the trainees to the basic principles of prevalence survey methodology and key components of a trachoma survey.
2. To introduce the roles and responsibilities of the various members of the trachoma survey team.
3. To ensure teams have a thorough understanding of the different methods for selecting households in a village and understand why a particular method has been chosen for their national/local context.

Learning objectives: By the end of this module, the trainees should be able to:

1. State the most important principle of sampling in a survey.
2. Explain why sample selection is critical in surveys.
3. Describe the roles and responsibilities of the various members of a trachoma survey team.
4. Demonstrate good etiquette with both village leaders and villagers.
5. Know how and be able to select households in villages using appropriate methodologies.

Duration: 1 hour 15 minutes(day 3, 0945-1100)

Location: classroom

Materials: flip chart (or white board), markers, computer, projector, PowerPoint *M*

Training procedures:

1. Ask the trainees if they have ever been a part of a survey team. If yes, elicit from them what they feel are the basics of surveys and sampling. For those that have not, ensure they are given the chance to input.
2. Present PowerPoint *M*, slides 2-4, referring to any of the trainees' responses where appropriate and ensuring to promote discussion on each slide. Ensure the multi stage sampling technique, and who is responsible for each step, is understood.

3. Discuss with the trainees what “good etiquette” means when interacting with village leaders and villagers and what is meant by a “household” in their setting. (This was discussed by both graders and recorders in earlier modules prior to the team training; now is an opportunity to ensure a shared understanding.)
4. Ask trainees if they know what the two most common methods of household selection are, then show slides 5-6. Go through each of these, asking frequent questions at each stage and using the flipchart and markers to demonstrate examples.
5. Ensure trainees are in agreement that the method of household selection chosen for their national/local context is appropriate.
6. Use slide 7 to support a classroom practice, using the classroom as a village. Have the trainees work through each scenario/sampling methodology.
7. Ask participants to describe the different roles in the team, showing slide 8 to confirm.
8. Use slide 9 to do a final review of the module, ensuring that all trainees are confident in all learning outcomes, and that each question has been fully discussed.

N. Recorders demonstrate Androids to graders

Module summary: This brief module, is an opportunity for the recorders to demonstrate and introduce the working of the Androids to the graders, before more in-depth team modules are covered where some basic knowledge would be helpful. There is some flexibility in how to deliver this module, depending on the confidence and ability of the recorder trainees.

Objectives:

Introduce graders to the role and work of the recorder and to the Androids used for data collection.

Duration: 30 minutes (day 3, 1115-1145)

Location: classroom

Materials: Androids

Training procedures:

1. A recorder trainer or trainee should outline the different types of forms and how these are connected. Have different recorder candidates give a brief explanation of each form.
2. Allow graders the opportunity to ask questions and consider pairing up graders and recorders to give graders the opportunity to be shown how the Androids work. This basic understanding will reinforce both team members' knowledge and understanding ahead of the remaining team modules.

O. Obtaining consent

Module summary: This module prepares trainees to introduce themselves at the household and to obtain consent for the examinations and interview.

Objectives:

1. Review the necessary steps in obtaining consent.
2. Review who has which roles and responsibilities in this process.

Learning objective: By the end of this module the trainees should be able to demonstrate how to make introductions and ask for consent at the household.

Duration: 60 minutes (day 3, 1145-1245)

Location: classroom

Materials: flip chart (or whiteboard), markers, computer, projector, PowerPoint O

Training procedure:

1. Introduce the module by commenting on how access to the household and obtaining consent is critical to the survey. Ask the participants what the first step of this process would be. Use this to lead into introductions.
2. Start a discussion of how introductions will be made. Discuss locally appropriate ways to make introductions.
3. Verbal consent for inclusion in the survey must be obtained at each household.

Discuss appropriate ways to ask for verbal consent to enrol the household.

4. Discuss with trainees what is meant by a “household” locally. For example: “a unique doorway for people who sleep in the same house”; “people who have slept in the house in the last month”; “people who usually share their meals together”. Be sure to be as inclusive as possible. Encourage recorders to share discussions from the recorder training on this topic and for the group to reach a consensus.
5. Verbal consent for examination must also be obtained for each individual that is examined. Only adults can give valid consent. For the purposes of trachoma surveys, an adult is usually defined as a person aged 15 years or above, though this may be adjusted according to national requirements.
6. Discuss with trainees if there are other local requirements, aside from age, for being able to give consent.
7. Determine if there is anyone aged 15 years or above present at the household who is able to give consent. If there is a suitable person, the first step is to obtain consent for the examination and interview in that household. If there is no suitable person present, consent cannot be obtained. An informal (paper) record will need to be made of this household and the team should try and visit it again later if they have time and if a suitable person is likely to be present. If, on returning, there is still no suitable person, the team is advised not to replace that household and to inform the supervisor/data team.
8. If the individual asked to provide consent refuses to give consent, it is advised to move onto the next household and to not replace the household with another. The team should report this to the supervisor by the end of the day so the data team can be informed of the reason for not meeting the set number of households.
9. Get trainees to list the essential elements that should be included in the verbal consent process. Write these on the flip

chart as they are suggested. Be sure that the following are all included:

- Here is what is going to happen during the survey
 - The household GPS coordinates will be collected
 - You will be asked to answer some questions
 - The eyes of household members (over 1-years-old) will be examined for trachoma
 - Antibiotic treatment will be offered to anyone found with active trachoma
 - People with trichiasis (upper or lower lid) will be offered referral for surgery
- You have the right to refuse to participate.
- You will have access to the same services regardless of whether or not you decide to participate.

You may show PowerPoint *O* as a reminder of these elements that must be included on consent. (This is not necessary if all the elements have been discussed, but may be useful for reinforcement.)

Once the list above is agreed on, have each grader practise (using role play) what he or she will say at the household. Others can critique.

P. Examination techniques 2 (graders only)

Module summary: This module continues development of examination techniques for grader trainees, focusing on how to recognise trichiasis (upper and lower lid) and TS, how to hold a child for examination, and how to treat and refer cases of active trachoma and trichiasis identified during the survey.

Objectives:

1. To review examination techniques and diagnosis of trichiasis (upper and lower lid) and TS.
2. To ensure grader trainees know how to hold a child for examination.
3. To ensure trainees are aware of the appropriate methods of treatment and

referral for active trachoma and trichiasis (upper and lower lid).

Learning objectives: By the end of this module, the trainees should be able to:

1. Examine a subject for trichiasis (upper and lower lid) and collect information about previous surgery for trichiasis or advice to epilate.
2. Explain to an assistant how to hold a child for examination.
3. Explain how to treat someone who has been found to have TF or TI.
4. Explain how to refer patients.

Duration: 3 hours (the remainder of day 3 until 1700 hours is available for this module)

Location: classroom

Materials: computer, projector, PowerPoint P, 3D images (Annex 11 printed or viewed on a computer screen), 3D goggles (one per trainee), instructions for 3D goggles (Annex 10), loupes, referral forms (Annex 8 or national equivalent), flip chart and markers.

Training procedure:

1. Ask a participant to describe upper lid trichiasis (at least one eyelash from the upper eyelid touches the eyeball, or evidence of recent epilation of in-turned eyelashes from the upper eyelid). Make sure that trainees have a full understanding of the definition of upper lid trichiasis. PowerPoint P, slides 2-4, show some examples.
2. Ask a participant to describe lower lid trichiasis (one or more eyelashes from the lower eyelid touching the eyeball, or evidence of recent epilation of in-turned eyelashes from the lower eyelid). Make sure that trainees have a full understanding of the definition of lower lid trichiasis.
3. Discuss examination for trichiasis. Show slide P-5.
4. Ask for a volunteer. Once a volunteer has come to the front of the room, clean your own hands. Demonstrate putting the loupe on first, before examining the eye. Explain that the lid is always examined for trichiasis before everting it, since eversion

of the lid may make later detection of mild trichiasis more difficult.

Always examine the right eye first, then the left eye. This helps to avoid confusion in recording results.

5. While examining the uneverted eyelid, ask the trainees what they should be looking for (eyelashes touching the eyeball, or evidence of recent removal of in-turned eyelashes, differentiating between upper and lower lid trichiasis).
6. Review the examination technique for everting the eyelid and discuss what they should be looking for in the conjunctiva (TS in individuals with trichiasis (upper or lower lid); TF and TI in everyone). Refer to slide 6.
7. Request trainees to practise in pairs, always using the loupes and torch, with each person examining their partner's eyelids for trichiasis and then everting each of their partner's eyelids. Remind the participants to wash hands before examining their partner's eyes.
8. Among those diagnosed with trichiasis (upper or lower lid), ask the participants what might be some of the possible histories. Make a list of possible patient histories, including options such as, "I didn't know I had trichiasis", "I've never seen a health worker about my in-turned eyelashes", "I was told I had trichiasis and should have surgery but didn't want it", "I was told to have surgery and agreed, but couldn't go", "I was told to pull out the eye lashes", "I have been pulling out eye lashes for years", "I had surgery in the past", etc.
9. The trainees may think of many other possible histories. Explain that we need to record the history by answering specific questions. Show slide 7, which lists the specific questions they must ask and the response options. Discuss how each of the possible histories they have listed would be entered in the Android. Note that some patients will fit response (d), which covers all cases in which a health worker has never seen the upper or lower lid trichiasis, or the patient was not aware that he or she had upper or lower lid trichiasis.

- Q1. Have you ever been offered surgery by a health worker to correct the trichiasis (in-turned eyelashes) in this eye? [This question will be asked separately for the upper eyelid and lower eyelid, and left and right eye.]

Responses options:

- a. Yes, a health worker informed me and offered me surgery, and I had surgery
 - b. Yes, a health worker informed me and offered me surgery and I accepted the offer but I did not get surgery
 - c. Yes, a health worker informed me and offered me surgery, but I declined it
 - d. No health worker informed me and offered me surgery
 - e. Don't know
10. Explain that we also need to ask specifically about epilation. Show slide 8. Explain again that both question 1 and question 2 must be asked and answers recorded, regardless of the response to question 1.
- Q2. Have you ever been offered epilation by a health worker to correct the trichiasis (in-turned eyelashes) in this eye? [This question will be asked separately for the upper eyelid and lower eyelid, and left and right eye.]

Responses options:

- a. Yes
 - b. No
 - c. Don't know
11. Ensure each trainee has a pair of 3D goggles. Talk through the instructions in slides 10-14 (and Annex 10 for using the 3D goggles).
12. Ask the trainees to view the 3D images in slides 16-23. Images 16 & 17 enable trainees to practise using the 3D goggles; 18-23 enable trainees to practise trichiasis diagnosis. These 3D images must be viewed on a laptop (not projected), or these can be printed from Annex 10 and a copy given to each trainee to use. If you do not have 3D goggles available, it is

possible to view the left photograph of the two “split images” to view in 2D.

13. Remind trainees that any eye identified with trichiasis (upper or lower eyelid) will require assessment of TS in the upper eyelid. Grading for TS, TF and TI should be done before asking the management questions.
14. Show the slides of TS starting with the slides of a normal eyelid (slides 25 & 26). As conjunctival scarring can range from mild to severe, it is important to show a variety of slides. Moderate or severe scarring is considered an easily visible scar as per the WHO simplified grading system definition.
15. Moving on from Trichiasis and TS, trainers will outline shows how to examine the conjunctivae of a child, and in a child who needs to be restrained using the diagrams presented in the slides. Practise the techniques of safely restraining a child for an examination.
16. What if a young child is asleep? If their mother gives consent to examination, sometimes it's possible to examine the child without waking them if the grader is very gentle. This is often much less traumatic than deliberately waking them up for examination.
17. Discuss how to treat people who have trachoma. Discuss who should be treated with antibiotics. Discuss what to do with a person found to have trichiasis.
18. Finally, decide on what referral form will be used for patients with any other conditions needing treatment (e.g., cataract), including where patients will go for treatment, how they will get there, and the costs they may incur. You may use Annex 8 as a template for referrals, as shown in the final slide.

Q. Practise working together

Module summary: This module is a chance for graders and recorders to show that they understand all the survey procedures before they go into the field. They will be paired up and the

trainers will describe various situations to them to be sure they agree on how to handle them.

Objective: To provide an opportunity for the teams to work together and develop an effective working relationship.

Learning objective: By the end of this module, graders and recorders should be able to demonstrate that they know their roles, know how to deal with difficult situations and are able to work together within a team.

Duration: 2 hours (day 4, 0830-1030)

Location: classroom

Materials: all materials needed for the survey

Training procedure:

1. Start a role play exercise with the trainer acting as a non-communicative household head. Get the trainees to probe for information.
2. Get the trainees to describe all the problematic situations they can imagine and list these on a flip chart. Discuss what to do in each case. Include all the following situations:
 - a. When you first arrive in the village, the village leaders say that they are not interested in being included in the survey. [Make sure the village leaders have understood the purpose of the survey. If they still refuse, move to the next closest village and inform the supervisor of the change. Ensure that advance sensitisation has been planned in all communities to be surveyed].
 - b. At the household, there is no one over 15 years of age present. [An informal (paper) record will need to be made of this household and the team should try and visit it again later if they have time and if the adults are likely to be present.]
 - c. The head of the household completely refuses to allow any member of the household to participate. [Move onto the next household. It is not recommended to replace the household with another. The team should report this to the supervisor at the end of the day so they can inform the data team of the reason for not meeting the target number of households.]
 - d. No one is sure of the age of the grandmother. [Recorders would have discussed how a calendar of nationally significant events may be helpful in these scenarios to help people be able to work out their age. For example, the date of a great storm or significant political event.]
 - e. The head of household wants to include someone who does not live in the household; they are just visiting for a few days. [You can examine them, but don't enter the data in the Android, because they are not a resident of the selected household.]
 - f. A typical protocol defines a resident as a person who has been living in a household for the last month. At the household you find a child who is not from the household but has been living with the family for the last 2 months in order to go to school in that village. [Based on the protocol, this child is a resident in the household.]
 - g. Mother says there is a latrine but you cannot see one. [Probe for more information. If the latrine is a public or shared latrine, record the verbal responses on latrine presence and type of latrine. If the latrine is private, ask to see it. If the mother does not want to allow this, select "Not able to access".]
 - h. The son, who is providing most of the responses, says he can reach the water source in 30 minutes but the daughter, who usually fetches water, says she needs 60 minutes.

[Clarify that the round trip, including collection time, is being discussed. If there is still disagreement, use the response from the person who fetches the water.]

- i. At the household, the village guide is answering the questions for the household instead of the household head or other adult household member. [Respectfully ask if it would be possible to have the household head or other adult household member answer the questions.]
 - j. During the rainy season, it takes 10 minutes to get the water, but now during the dry season, it takes 30 minutes. [We are interested in the information from the dry season.]
 - k. The family has no idea how long it takes to fetch water. [Using guidance from the recorder training, try and compare the time periods to local customs or activities to get an answer, for example the time it takes to complete a coffee ceremony.]
 - l. The grader fails to give the grade for TI for the right eye. [The recorder should ask!]
 - m. The grader fails to clean their hands after examining a child. [Remind the grader.]
 - n. An 8-year-old child is not present in the household, but will be back later. [They will be recorded as absent in the initial form and their details added to the paper record (absent return form) kept by the recorder. This paper record will make it easier for teams to plan where they might return, should they have enough time at the end of the day. Priority is given in these circumstances to 1–9-year-olds.]
 - o. The 10-year-old is not present in the household but will be back later. [Return to examine if time allows, but priority should be given to 1–9-year-olds.]
3. Break teams into groups and have

one take the role of household head, while the other team practises making introductions, requesting consent, and filling in the sections of the form. Try to come up with more “problem situations” and discuss what to do in each.

Note: The trainer needs to be sure that all teams respond the same way to “problems”. Everyone should hear the same information and all of the recorders should record the answers the same way.

R. Field practice for teams

Module summary: The module will take place in a village to allow practice in household selection, completion of the questionnaire and examination of the children and adults in the household. The recorders will also have a chance to use all the various forms to make sure that they understand how to fill them in.

Note: This module does **not** need to take place in a trachoma-endemic village, as the goal is to practise working together in the field.

Objectives:

1. To enable graders and recorders to practise working together in the field.
2. To ensure graders and recorders are demonstrating the correct use of survey protocols.
3. To allow trainers and trainees to review the field practice, highlighting problems and their solutions, as well as what went well.

Learning objective: By the end of this module, graders and recorders should be able to demonstrate correct use of survey protocols.

Duration:

R1: 2 hours 45 minutes (day 4, 1045-1330);

R2: 1 hour 30 minutes (day 4, 1430-1600)

Location: R1: field; R2: classroom

Materials: all materials needed for survey, including a list of households in the village (if available)

R1 Training procedure:

1. Remind teams that it is critical that they work efficiently, not wasting time at any household. For example, if 1–9-year-

olds are absent and due to return later, they should make arrangements to examine them later, rather than waiting at the household for them to return. Also remind teams that they should examine all consenting household residents aged 1 year and above.

2. At the village, one team should greet the village head and discuss the survey.
3. Have the teams discuss how to select the households and be sure everyone understands the procedure. Discuss any disagreements.
4. For this practice, two or three teams may work together, taking turns to “take the lead” in making introductions and doing the interviews while others critique and time the visit.
5. Trainers should observe and supervise the teams, ensuring that each team is observed carrying out the survey in at least one household, ideally more, depending on the trainer to team ratio. Ensure teams follow the protocol, be prepared to correct issues (such as graders not washing their hands ahead of each examination) and to give feedback.
6. Every group of teams should visit as many households as possible in order to get practice and uncover any problems. Individual teams should aim to examine at least 3 in the given time.
7. Teams should each complete at least one ABSENT RETURN form, to allow the recorder to practise using it.
8. Depending on how many households are selected, it is possible that not all households in the village will be visited during this session, but every team should have as much practice as possible.
9. It might be useful for teams to time how long they spend at each household to show them how long they would need to finish all sampled households in a cluster.

R2 Training procedure:

1. Once returned from the field, give feedback on how the trainees performed. Discuss as a group the problems that were encountered and how these were or should have been resolved. Ensure to highlight what was done well by the teams.
2. Give trainees the opportunity to ask final questions about any aspects of the survey, and take the time to revise or revisit any outstanding areas of concern, as highlighted by the practical exercise.

S. Supervision (for all trainees, proposed supervisors & coordinators)

Module summary: This module outlines the importance of supervision in ensuring quality, the steps needed to ensure the survey proceeds well and ensures that both the supervisors and team members understand the role of the supervisor.

Objectives:

1. All team members appreciate the importance of good quality data collection and the role of the supervisors to assist them in achieving high quality survey findings.
2. Supervisors to know what they are supposed to do to support teams and to have the necessary knowledge to develop a more detailed supervision plan prior to surveys starting.

Duration: 60 minutes (or more time as required, especially for the supervisors to review the checklist), (day 4, 1615-1715)

Note: This presentation provides an overview and examples to facilitate discussion. It will not include every possible task that requires supervision or all supervision methods. Supervisors will also need to allocate time on Day 5 or before the field work starts to develop and finalise a supervision plan.

If supervisors are trained (as recommended) as either graders or recorders, they will also need to

take time to review the modules of the other relevant role to be able to support with any issues that arise in the field. For example, a grader qualified supervisor, should be able to check if WASH data are being collected accurately and be able to use the phones. A recorder is not expected to be able to verify clinical diagnosis, but can ensure the examination process is followed, e.g. using hand gel, and examining right eye first, followed by left eye.

Location: classroom

Materials: PowerPoint S, flip chart (or whiteboard). Phone based app, Annex 12 Supervisor checklist

Training procedures:

1. Ask participants to discuss why supervision of field work is important; you may want to write these on the flip chart. Afterwards the facilitator can show slide 2 to confirm that the main points have been covered.
2. Ask participants to define supervision and the role of a supervisor in the context of survey work. Write these on the flip chart/board. The facilitator should show slide 3 on the role of a supervisor to confirm that these points have been covered.
3. Ask participants to suggest all possible supervision methods that can be used during surveys and discuss the practicality of each. Slide 4 can be shown to confirm.
4. Ask participants to make a list of specific critical tasks that must happen *during start up* to ensure a high-quality survey, as well as the types of issues that may be encountered. Write this list on the flip chart or board. Encourage proposed supervisors to also note these down separately, to later feed into their supervision planning. Some suggestions are given on slide 5.
5. Ask participants to make a list of specific critical tasks that must happen *throughout the fieldwork*, as well as the types of issues that may be encountered. Write this list on the flip chart or board. Encourage proposed supervisors to also note these down separately, to later feed into their supervision planning. Some suggestions are given on slide 6.



Photographer: Tawfik Al-Khatib

Above Dr Tawfik, a trainer, explaining how to select households in the field, Zambia, 2017

6. Ask participants to identify challenges in relation to following the survey protocol. Compare these to those listed on slide 7.
7. Ask participants to consider logistical and coordination challenges they may face. Note these on the board and discuss ways to overcome them. Supervisors and coordinators can use this section to further develop their notes to feed into their plans. Compare responses to slides 8 and 9.
8. Discuss and confirm participants know what issues should be reported to their supervisor. Compare responses with those on slide 10.
9. The remaining slides (slide 11 onwards) can be discussed separately with just supervisors, or you can continue as per previous slides, so all participants have a good understanding of supervision. This may be necessary if supervisors have not yet been identified or confirmed.
10. Use slide 11 to highlight and discuss who should be acting as supervisor and the qualities and experience they should have. Participants may have other ideas to share, including discussing their local setting, to establish the ideal number of supervisors.
11. Slide 12 outlines how supervisors can take their notes from this session to put together a supervision plan before the fieldwork commences.
12. Participants should be paired up, and each pair given both the paper-based checklist/form (Annex 12) and an Android smartphone with the electronic version of the supervisor form, so that both can be talked through, enabling participants to understand what they contain. Inform supervisors that the paper version (or an equivalent of their own design) should be used as a minimum. The electronic form can also be used and uploaded and kept alongside the survey data, allowing a formal record of any issues and relevant observations. Review with reference to slide 13.

T. Graduation and review of survey plans

1. A graduation ceremony may be held if desired. (A template certificate is stored alongside the other electronic training materials.)
2. As a first step for planning surveys, discuss who should be (or appoint) the team leader for each team.
3. The team leader is responsible for making sure that their team has all of the materials needed before going to the field each day. In addition to the materials that have become familiar to you during training, team members may need to take bottles of water, food, sleeping bags, mosquito nets, car chargers or solar chargers for the Androids, a spare battery for the Android, and so on.
4. Ensure teams know which Evaluation Units (EUs) and clusters they are visiting, and the number of households to survey per cluster, as per the protocol.
5. Discuss survey logistics which include:
 - a) Timing of deployment of teams
 - b) Supervisors assigned to teams
 - c) Drivers assigned to teams
 - d) Materials given to teams
 - e) Communications plan: to include how any field issues will be shared between the field, supervisors, coordinators and data team.
6. Remind teams not to enter any more practice data into the Androids.
7. Distribute first round of per diems.

7 After training finishes: clearing data from the Androids

Before the Androids used for training are taken to the field to collect data in real surveys, it is important to delete any data entered during training. To avoid accidental deletion of real survey data, the screen to remove the data requires a password. This step will therefore need to be done by the training coordinator or survey coordinator, who will be given a password to carry out this task.

- A. Click the menu button from the main Tropical Data app screen.
- B. Select Admin Login and enter the password.
- C. Click “Delete saved form” button.
- D. Under the Saved Form tab (underlined blue when selected) there is a “Toggle all” button. Click Toggle All, then click Delete Selected. This will remove all saved forms and clear the local database.

Don't enter any training data after the real surveys have begun!



Dominic Nahr/Magnum/Sightsavers

Above A recorder captures survey findings on an Android, Ethiopia.

Annex 1 Cluster Sampling and Household Selection – Aide memoire

Sampling is typically done in 2 stages:

First stage:

- Selects the **clusters** (or villages) from a complete list of clusters in the EU.
- Sampling is done by the survey coordinator and/or epidemiologist and communicated to the teams in advance of the survey to aid planning.
- Following WHO recommendations, 20-30 clusters are selected per EU, with the exact number defined by the programme, in consultation with the epidemiologist.

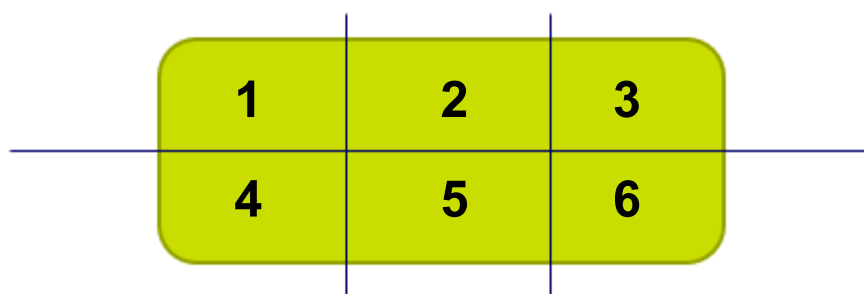
Second stage:

- Selects **households** within the clusters.
- This is done by the teams, most commonly using either “compact segment” or “simple random” sampling, depending on whether a list of households in the village is available.

The number of households to select (generally 25-30) will be determined by the programme (number of households a team can reliably see in a day of fieldwork)

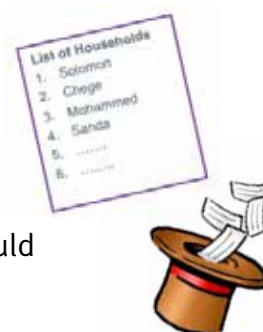
Compact Segment Sampling:

- Teams (or those sent to conduct sensitisation ahead of the team’s arrival) request a village leader to make a rough map of the village and to estimate the number of households (e.g. 180).
- The total number of households should be divided by the number of households to be examined per cluster (e.g. $180/30 = 6$).
- The village should then be split into segments based on the previous calculation (6), one of those segments is randomly selected and all eligible households are surveyed to achieve the required number of households.



Simple random sampling:

- Each household on the list of village households should be given a number (e.g. 1-180).
- The required number of households (as set by the programme) should be randomly selected from that list, visited and enrolled for the survey.



Annex 2 IGA test form for slides

Your name:

Date:

There are 50 slides to examine, each with a unique number. Record your findings by writing “0” if the sign is absent and “1” if the sign is present.

Do not leave any blanks. If you need to change your answer, strike it out completely and write the new answer above or to the right of the old answer.

Number	TF	TI
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Number	TF	TI
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Annex 3 IGA test form for the field

Your name:

Date:

Eye:

There are 50 children to examine, each with a unique number. Examine the right eye or left eye (as instructed) of each child, for TF and TI. Record your findings by writing “0” if the sign is absent and “1” if the sign is present. Do not worry about looking for trichiasis today.

Do not leave any blanks. If you need to change your answer, strike it out completely and write the new answer above or to the right of the old answer.

Number	TF	TI
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Number	TF	TI
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

Annex 4 Using the kappa calculator

Instructions for using “Kappa calculator (slides 1).xls” are below if the slide based IGA test is used.

Scores can be entered quickly if one person reads responses while another enters the data.

1. Open “Kappa calculator (slides 1).xls” and save it with a new name. One Excel file will be used for each set of slides, or set of real subjects. Within that file, one sheet will be used for each trainee grader. Ensure that macros are enabled in Excel.
2. The first sheet is called “Template”. Click on “Create new trainee evaluation” and a new sheet will open, with the TF (gold) answers already filled in. You will be asked to enter the trainee’s name. Enter the trainee’s answers in the column headed “TF (trainee)”.
3. The kappa will be calculated automatically.
4. Click “Create new trainee evaluation” again.
5. Write the kappa score on the training sheet. If $\text{kappa} \geq 0.7$, the trainee is ready to go to the field.
6. If the $\text{kappa} < 0.7$ and you think that the trainee may pass with a little more instruction and a re-test:

Repeat PowerPoint *D1* and/or PowerPoint *D2*

Do another IGA test using PowerPoint *D4* and “Kappa calculator (slides 2).xls”.

Annex 5 Photos of water source categories

Tubewell/borehole



The Carter Center



The Carter Center

Protected dug well



Unprotected dug well



The Carter Center

Protected spring



The Carter Center

Unprotected spring

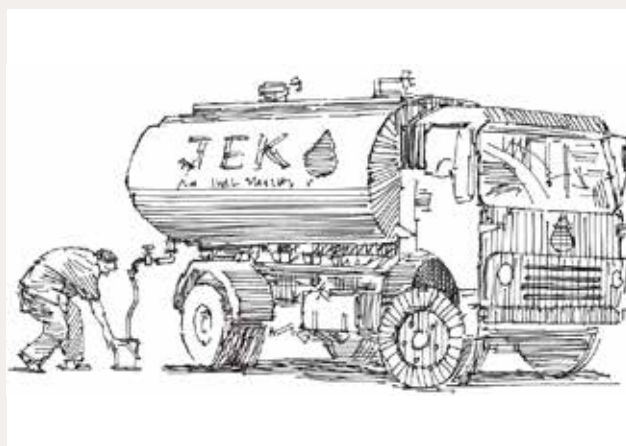


Water for People



Water for People

Delivered water (water vendor)



Rainwater collection



Water kiosk



Surface water (e.g. river, dam, lake, canal)



Packaged water



Annex 6 Photos of sanitation facility categories

Flush toilet



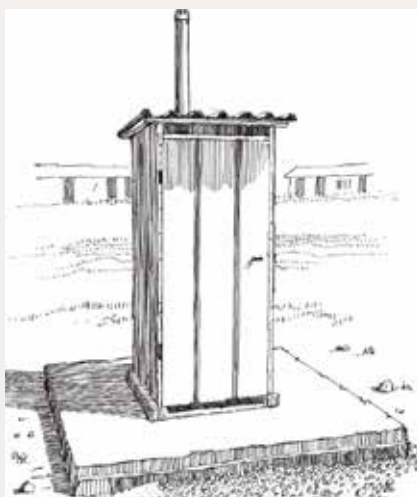
Cement slab/floor with seat; superstructure; toilet uses a cistern or holding tank for flushing urine/faeces; and has a water seal (U-bend)

Pour flush toilet



Cement slab/floor with squatting slab, platform or seat; superstructure; water not directly connected to toilet, but added manually to flush; and has a water seal (U-bend)

Ventilated improved pit latrine (VIP)



Cement slab/floor; ventilation tube that accesses the pit and comes out of the superstructure; superstructure with roof and some type of door

Pit latrine with slab (improved pit latrine)



Cement slab/floor; superstructure with roof and some type of door

Pit latrine without slab/open pit (unimproved pit latrine)



Packed mud/dirt floor; mostly unlined pits; limited superstructure – no roof, no door, etc.

Composting toilet



Two toilets with separated areas for urine and faeces

Doors at back of toilet with faeces composts

Cement slab/floor with squatting slab, platform or seat; often elevated above ground; urine diversion (separate hole for faeces and urine); doors at the back or side used to access the compost superstructure, with roof and some type of door; ash and dirt generally present to help compost faeces; either one pit, or two alternating pits.

Container based sanitation



System where toilets collect excreta in sealable, removable containers (cartridges), which are regularly collected by commercial service providers for treatment and disposal.

Hanging toilet/hanging latrine



Annex 7 Survey form

Tropical Data trachoma prevalence survey

Date

(A) Household questionnaire

Recorder

Section 1: Identifying information

1	Country	<input type="text"/>
2	Evaluation Unit [put 5-digit code in boxes]	<input type="text"/>
3	Cluster [put 3-digit code in boxes]	<input type="text"/>
4	Household [write household number followed by name of household head]	<input type="text"/>

Section 2: Household GPS

G1	Latitude (N)	<input type="text"/>
G2	Longitude (E)	<input type="text"/>
G3	Elevation (metres)	<input type="text"/>
G4	Accuracy (metres)	<input type="text"/>

Section 3: Water, sanitation and hygiene questions

W1	In the dry season, what is the main source of drinking-water for members of your household?	<p>01 = Piped water into dwelling</p> <p>02 = Piped water to compound/ yard/plot</p> <p>12 = Piped water to neighbour</p> <p>03 = Public tap/standpipe</p> <p>04 = Tubewell/borehole</p> <p>05 = Protected dug well</p> <p>06 = Unprotected dug well</p> <p>07 = Protected spring</p> <p>08 = Unprotected spring</p> <p>09 = Rainwater collection</p> <p>10 = Delivered water (water vendor)</p> <p>13 = Water kiosk</p> <p>14 = Packaged water (bottled water, sachet water)</p> <p>11 = Surface water (e.g. river, dam, lake, pond, stream, canal)</p> <p>99 = Other (specify)</p>
W2	How long does it take to go there, get water, and comeback?	<p>Enter number of minutes required <input type="text"/></p> <p>If water source is in the yard (or dwelling) enter "0"</p> <p>If response is unknown, enter "999"</p>

W3	In the dry season, what is the main source of water used by your household for washing faces?	01 = Piped water into dwelling 02 = Piped water to compound/yard/plot 12 = Piped water to neighbour 03 = Public tap/standpipe 04 = Tubewell/borehole 05 = Protected dug well 06 = Unprotected dug well 07 = Protected spring 08 = Unprotected spring 09 = Rainwater collection 10 = Delivered water (water vendor) 13 = Water kiosk 14 = Packaged water (bottled water, sachet water) 11 = Surface water (e.g. river, dam, lake, pond, stream, canal) 99 = Other (specify)
W4	How long does it take to go there, get water, and come back?	Enter number of minutes required <input type="text"/> <input type="text"/> <input type="text"/> If water source is in the yard (or dwelling) enter "o" If washing of faces is done at the water source, enter "888" If response is unknown, enter "999"
S3	If you have one or more children under 3 years of age resident in the household, the last time the youngest child passed faeces, what was done to dispose of the faeces?	1 = Child used toilet/latrine 2 = Put into toilet/latrine 3 = Put into drain or ditch 4 = Thrown into garbage 5 = Buried 6 = Left in the open 7 = Don't know 9 = Other 999 = There is no child under 3 years of age resident in the household
S1	Where do you and other adults in the household usually defecate?	1 = Shared or public latrine 2 = Private latrine 3 = No structure, outside somewhere 9 = Other

S2	<p>S2. If private, observation: ask to see the latrine/toilet; If shared, question: ask latrine/toilet type.</p> <p><i>Observation/ question:</i></p> <p>What kind of toilet facility do the adults in the household use?</p>	<p>01 = Flush/pour flush to piped sewer system 02 = Flush/pour flush to septic tank 03 = Flush/pour flush to pit latrine 04 = Flush/pour flush to open drains 05 = Flush/pour flush to unknown place 06 = Ventilated improved pit latrine (VIP) 07 = Pit latrine with slab 08 = Pit latrine without slab/open pit 09 = Composting toilet 10 = Bucket 13 = Container based sanitation 11 = Hanging toilet/hanging latrine 12 = No facilities or bush or field 14 = Not able to access (only select if unable to observe private latrine) 99 = Other (specify)</p>
H1	<p><i>Observation:</i> Is there a handwashing facility in the yard/plot/premises?</p>	<p>0 = No 1 = Yes</p>
H2	<p><i>Observation:</i> At the time of the visit, is water available at the handwashing facility?</p>	<p>0 = No 1 = Yes</p>
H3	<p><i>Observation:</i> At the time of visit, is soap, detergent, or other cleaning agent available at the handwashing facility?</p>	<p>0 = No 1 = Yes: soap or detergent (in bar, liquid, or paste form) 2 = Yes: ash, mud or sand</p>

[illegible]

List all household residents. Ask for consent to examine everyone aged 1 year or more. Mop-up should focus on 1–9 year-olds.

[illegible]

* Where trichiasis is present, additional management questions will be asked.

The grader should also look for evidence of a surgical scar to validate the health management question responses.

*** Graders will only examine for TS where trichiasis is found to be present.

Annex 8 Referral form

**TROPICAL DATA**

Feel free to modify this or to substitute with any official referral form.
An electronic copy is available so that it can be modified to your requirements.

Patient referral

Date:

Name of patient:

To:

During a community survey in the area, this patient was discovered to have

I would be grateful if you could please assess and manage as you think appropriate.

Thank you.

Yours sincerely,



Annex 9A Practice Recorder Exercises TROPICAL DATA

Today, you are going to collect data for EU 00000, cluster 000. Please use the recorder ID assigned to you for the training.

Start PowerPoint K2. Trainees will enrol three households and should show the trainer the summary of each completed form (Cluster, Household, Resident, and Absent Return) before submitting. If they forget to show the form before submitting, they should re-do it. Trainees should ensure they have a paper absentee form ready to record any absentees.

Household 1: Pedro García

The main source of water for both drinking and washing faces is shown in slide 2. This water source is located in the yard of the household. Pedro and his wife Paula say they defecate in a ditch outside their compound as they have no latrine. There is a station with water and soap to wash hands outside their house. The residents of the household are listed below.

Name	Age	Sex	Consent	Finding
1. Pedro	54	Male	He refuses	
2. Paula	52	Female	She consents	Upper lid trichiasis and TS are present in both eyes; TF and TI are absent. She has never seen a health worker about her eyes. Lower lid trichiasis is not present in either eye.
3. José	19	Male	He is absent	He will be home after 3pm today.
4. María	12	Female	She is absent	She will be home after 5pm tomorrow.
5. Juan	5	Male	He consents	Trichiasis, TF and TI are not present in the right or left eye.

Household 2: Mauricio Cardona

The main source of water for drinking is water that the family purchase from a water vendor in slide 3, the vendor visits their village, and they collect it 10 minutes from their house. The family wash their faces with water from a local river 20 minutes away, they wash their faces at the river, also shown in slide 3. The household has its own latrine that they do not share with any other households (slide 4), they do not know where it flushes to. The family's handwashing station is also shown in slide 4, which is just outside the latrine. There is water and soap. Marcela's faeces are put into the latrine.

Name	Age	Sex	Consent	Finding
1. Mauricio	31	Male	He consents	Upper lid trichiasis & TS are present in the left eye and he has been offered surgery but not epilation; he has not yet had the surgery due to family commitments. TF and TI are absent in both eyes. He does not have trichiasis in the right eye, nor lower lid trichiasis in either eye.
2. Clara	22	Female	She consents	Trichiasis, TF, TI are absent in both eyes.
3. Martha	7	Female	She is absent	She is at school, and will be home after 4pm today.
4. Edwin	3	Male	He consents	He has TF and TI in the right eye and only TF in the left eye. All other signs are absent.
5. Marcela	1	Female	She consents	She has TF in both eyes, no TI and no trichiasis.

Household 3: Fernando Bolívar

The source of water for both drinking and washing faces, in the wet and dry seasons, is the structure shown in slide 5, which is found by the side of the house. Adults in the household defecate in a facility that is only used by members of the household also shown in slide 5.

Their handwashing station is shown in slide 6, in their yard. No water or soap is available. The residents of this household are listed below.

Name	Age	Sex	Consent	Finding
1. Fernando	57	Male	He consents	There is lower and upper lid trichiasis and TS in the right eye; he has not been offered surgery, but a health worker offered him epilation which he refused. TF and TI are absent in both eyes and he does not have trichiasis in the left eye.
2. Claudia	29	Female	She consents	There is no trichiasis, TF, or TI in either eye.
3. Gloria	9	Female	She is absent	She is at the river and will return home this afternoon after 4 pm.
4. Felipe	5	Male	He consents	Right eye: TF present; there is no TI or trichiasis Left eye: there is TF and TI, but no trichiasis
5. Lina	4	Female	She consents	She has TF in both eyes and all other signs of trachoma are absent.
6. Hugo	95	Male	He consents	Bilateral upper lid trichiasis. The grader is not able to evert either eyelid. He has never seen a health worker about his eyes. Lower lid trichiasis is not present.

Before you leave Household 3, Gloria arrives home early. The grader examines her. She has TF in the left eye, she has no other signs of trachoma.

Questions for discussion

1. Can candidates identify the various water sources accurately?
2. For Household 1, would you return to collect information on María?
3. What would you do if you finished examining the listed individuals in Household 2 and then discovered that another person lives in the household just as you were about to leave?
4. If you return to Household 2 to examine Martha (who was absent at the time of the first visit) and she is still absent, would you use the ABSENT RETURN survey?
5. How will you keep track of the absent individuals?
6. How would you answer questions H1, H2 and H3 for each household?
7. For household 3, would you return to collect information on Gloria if she had not returned early?
8. For household 3, how would you record the TF, TI, trichiasis, surgery, epilation, and TS results for Hugo?

Answers

1. Go around the room and ensure the trainees are confident in identifying the different kinds of water sources by showing pictures.
2. As she will not be home until tomorrow, it is unlikely the team will still be in the cluster to return and examine her. If they were, she would not be a priority as the teams should prioritise the 1–9-year-olds in the first instance.
3. You would open a new RESIDENT survey form and add the new person to the correct household.
4. No, you would only enrol someone in the absent return survey if they are present AND consent to examination when you return to the household.
5. Write the names of the heads of households to which you need to return (as well as the names and ages of the missing residents) on paper (a template is provided in Annex 9c).
6. Discuss the correct responses for each household and ensure trainees are confident in their selection.
7. Yes, if you have time
8. Since Hugo's eyelids could not be everted, the responses for TF and TI would be “not able to grade”. Bilateral upper lid trichiasis means he has trichiasis in both the right and left upper eye lids. For the surgery and epilation questions, for both eyes, you would record that he has not been informed of either by a health worker. For the question about trachomatous scarring (TS), you would record “not able to grade.” Lower lid trichiasis is not present.

Annex 9B Recorder Reliability Test TROPICAL DATA

Notes for trainees: Today, you are going to collect data for EU 12345, cluster 678. Use the recorder code assigned to you for the training. You will be enrolling three households.

Trainer notes: For the purposes of the recorder reliability test, it is recommended to reserve at least two of the below household examples to use at the end of the training to test each individual trainee's ability to accurately complete forms for a household without assistance or discussion. The trainees can all take the test concurrently, but we recommend to not allow discussion. The trainees **must** show you the summary of each completed form (Cluster, Household, Resident, and Absent Return) before submitting, as well as their completed paper-based absent return forms where applicable. If they forget to show you the form before submitting, they will need to re-do it. Powerpoint K3 should be used alongside this test.

Household 1: Mohammed Ali

Slide 2 shows the water source that is used for drinking and washing faces. It takes 45 minutes to collect and return with the water to use. The family have their own latrine that they do not share with any other households (see slides) and the hand washing facility is outside their house, but there is no water or soap. The youngest child in the house is 2 years old and they throw her faeces into the latrine.

Name	Age	Sex	Consent	Finding
1. Mohammed Ali	55	Male	Examined with consent	TF and TI present in both eyes, upper lid trichiasis and TS also present in the left eye. There is no lower lid trichiasis. Was informed about the upper lid trichiasis in the left eye, referred to the hospital, but refused surgery due to fear. Was not informed by the health worker about epilation. There is no trichiasis (upper or lower lid) in the right eye.
2. Seida Ali	26	Female	Examined with consent	TF and TI present in the left eye, but not in the right eye. Upper lid trichiasis and TS present in the right eye. Was informed by a health worker about the trichiasis and had surgery, however there has been a recurrence. Was never informed about epilation by a health worker. No lower lid trichiasis is present in either eye, or upper lid trichiasis in the left eye.
3. Faisal Ali	13	Male	Examined with consent	TF present in the left eye. No other findings in either eye.
4. Sultana Ali	7	Female	Absent	At school and will be back at 4 pm.
5. Nuria Ali	2	Female	Examined with consent	TF and TI present in both eyes. No other findings in either eye.

Before you leave the village Sultana returns from school and consents for examination. She has TF and TI present in the left eye.

Household 2: Thomas Bah

Slide 3 shows the water source used for both drinking and washing faces used by the household. It takes them 5 minutes to collect water and come home with it to use. They have their own latrine in their yard, which they share with two of their neighbouring households. They show it to you (also slide 3). There is a handwashing station a few metres away with water but no soap. The residents of the household are listed below.

Name	Age	Sex	Consent	Finding
1. Thomas	40	Male	Consented	Positive for lower lid trichiasis in the right eye, but all other trachoma signs absent. He has been offered epilation by a health worker, but never offered surgery.
2. Mary	34	Female	Refuses examination	
3. Moses	75	Male	Consented	He does not have trichiasis. His eyelids cannot be everted; he has never seen a health worker about his eyes.
4. Yuri	12	Male	Gave consent	TI in left eye and TF in right eye, all other signs of trachoma are absent for both eyes.
5. Beauty	11	Female	She is absent	She will return in 2 hours.
6. Solomon	7	Male	He is absent	He will return in 3 hours.

Household 3: Samuel West

The main source of water for drinking is shown in the slides, it takes 10 minutes to go there, get water and come back. They use a different water source for cooking and washing faces that is in the yard. When you ask to see the latrine, they point to the wooded area behind their house. They show you a handwashing station right outside of their home with water and soap.

Name	Age	Sex	Consent	Finding
1. Samuel	27	Male	Consented	Negative for all trachoma signs.
2. Zuwená	25	Female	She is absent	She went to the market and will return in the evening.
3. Fatima	55	Female	Consented	Positive for upperlid trichiasis and TS in the left eye, positive for TI in right eye. Has been offered surgery for the trichiasis, but has not yet gone to have the surgery due to childcare. She has no other signs of trachoma in either eye. She was told about epilation by a neighbour, but not a health worker.
4. Rashid	9	Male	Consented	Positive for TF in the right eye, positive for TF and TI in the left eye. No other findings in either eye.
5. Glory	5	Female	Consented	Positive for TI in the left eye. No other findings in either eye.

Questions for discussion

1. What responses were given for water sources, latrine and handwashing facilities for each household?
2. For Household 2, you have 2 absent residents: an 11-year-old returning in 2 hours and a 7-year-old returning in 3 hours. Do you need to return to this household? If yes, when should you return?
3. For Household 2, what would your responses be for TF and TI following the examination of the Grandfather, Moses?
4. For all households, how did you respond to the child latrine usage question?
5. For Household 3, the wife/mother is absent. Do you need to return to this household after departing?
6. For Household 3, what is your response to additional management questions following the examination of the Grandmother, Fatima?

Answers

1. Discuss the responses given, any errors and ensure trainees are confident in identifying the different WASH elements.
2. Yes, you should return in 3 hours. If the 11-year-old has returned, you can examine her as well, but the 7-year-old son is the priority for follow-up.
3. As his eyelids cannot be everted you would have to select “Not able to grade” for TF and TI.
4. For Household 1, Nuria’s faeces are put into the latrine. The other households do not have children under 3 and so trainees should select “There is no child under 3 years of age resident in the household.”
5. A return visit is not necessary because the mother is outside the 1–9-year-old age range that should be prioritised. However, if you have time you could return and examine her.
6. You would select “Yes, a health worker informed me and offered me surgery and I accepted the offer, but I have not yet had surgery.” For epilation she has never been informed about it by a health worker, only her neighbour.

Annex 9C Absentee Form



Tropical Data – Absent returnees form

Name of the recorder: _____ Country: _____
 Recorder's ID: _____ Evaluation Unit Code: _____
 Cluster Code: _____ Name of the Locality/village: _____ Date: _____

HH #	Name of the head of the household	Name of the person reported absent	Age of absentee	Sex of absentee	Reason for not being available	Time the person is expected to return

Signature of the recorder: _____

Annex 10 Instructions for viewing 3D images

Images have been photographed using a special lens that splits each image into two, taken from two slightly different angles. When these are viewed without 3D glasses, one can see two very similar images, side-by-side.

If one wears the 3D glasses, it is possible to view these images stereoscopically, i.e. in 3D, so that elements in the image that are projecting forwards, such as eyelashes, look like they are projecting forwards, as they do in real-life.

These images can be viewed either on a computer screen or as print outs. For optimal results, the photograph being viewed needs to be 10–13 inches / 25–33 cm wide. Any larger or smaller than this will not work well.

To view the image, take the 3D viewers out of the cardboard case. Ensure you don't touch the lenses as this will make marks and make the image harder to see. Hold the lenses with both hands, gently squeezing the cardboard so that it creates a rectangular box (Figure 1). Hold these in front of both your eyes as if you were wearing glasses. There are two elastic loops that you can loop around your ears (optional – if you find this uncomfortable it will not help with the viewing).

Start at about 60 cm from the image being viewed, gently moving forwards until the image comes into sharp focus, usually at around 43 cm (Figure 2). You should then be able to see the image in 3D. You can try getting a little closer to see more detail but if you get too close, the 3D effect will be lost. It is possible to move around the image as if examining a patient to view it from slightly different angles.

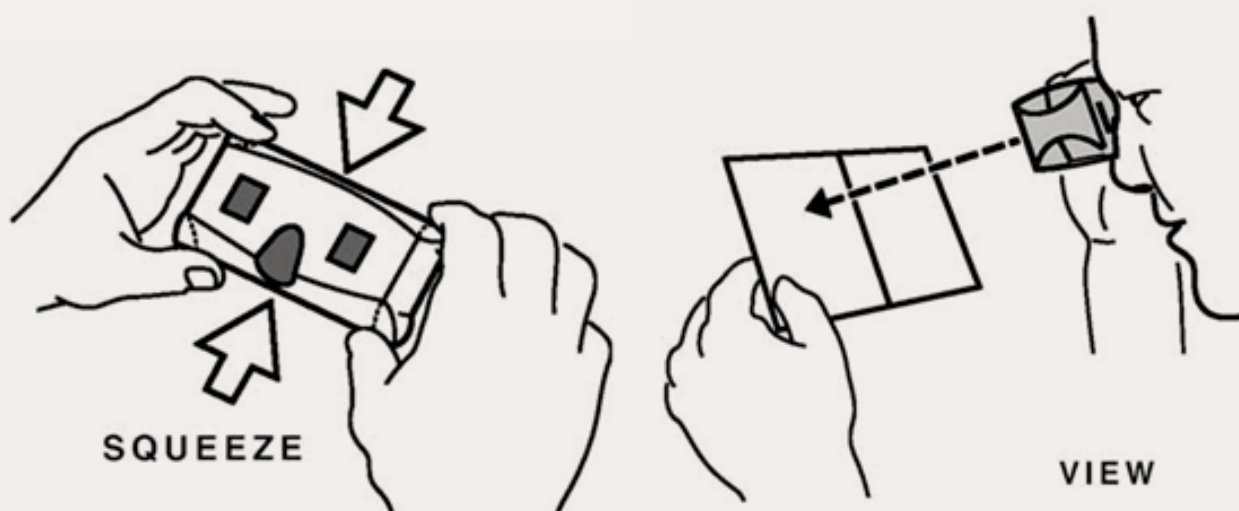
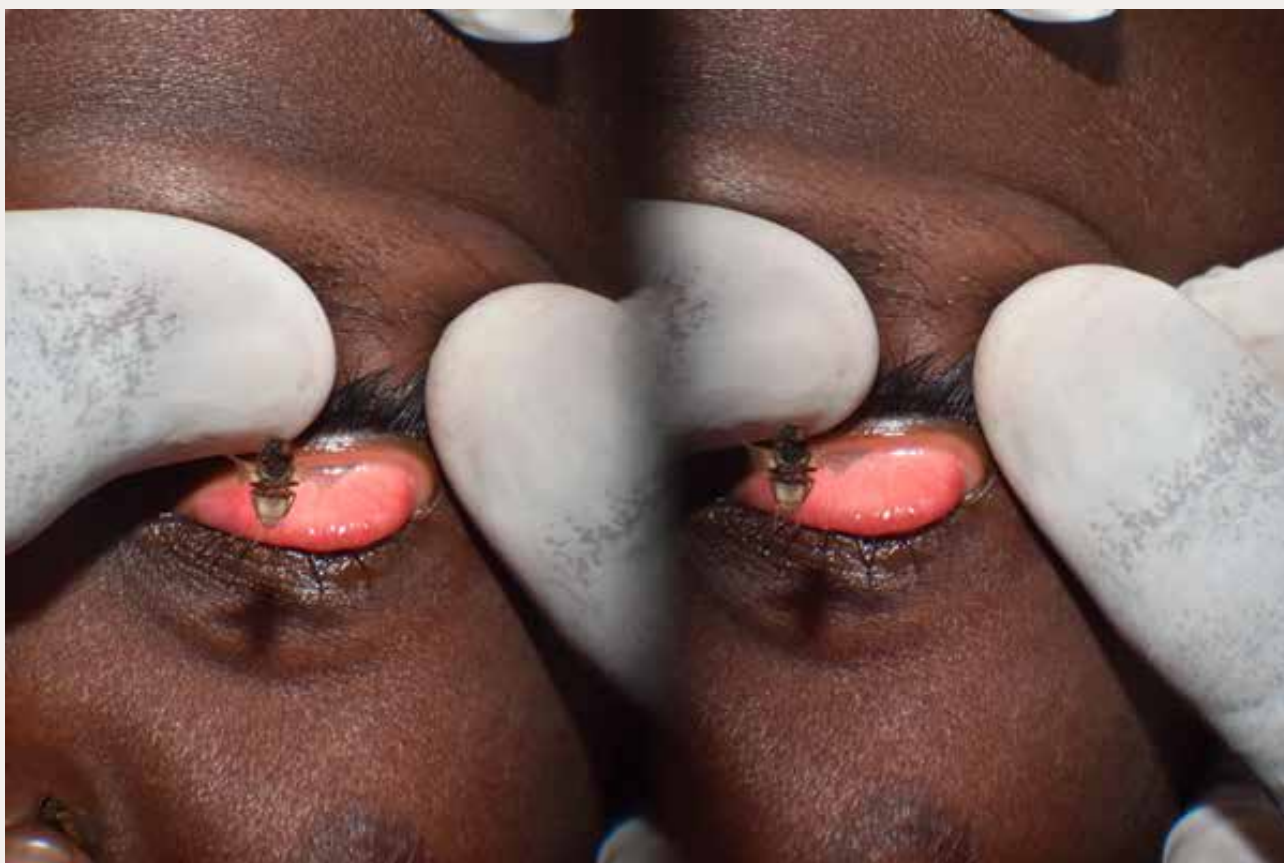


Figure 1: Gently squeeze the 3D viewer to create a rectangular box

Figure 2: View the images, starting at about 60 cm and coming forwards until the photo comes into 3D focus

Tips from the 3D viewers' manufacturer:

1. The viewer may be used with or without eyeglasses. If you are severely long or short sighted it is recommended that you keep your glasses on.
2. Please note that this is not a "back-lighted" viewer. It works best when the 3D prints are well lit but not directly reflecting light into the viewer.
3. If you use bifocals please view the image through the upper part of your eyeglasses, not the lower part, which is for reading. Viewing the pictures appears to be a close-up task, but viewing 3D images through this viewer will not work well if you use the reading lens.

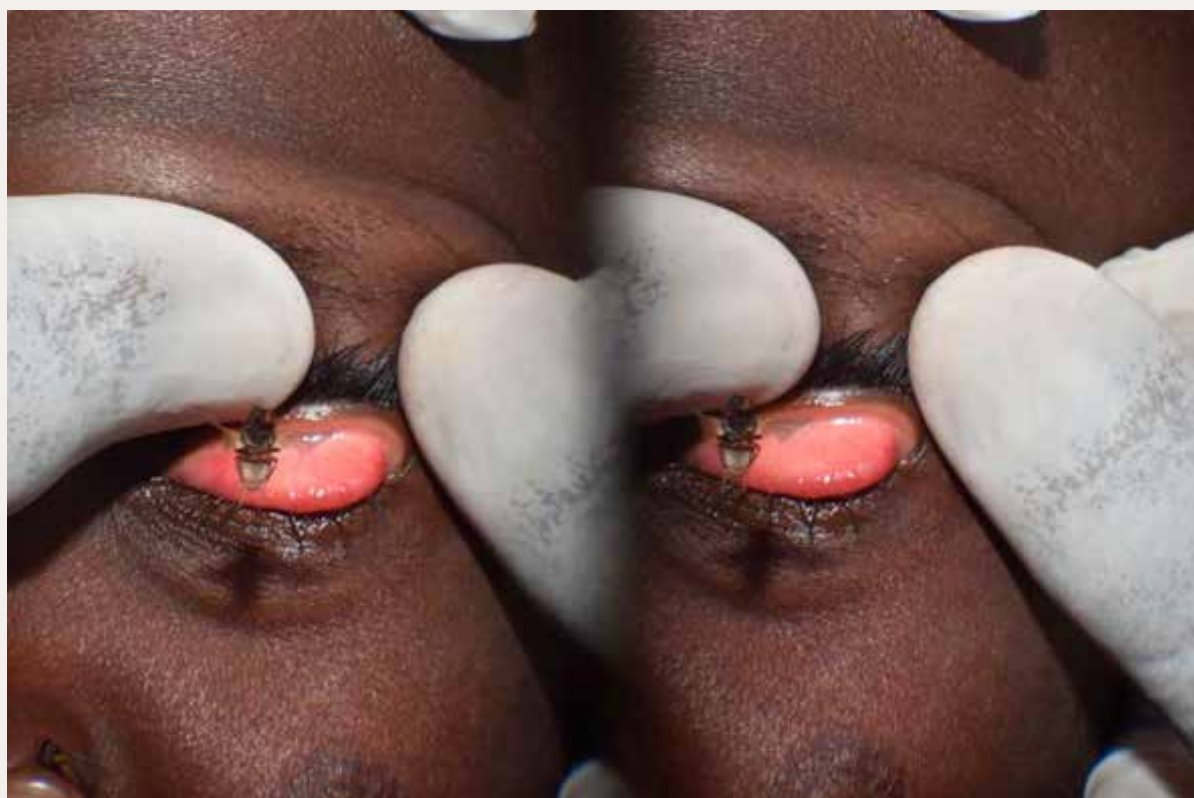


Example image showing fly flying towards the camera (taken in Kilimanjaro region, Tanzania) (courtesy J Hoffman).

Annex 11 3D Photo & Trichiasis Diagnosis Practice



Above and below: examples of 3D images. An everted upper eyelid with flies flying in foreground





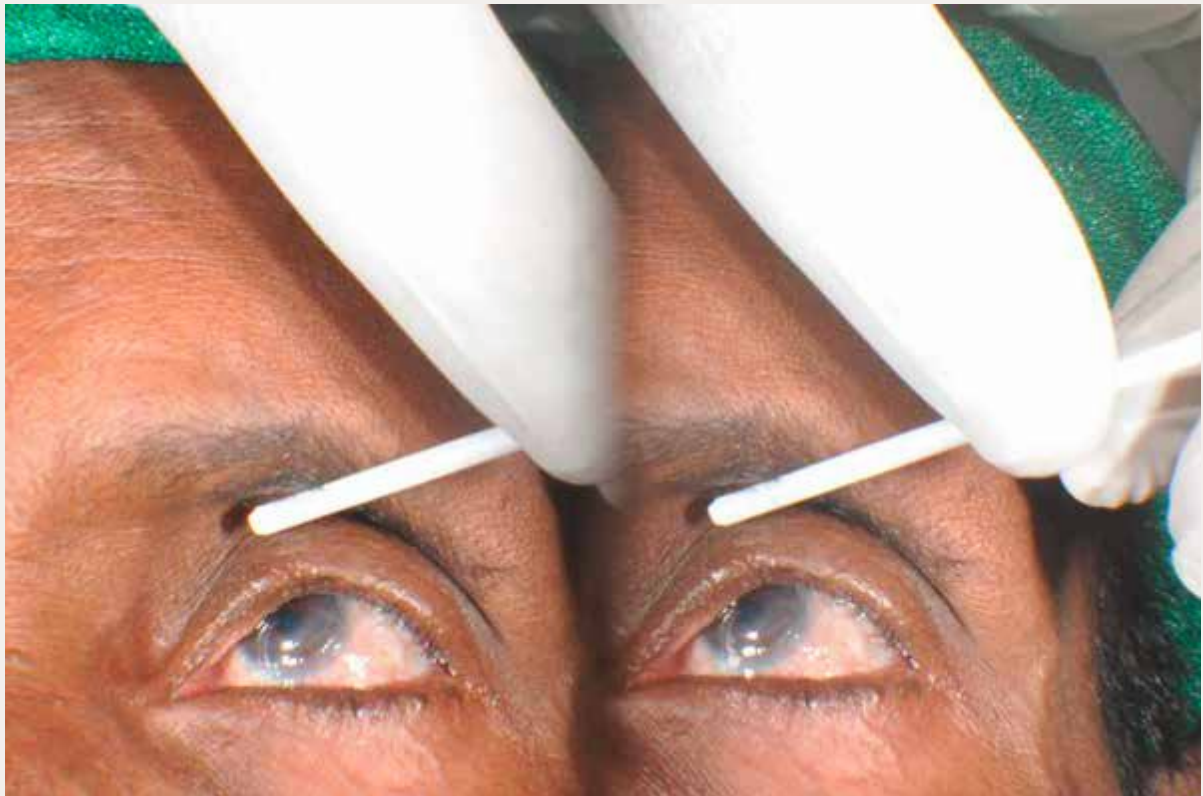
Above: severe trichiasis and corneal opacity. Below: mild trichiasis





Above and below: 1 eyelash touching the eye (primary gaze, above; upgaze, below)





Above: Epilated lashes. Below: Multiple lashes touching the eye (different patient)



Annex 12 Supervisor form/checklist



- To be completed before departing from the team.
- Observations should be completed and notes made for each section, also detailing any feedback given to the teams. The specified bullet points in each section are for guidance only, feel free to include any other relevant points or not to address these specifically as you may not have time to observe all these aspects during a visit.

Date & time :	<input type="text"/>	Supervisor ID:	<input type="text"/>
Recorder ID of observed team:	<input type="text"/>	EU code:	<input type="text"/>
Community name (or GPS reading):	<input type="text"/>	Cluster code:	<input type="text"/>

Consent, Communication & Sensitisation:

- Are teams treating communities/households with respect, making appropriate introductions and ensuring to gain consent? Have there been any issues around sensitisation?
- Are teams communicating regularly with the supervisor and escalating issues?

Recording:

- Are WASH questions being asked correctly? Are form responses being entered accurately and questions answered in the right order? Is GPS being recorded?
- Is a paper record of absentees being kept and were efforts made to return to households if time allowed at the end of the day?
- Are data being sent daily or as per the agreed schedule?

Grading:

- Are you satisfied with the quality of the grading and the process of examination?
- Were those in need of treatment appropriately managed?

Protocol:

- Are the right number of households and clusters being visited? Have there been any challenges?
- Are all households members being examined and selected as per the protocol?

Logistics:

- Do teams have all the materials they require? If not, what is the solution?
- Have there been, or do they foresee, any challenges? (e.g. weather, security, financial, etc.)

Personnel:

- Are graders and recorders working well together? Are they motivated? Are they coping physically and emotionally? Have any steps been taken to address any issues?

General:

- Any other comments, feedback or observations not already given? What is going well?
- Do any issues need escalating to the survey coordinator or data team?

Bibliography

- Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018.
- Courtright P, Gass K, Lewallen S, MacArthur C, Pavluck A, Solomon A, West S (2015). *Global trachoma mapping project: training for mapping of trachoma (version 3)*. International Coalition for Trachoma Control: London.
- Francis V, Turner V (1993). *Achieving community support for trachoma control*. World Health Organization: Geneva.
- Hoffman JJ, Habtamu E, Rono H, Tadesse Z, Wondie T, Minas T, Gashaw B, Callahan EK, MacLeod D, Burton MJ. *3D images as a field grader training tool for trachomatous trichiasis: A diagnostic accuracy study in Ethiopia*. PLoS Negl Trop Dis. 2019; 13(1):e0007104.
- International Centre for Eye Health (2007). *Trachoma Teaching Set (2nd ed)*. London School of Hygiene & Tropical Medicine: London.
- Kalua K. *Photographs of trachoma and other eyelid conditions* [unpublished material].
- King J, Ngondi J, Emerson P. *The Carter Center trachoma survey training presentations* [unpublished material].
- Négrel AD, Taylor HR, West S (2001). *Guidelines for the rapid assessment of blinding trachoma*. World Health Organization/International Trachoma Initiative: Geneva.
- Rajak S. *Photographs of trichiasis* [unpublished material].
- Solomon AW, Zondervan M, Kuper H, Buchan JC, Mabey DCW, Foster A (2006). *Trachoma control: a guide for program managers*. World Health Organization: Geneva.
- Solomon AW, Zondervan M, Kuper H, Buchan JC, Mabey DCW, Foster A, Sinclair J (2006). *Trachoma control: tools for program managers* [CD-ROM]. World Health Organization: Geneva.
- Solomon AW, Zondervan M, Buchan J, Kuper H, Mabey DCW, Foster A, Sinclair J (2004). *Trachoma Initiative in Monitoring and Evaluation (TIME)* [CD-ROM]. London School of Hygiene & Tropical Medicine: London.
- Thylefors B, Dawson CR, Jones BR, West SK, Taylor HR (1987). *A simple system for the assessment of trachoma and its complications*. Bull World Health Organ 65(4):477-83.
- University of Melbourne Indigenous Eye Health Unit (2012). *Trachoma grading: self-directed learning* [Website: <http://www.iehu1.unimelb.edu.au/trachoma/>]. Centre for Eye Research Australia: Melbourne.
- West S. *Photographs of trachoma* [unpublished material].
- Wellcome Trust (1998). *Topics in international health: trachoma*. CAB International: Wallingford.
- World Health Organization (1993). *Primary health care level management of trachoma*. World Health Organization/Edna McConnell Clark Foundation: Geneva.
- World Health Organization (2018). World Health Organization Strategic and Technical Advisory Group for Neglected Tropical Diseases Working Group On Monitoring And Evaluation. Design parameters for population-based trachoma prevalence surveys. Geneva.

Notes

Notes

Notes

Right
A woman has her eye
checked for signs of
trachoma, Ethiopia.

Dominic Nahr/Magnum/Sightsavers



