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REPORT OF THE 17th MEETING  
OF THE WHO ALLIANCE FOR  
THE GLOBAL ELIMINATION OF  
**BLINDING  
TRACHOMA**

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GENEVA, 22–24 APRIL 2013

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# A

## **cronyms and abbreviations**

<b>BLTR</b>	bilamellar tarsal rotation
<b>DFID</b>	United Kingdom Department for International Development
<b>GTMP</b>	Global Trachoma Mapping Project
<b>ICTC</b>	International Coalition for Trachoma Control
<b>IEC</b>	information, education and communication
<b>ITI</b>	International Trachoma Initiative
<b>KAP</b>	knowledge, attitudes and practices
<b>MDA</b>	mass drug administration
<b>NTD</b>	neglected tropical diseases
<b>SAFE</b>	strategy Surgery, Antibiotics, Facial cleanliness and Environmental improvement
<b>SS</b>	Sightsavers
<b>STAG-NTD</b>	WHO Strategic and Technical Advisory Group for Neglected Tropical Diseases
<b>TF</b>	follicular trachomatous inflammation
<b>TI</b>	trachomatous inflammation
<b>TS</b>	trachomatous scarring
<b>TT</b>	trachomatous trichiasis
<b>UIG</b>	ultimate intervention goal
<b>USAID</b>	United States Agency for International Development

# Opening of the meeting, nomination of officers, adoption of the agenda

The 17th Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma by the Year 2020 (GET2020) took place at the headquarters of the World Health Organization (WHO), Geneva, Switzerland from 22 to 24 April 2013. The meeting was attended by 79 participants, of whom 42 were national coordinators for trachoma control programmes.

See Annex 1 for the scope and purpose of the meeting, Annex 2 for the agenda, and Annex 3 for the list of participants.

Dr Oleg Chestnov, Assistant Director-General, Noncommunicable Diseases and Mental Health, opened the meeting and welcomed participants. The goal of eliminating blinding trachoma by 2020 is an achievable one. Oman was verified as free of blinding trachoma earlier this year, and it is expected that Mexico, Morocco and Myanmar will be certified by the end of 2013. The WHO 2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases is a new tool which can contribute to control efforts. As Member States begin to consider the post–2015 health and development agenda, it is important to find ways in which trachoma control programmes can contribute to the continuing fight against poverty.

Dr Abdou Amza (Niger) was elected Chairman. Ms Lisa Rotondo (RTI International) was elected Vice-Chairman and also acted as Rapporteur. The agenda was adopted (see Annex 2).

# 1

## Report from WHO on GET2020 and NTD

### GET2020

*Dr Silvio Paolo Mariotti, Medical Officer and GET2020 Secretary, WHO Headquarters, Geneva, Switzerland*

A large number of participants applied to attend the 17th meeting: international partners were requested to reduce the size of their delegations in order to accommodate as many stakeholders as possible. Matters to be dealt with during the meeting include: funding available from various sources; cooperation with the water and sanitation sector at country level; and the challenges of the Global Trachoma Mapping Project (GTMP) and case-management. The meeting will consider in particular the progress made towards elimination of trachoma in various countries.

It is planned to hold the 18th meeting in a trachoma-endemic country: several offers to host the meeting have already been received, and other interested countries are invited to contact the Secretariat.

The Ad Hoc Working Group (M. Burton, S. Bush, A. Elizondo, K. Kalua, S. Krishnan, L. Rotondo, A. Weaver) has operated throughout the year via teleconferencing, e-mail and a dedicated blog.

Action taken on the conclusions and recommendations of the 16th meeting: ministries of health were invited to send a representative to future GET2020 meetings (Recommendation 2). It is difficult to identify suitable representatives if

there are currently no trachoma control activities in the country concerned. International partners can help to identify the right people. Pfizer, the International Trachoma Initiative (ITI) and Sight-savers (SS) have supported attendance by all concerned Member States, including those not directly supported by donors.

Work continues to integrate trachoma into the overall WHO neglected tropical disease (NTD) control policy (Recommendation 4). The WHO Strategic and Technical Advisory Group for Neglected Tropical Diseases (STAG-NTD) is currently considering the draft single indicator for trachoma, which reflects implementation of the full SAFE strategy (Surgery, Antibiotics, Facial cleanliness and Environmental improvement) Professor Sheila West, a member of the GET2020 Alliance, has been appointed as a member of STAG-NTD.

The draft version of the formal guidance on verification of elimination has been prepared but still requires pilot testing (Recommendation 6). Oman was the first country to undergo verification, in November 2012, and has provided useful feedback on the verification procedure. Mexico, Morocco and Myanmar are due to undergo the verification procedure later in 2013. Countries which are getting close to implementation of their ultimate intervention goals (UIGs) are urged to liaise closely with the GET2020 Alliance Secretariat or their WHO Regional Office or Country Office.



The Secretariat used the International Coalition for Trachoma Control (ICTC) report *The end in sight: 2020 INSight* as a starting point for the trachoma strategic plan for the NTD roadmap (Recommendation 7), in consultation with major international partners and other stakeholders.

ITI is in charge of the study on the safety of administration of azithromycin concurrently with other drugs used for preventive chemotherapy (PCT) (Recommendation 8). A progress report was presented at the Trachoma Scientific Informal Workshop, held immediately before the 17th GET2020 meeting.

Most of the new trachoma data reporting forms have been received back from countries (Recommendation 9). The data have been shared with ITI for the purposes of joint analysis, and were made available to registered participants shortly before the 17th GET2020 meeting via the WHO FTP server. Some extra information is still needed.

The Ad-Hoc Working Group met immediately prior to the 17th meeting and, as requested, allocated more time to country analysis and discussion, using a panel format (Recommendation 11). Its report is available on the PBD/Trachoma GET2020 Web site. More time may need to be allocated for the group's meetings in future.

The reports of the surveillance working group and the 3rd Global Scientific Meeting are available on the GET2020 Web site (Recommendation 12).

The revision of the publication *Trachoma control: a guide for programme managers* (Recommendation 13), although a priority, has been delayed by the unavailability of the external consultant originally commissioned for the work. The work has been completed in-house, and the new version is now ready for review by external consultants.

As part of the efforts to improve the quality and quantity of surgery for trachomatous trichiasis (TT) (Recommendation 14), a new version of *Trichiasis surgery for trachoma: the bilamellar tarsal rotation procedure* (the "yellow manual", WHO document WHO/PBL/93.29) is currently being finalized by the Dana Center for Preventive Ophthalmology. The new manual describes the two major procedures in use (bilamellar tarsal rotation (BLTR) and Trabut procedure).

The number of TT operations in 2012 was 165 922, higher than the previous year, according to data from the forms submitted by countries, although these have not yet been confirmed. Almost all countries have submitted their data forms. One country, in particular, has greatly increased its



surgery rate, which reflected both its efforts to scale up interventions and the size of the existing trachoma burden. The number of people who received a preventive dose of antibiotics in 2012 is 47 691. The number of people living in endemic areas has also fallen since 2012 as more subdistricts are declared trachoma – free – this information is important for collaboration with other NTD control programmes.

The GET2020 Alliance is continuing its collaboration with the water, sanitation and hygiene sector (WASH) through WaterAid (Recommendation 15). A WASH panel, focusing on country-level action, will be held during the 17th meeting.

A number of countries have verified the elimination of blinding trachoma: Ghana, Islamic Republic of Iran, Morocco, Myanmar and Oman. New target dates for verification of elimination have been set for the following countries: Burundi (2015), Democratic Republic of Congo (2016), Cameroon and Pakistan (2017), Central African Republic (2018), Egypt (2019), and Chad, Guinea, Guinea-Bissau, Kenya and Lao People's Democratic Republic (2020).

## Discussion

*Verification.* Countries are verified as being free of trachoma when they have achieved their UIGs and completed three years of post-elimination surveillance with no resurgence of the disease and control of the blinding stage of the same. WHO reviews the surveillance procedure to ensure that future incident cases of trichiasis are picked up and that health services have both the resources and the skills and institutional memory required to diagnose and treat them. This new simplified surveillance procedure should prove much simpler for both countries and the Secretariat.

New protocols are needed for the verification of elimination at subdistrict level, since surveys at the district level may miss endemic subdistricts and thus not provide accurate information on progress towards elimination.

## Department of Control of Neglected Tropical Diseases

*Dr Dirk Engels and Dr Albis Gabrielli, Department of Control of Neglected Tropical Diseases, WHO headquarters*

The Department deals with 17 priority diseases, including those which have previously received less attention, such as taeniasis/cysticercosis, foodborne trematodiasis and echinococcosis. It collaborates closely with the Prevention of Blindness and Deafness unit on trachoma control. It has scaled up its activities since the launch of the implementation roadmap in January 2012 (*Accelerating work to overcome the global impact of neglected tropical diseases: a roadmap for implementation*, WHO document WHO/HTM/NTD/2012.1). Two subunits have been set up: Q for preventive chemotherapy, dealing with implementation of drug delivery and disease-specific expertise.

WHO recommends five public health strategies for the prevention, control and elimination of NTDs. Preventive chemotherapy – the large-scale administration of drugs to a population without an individual diagnosis of the disease – is used for a number of diseases where the appropriate drugs are safe for mass administration and donated in large quantities by the manufacturers. Intensified case-management is used for less widespread diseases where the appropriate drugs are not safe enough for mass administration. Transmission control aims to curb the spread of disease by means of integrated vector management, veterinary public health measures, water and environmental sanitation and behavioural change. Trachoma control uses a combination of these strategic approaches – preventive administration of antibiotics, surgery, and promotion of facial cleanliness and environmental improvement.

The current priorities of the preventive chemotherapy subunit are: scaling-up of preventive chemotherapy interventions in accordance with the NTD roadmap and strategic plans; coordination between partners and donors to support implementation by countries and supplies of donated drugs; tools and mechanisms to facilitate roll-out and scaling-up of preventive chemotherapy, including the creation of a single

joint forum where countries can apply to receive donations of various drugs and report on their use, replacing the former single-drug forums; monitoring of progress and impact; and capacity-building for country staff.

A total of 1.9 billion people in 125 countries require preventive chemotherapy for at least one NTD. In 2011, 727 million people in 72 countries received at least one treatment for at least one disease, corresponding to approximately 40% of those in need. The disease for which the highest number of individuals was treated was onchocerciasis, for which 98 million individuals in 28 countries received treatment. The Department aims to scale up coverage in 10 priority countries, including Bangladesh, Democratic Republic of Congo, Ethiopia, India, Indonesia, Nigeria and Pakistan, which would reach 96% of those requiring preventive chemotherapy. Much remains to be done if the target of 75% coverage by 2015 is to be achieved. However, the quantity of anthelmintic drugs donated and shipped to countries through WHO rose considerably between 2011 and 2012, so coverage should improve accordingly.

The Global Programme to Eliminate Lymphatic Filariasis aims to eliminate the disease by 2020 through yearly mass administration of two drugs. Some countries are already nearing elimination while others have yet to start the programme. New guidance has been issued on when mass drug administration (MDA) should be stopped, on managing morbidity and preventing disability and on vector control to support MDA.

Onchocerciasis control activities are administered as regional programmes. Approximately 27 million people are estimated to be affected by the disease worldwide. In Africa, interventions are moving from the control to the elimination phase, and MDA is being expanded to hypzoendemic areas in order to interrupt transmission. In Latin America, elimination has been achieved in Colombia. The MDA programme has been completed in Ecuador, Guatemala and Mexico, but is still under way in Brazil and Venezuela. In Yemen, the only endemic country in the Middle East, interventions will move from individual case-management to MDA during 2013.

The objective of the schistosomiasis programme is to achieve 75% treatment coverage of school-age children and at-risk adults by 2020. Coverage is low at present in many countries, but

will improve soon because of increased donations of the relevant anthelmintic drug, praziquantel, by the manufacturer. Other countries, e.g. Morocco, have already achieved low transmission status. Pursuant to World Health Assembly resolution WHA65.21, the Department has updated the epidemiological status of some countries and prepared a strategic plan for the period 2012–2020 which includes guidance on post-elimination verification (see WHO document WHO/HTM/NTD/PCT/2013.2).

The aim of the programme on soil-transmitted helminthiases is to achieve 75% coverage of preschool and school-age children by 2020. The Department works closely with maternal and child health and school health programmes. Coverage should improve soon because of increased donations of the anthelmintic drugs albendazole and mebendazole by their respective manufacturers.

The publication *Sustaining the drive to overcome the global impact of neglected tropical disease: Second WHO report on neglected tropical diseases* was launched in January 2013 and is available on the NTD Web site. A resolution on NTD will be considered by the World Health Assembly in May 2013.

## Discussion

*Morbidity.* Some NTD programmes include a morbidity component. An indicator for lymphatic filariasis is being developed along the same lines as the one for trachoma.

*Yaws.* The disease is scheduled for elimination by 2020. Single-dose azithromycin has been shown to be safe for MDA, but epidemiological challenges remain, including identification of the populations still at risk. Two consultations on a large-scale but simple strategy for eradication have been held in the last 18 months.



# 2

## Report from the Trachoma Scientific Informal Workshop

*Professor Sheila West, El Maghraby Professor of Preventive Ophthalmology, Dana Center for Preventive Ophthalmology, Johns Hopkins Hospital, Baltimore, MD, United States of America*

The Trachoma Scientific Informal Workshop took place at WHO headquarters on 19 April 2013, immediately before the 17th GET2020 meeting. Eight research projects were presented, ranging from diagnostics, through DNA analysis, to survey design. The participants reiterated the value of the meeting and called for it to be scheduled every year immediately before the GET2020 meeting. The workshop came to the following conclusions.

*Diagnostic tests for chlamydia.* The Amplicor diagnostic test has been abandoned and alternatives require field testing.

*Chlamydial diversity.* A study in Ethiopia, a hyperendemic country, showed that diversity in the *ompA* gene of *Chlamydia trachomatis* is not affected by MDA, contrary to previous research.

*Post-endemic surveillance in urban areas.* TT prevalence in an urban area of the Gambia, a country approaching verification of trachoma elimination, was still approximately 0.26% of the total population. Unoperated TT cases are thought to exist, even though an eye hospital is available nearby.

*TT recurrence after surgery.* A study in Tanzania found low incision height to be a risk factor for recurrence. Research is being conducted on ways to improve and standardize surgical procedures.

*Trachomatous scarring (TS) after multiple years of SAFE implementation.* Several years of SAFE implementation reduced the prevalence of TS in children. Recording TS using the simplified WHO grading system may provide additional information on the impact of SAFE, and on the need for position of TT surgical services in the future.

*Cost of high MDA coverage.* A study in Tanzania found that the cost of achieving high MDA coverage was acceptable at US\$ 0.22 per person. This figure provides for an intensified supervision, essential for high treatment coverage, and incentives for community drug distributors. A close link was established between high MDA coverage and a reduction in follicular trachomatous inflammation (TF) and infections over time.

*Sample size of trachoma surveys.* In initial mapping to assess whether active trachoma prevalence was 10% or more, a sample of 20 random clusters, examining 50 children selected at random in each cluster, was found to be adequate. To assess active trachoma prevalence of 4% ( $\pm 2\%$ ), it is sufficient to select 17 clusters and examine 50 children in each cluster.

## Discussion

*Informal workshop.* The workshop is very useful for communicating the results of research pending formal publication, and more time should be allocated to it. Countries would welcome the opportunity to attend the meeting as well. Dr Mariotti said that countries are welcome to attend the workshop and to present their own research projects. The workshop is a useful opportunity to obtain advice and feedback from other researchers working in the same area. However, countries should remember that the projects discussed are sometimes still ongoing: their results may not yet be conclusive and should be kept confidential.

*Cost per treatment.* Cost per treatment in MDA depends on population density, geographical conditions, payments to those administering the drugs, etc. Coverage is often calculated as total target population divided by the reported number of doses administered, but the former is often not precisely known and the latter is vulnerable to reporting errors or fraud. A reliable routine measure of actual coverage is required.

*Sampling.* The number of clusters selected and the number of children tested in each cluster depends on the degree of precision required in the results. An initial mapping survey carried out

to determine whether the prevalence of active trachoma is higher than 10% ( $\pm 2\%$ ) has a relatively good precision, and can be accomplished with 20 clusters of 50 children each. A survey designed to identify a prevalence of 4% (also  $\pm 2\%$ ) while having low prevalence, does not require as good precision. Therefore, 17 to 20 clusters of 50 children is a reasonable size for this survey. The decision to use 20 and 17 clusters, respectively, rather than the more usual 30 clusters was justified by the analysis of many hundreds of trachoma surveys: it should reduce the resources required and thus reduce costs. The 3rd Global Scientific Meeting on Trachoma stressed the need to conduct surveys at sub-district as well as district level.

*Operational research.* Region-specific and country-specific operational research is also required, for instance relating to the quality, accessibility and acceptability of TT surgery and reasons for refusal of surgery or MDA.

*Urban trachoma.* The detection of urban cases, even though they have been rare in the past may be relevant as many countries are undergoing rapid urbanization, which could bring TT cases in urban areas.





# 3

## Report of the International Coalition for Trachoma Control

*Dr Paul Emerson, Director, Trachoma Control Program, The Carter Center, Atlanta, GA, United States of America*

The mission of ICTC is to support the GET2020 Alliance in the implementation of trachoma control programmes, promote research and donations, advocate for the use of the SAFE strategy and ensure that trachoma control interests are represented in international forums. The partners work both at global and country level to provide the technical, logistical and funding resources required, with each partner contributing to different aspects of a project in accordance with its own area of intervention. ICTC is a membership organization rather than a legal entity : meetings are hosted by one or another of the partners, as required. Dr Emerson's term of office as Chair will end shortly and he will be replaced by the current Vice-Chair, Dr Martin Kollmann of CBM.

According to preliminary data on ICTC-supported activities in 2012, at least 250 districts were mapped for trachoma for the first time, and at least 79 district or subdistrict impact studies were carried out; almost 200 000 TT operations were performed (this figure is higher than the one reported by Member States to the GET2020 Alliance Secretariat) and 2453 trachoma surgeons have been trained or retrained. A total of 47.3 million doses of antibiotics has been distributed, facial cleanliness messages has been dispensed on 111 radio stations in 49 countries and in 35 500 community health education sessions. A total of 662 safe water sources have been created and 450 000 latrines built. Funding of over US\$ 25 million has been invested in

trachoma control during the year. Assessing the outcome of activities is not always easy, as reporting concentrates on indicators such as the number of operations performed or the number of treatment supplied: it would be more useful to measure the number of people reached by an intervention or the number of districts with access to the full SAFE strategy. This would also enable the trachoma community to publicize more effectively the many successes which the fight against trachoma has achieved.

The ICTC partners will meet immediately after the 17th GET2020 meeting to decide on an appropriate response by the nongovernmental organization community to the conclusions and recommendations of the meeting. Major meetings held during the year include the round-table meeting on "Finding synergies between water, sanitation, and hygiene (WASH) and the control of neglected tropical diseases (NTDs): Practical considerations to collaboration between the WASH and NTD sectors" (Seattle, WA, 6-7 December 2012). ICTC contributed to the development of standard operating procedures for the Global Trachoma Mapping Project. The report of the Global Scientific Meeting on Trachomatous Trichiasis (Moshi, Tanzania, 30 January–1 February 2012) is now available on the ICTC Web site, and reports from partners' meetings on the development of preferred MDA practices will be available there soon. The ICTC Web site also gives links to the Neglected Tropical Disease NGO Network, a global forum for nongovernmental development organizations dealing mainly with onchocerciasis and the Global atlas of trachoma.



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## Discussion

*Obtaining assistance from ICTC.* If a national coordinator contacts an ICTC member organization with a project it wishes to carry out, the partners will discuss the best way of implementing the project, provide practical assistance as necessary and help the country to seek funding. For a country which is just beginning its trachoma control programme, the relevant activity is the Global Trachoma Mapping Project, currently funded by the United Kingdom Department for International Development (DFID)

and implemented by Sightsavers and other partners. The commitment of national authorities to the project is crucial: a national trachoma task force should be set up, if it does not already exist, involving relevant national stakeholders and international partners. International partners may suggest other relevant organizations who could join the project.

# 4

## Azithromycin donation: report on donation and issues from programmes

*Dr Danny Haddad, Director, ITI Task Force for Child Survival and Development, Decatur, GA, United States of America*

As of today, 732 districts worldwide have been confirmed to be endemic for trachoma, out of 1338 districts surveyed (the survey data do not include Brazil, China or India). A total of 1242 districts are suspected of being endemic. These figures are likely to be updated soon when results from the Global Trachoma Mapping Project will be incorporated into existing data. Trachoma mapping is progressing well in many parts of Africa, although baseline mapping is still required in countries such as Nigeria, Tanzania and Zimbabwe. Ethiopia still needs mapping at the district level in some states.

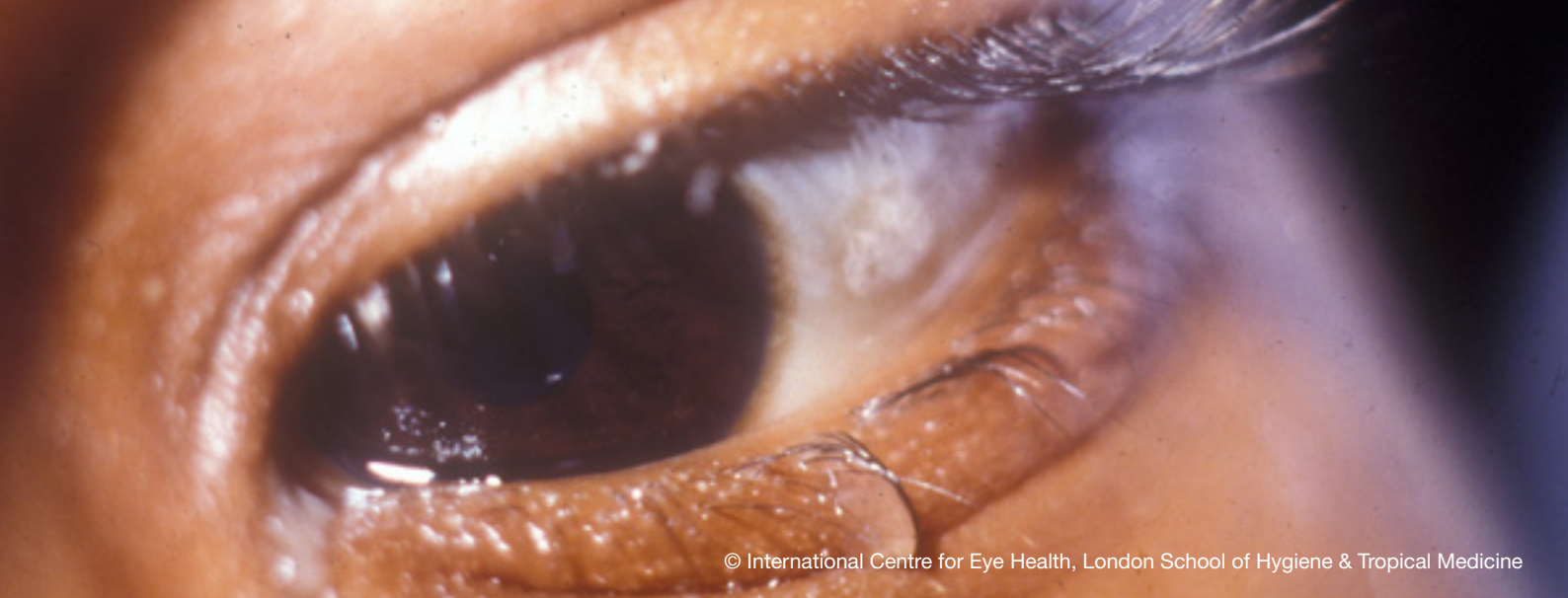
The Web site of the Global atlas of trachoma ([www.trachomaatlas.org](http://www.trachomaatlas.org)) is being updated with a new zoom-in/zoom-out feature on the front page, although the original country maps are also still available. The country maps will be automatically redrawn as new data are added. It will shortly be possible to show implementation of components of the SAFE strategy together with trachoma prevalence, or the number of TT operations together with trichiasis levels, for a given country.

The ITI Trachoma Expert Committee has decided that, rather than reviewing endemic districts every year, it will approve MDA for districts with a trachoma prevalence of 10-30% for three years, following which an impact study should be carried out. If baseline prevalence is higher than 30%, five years of MDA will be authorized, followed by an impact study. Districts will not normally be reviewed at shorter intervals, unless there are special circumstances such as loss of funding for the MDA programme or armed conflict in the area.

The protocol for the study on coadministration of azithromycin and other NTD drugs is being prepared. A study area in Mozambique has been identified, but the study has been delayed until November 2013.

The year 2013 marks the 15th anniversary of donations of azithromycin from Pfizer, with almost 300 million treatments donated overall. It is expected that MDA will begin in Central African Republic, Chad, Guatemala, Mozambique and Solomon Islands in 2013. The number of treatments distributed has increased every year, with the exception of 2010 when a number of countries suffered delays: the total number of doses distributed in 2012 was reported to be 46.8 million, with some countries still needing to report.





At present, azithromycin is distributed in 22 countries. Five countries have finished their MDA programmes and no longer need azithromycin. It is anticipated that Mauritania will soon join them. The number of districts approved for azithromycin distribution fell in 2013, standing at 394 (including 38 newly approved districts) compared with 470 in 2012, because many districts have completed three years or five rounds of MDA and thus require an impact survey to determine whether further MDA is required. The number of new approvals is likely to rise sharply over the next few years as more districts are mapped and the need for MDA is established.

The proposed scale-up of the A component has been slower than expected, with only 47 million antibiotic treatments distributed in 2012 rather than the projected 65 million. If the scale-up is further delayed, it may not be possible to complete the required number of rounds of MDA before the 2020 deadline. The scale-up of azithromycin distribution should be accompanied by a corresponding increase in the other components: as reported earlier, the number of surgical interventions has increased, but it is still not sufficient to reduce the backlog, and quality is a concern. However, additional support from donors including the United States Agency for International Development (USAID), the END Fund, DfID and the Queen Elizabeth Diamond Jubilee Trust will make the scale-up easier to achieve.

The challenges are to develop the capacity to make the best possible use of donated resources, disseminate best practices in TT surgery and MDA and ensure sustainability of azithromycin donations. A meeting on capacity-building took place on 21 April 2013.

## Discussion

*Number of rounds of treatment required.* As a rule of thumb, if baseline prevalence is over 30%, at least five rounds of treatment are recommended before an impact survey is conducted. If baseline prevalence is between 10% and 30%, three rounds of treatment should be conducted.

*Azithromycin will continue to be made available to countries in the surveillance phase,* when pockets of trachoma prevalence may still be present, although it will be necessary to work out how it will be distributed if the country no longer has an MDA programme.

*Supply of azithromycin.* Mapping of trachoma prevalence is scheduled to be completed by 2015. Until then, the quantity of azithromycin required can only be estimated. ITI and the manufacturer are constantly updating the estimates as new data come in from GTMP.

# 5

## Report from the Global Trachoma Mapping Project

*Mr Simon Bush, Director, Neglected Tropical Diseases, Sightsavers, Accra, Ghana, and Dr Anthony Solomon, Wellcome Trust Intermediate Clinical Fellow, London School of Hygiene and Tropical Medicine, London, England*

In the last 12 years, 1115 districts have been mapped for trachoma worldwide, of which 559 were found to be endemic. In July 2012, the Global Trachoma Mapping (GTMP) Consortium received a grant of £10.6 million from DFID to complete the remaining districts (estimated to be 1238 in number) in over 30 countries, by March 2015. GTMP has worked closely with some trachoma experts to develop and roll out standard methods based WHO protocols, training systems and a tool and system for electronic data capture. GTMP is also providing funding and expert resources to support suspected endemic countries in quickly scaling up their trachoma mapping plans. The ITI Trachoma Expert Committee (TEC) supports the systems of the GTMP methods for applying WHO protocols and recommended procedures to produce baseline trachoma data.

GTMP went live in December 2012: by April 2013, 500 000 people had been examined in GTMP surveys. The project is now in the roll-out phase, with mapping being extended in the pilot country, Ethiopia, and also well underway in Nigeria. Over 250 districts in four regions of Ethiopia have already been mapped, and mapping should be complete throughout the entire country by the end of 2013. Mapping has begun in six states in Nigeria, and has been completed in two districts. A total of 100 000 people were examined in the

first two months, and a further 100 000 in the two weeks after that. Training is about to start in other priority countries, including Malawi and Yemen.

GTMP is working with RTI in Mozambique and Uganda to support trachoma mapping through training resources and materials, protocols, epidemiological input, and data collection systems. The training in Mozambique is scheduled for the end of April 2013 and mapping will commence in May. In Uganda mapping will start in June 2013. GTMP is finalizing plans for trachoma mapping, to be coordinated with yaws mapping, in the Solomon Islands, starting in May 2013. Detailed plans for Cambodia, Chad, Egypt, South Sudan and Vanuatu are being developed.

The GTMP recognises that countries have legitimate concerns about the security and sovereignty of the data they supply to the project. The GTMP data management can process and manage huge volumes of data: 10 million items of data have been collected in the first four months of operation. Ownership of the data remains with the national government and is protected by legal agreements with all project partners. A secure 256-bit SSL-encrypted system is used for data transfer from the data collection devices to the server. Data are stored by a cloud-based data management service provider, maximizing uptime, data security and accessibility. The stewardship of the system and data is held by ITI. The data cleaning process is transparent and documented, and undertaken in communication with field supervisors by a full-time data manager.



Data analysis is controlled by the Ministry of Health using automated algorithms. Ministry of Health personnel will be trained to collect, access, analyse, approve and download/transfer the data. GTMP will support a local first author from each country to prepare a manuscript for publication in a peer-reviewed journal, with all contributors appropriately acknowledged. Where possible, several papers will be published simultaneously in a special supplement. In line with academic best practice, the detailed, anonymized dataset should be made available following primary publication for the purposes of research and teaching.

The challenges faced by the project include maintaining quality while mapping on a large scale, which calls for good training and supervision and prompt reviewing of data. Training is conducted by GTMP-certified trainers, using materials and processes based on WHO standards. The training manual is available in Portuguese and will shortly be available in French. Graders can only be certified after passing inter-grader agreement (IGA) classroom and field tests. The teams are monitored and supported in the field by experienced supervisors. In Ethiopia and Nigeria, they are supported by dedicated in-country GTMP epidemiologists, who will also be supporting training in Mozambique. The GTMP data process allows for the data to be quickly reviewed (within 24/48 hours) and any queries are communicated back to the field supervisors for clarification and/or resolution.

Another challenge is relevant to importing materials (phones and loupes) into some countries, with delays or equipment damaged or stolen, or excessive Customs or tax charges. National coordinators are asked to use their good offices to prevent such problems in future as far as possible. Security issues have included the murder of some poliomyelitis vaccination staff in northern Nigeria, and the presence of no-go districts in Somali Region, Ethiopia. The weather can also hamper mapping operations.

## Discussion

*Data issues.* Programmes should make use of existing trachoma prevalence data, but endeavour to verify data which are over 10 years old. At present there are not enough data to allow predictive mapping, which would correlate trachoma prevalence data with data on rainfall, temperature, prevailing winds, etc.: this may be possible in future, but probably not before GTMP mapping is complete.

*Previsits.* It may be advisable for a national staff member to conduct a preliminary visit to suspected endemic districts before the full mapping process starts, in order to ensure that as few endemic districts as possible are missed.

*Data from Brazil, China and India.* There are no plans to map these three countries under GTMP at present.



# 6

## Case-management challenges

*Dr Matthew Burton, Senior Lecturer, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, London, the United Kingdom*

**TT** is the major risk factor for blindness related to trachoma, and its management is a key component of the SAFE strategy. The UIG for trichiasis is a prevalence of 1 in 1000 people. The most recent WHO estimate of the number of people with TT in need of treatment is 7 million. The figure for recurrence of TT one year after surgery is 20-40%, which indicates concerns

about the quality of the surgical services provided to TT patients. TT surgery must be scaled up if the backlog of operations is to be cleared before 2020.

A number of publications and training resources are available: besides the report of the 3rd Global Scientific Meeting and the “yellow manual”, there is a DVD on TT surgery useful training. A training-of-trainers manual, a manual on outreach surgery, a manual on supervision of trichiasis surgery and guidance on planning a national trichiasis strategy are all in preparation.

### Discussion

There is definitely a perceived problem with the *quality of TT surgery*. Quality is primordial: poor-quality surgery which has to be corrected or repeated will increase rather than decrease the backlog of operations. The quality problem may be due to poor surgical skills or other factors. The large backlog of TT surgery requires that ophthalmic nurses or other trained health workers perform the surgery rather than qualified ophthalmic surgeons which is not necessarily a problem as long as good training and accurate supervision are performed.

The quality of the surgery itself is not the only concern: it is also important to consider the quality of the entire process, from patients selection to post-surgical follow-up, and ensure appropriate communication with patients, to make it clear that surgery will not improve the patient’s eyesight, but is intended to prevent further deterioration and possible blindness. Moreover, there is no uniformity of practice between countries management approaches to TT.





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*Surgeons or other health workers performing TT surgery should be carefully selected and properly trained in accordance with a standardized curriculum, with incentives and within a career structure which will make it worth their working in the eye care sector, and they should receive appropriate support, including refresher courses, and adequate supplies of materials and consumables.*

The first problem in attempting to increase the quantity of surgery performed is *accurately estimating the real size of the backlog* – reliable information is required for this task. Other important factors are the need to make skilled surgeons available at a decentralized level and ensure full compliance with guidelines and proper supervision, including training of trainers. *Existing health campaigns*, such as vaccination days or the distribution of impregnated bednets, could be used to identify people in need of surgery.

# 7

## WASH panel

*Mr Chad MacArthur, Director of Neglected Tropical Disease Control, Helen Keller International, New York, United States of America; Dr Oscar Debrah, National Coordinator Prevention Blindness, Ghana Health Service, Accra, Ghana; Mr Ansumana Sillah, Manager, National Eye Care Program, Ministry of Health, Banjul, Gambia; Dr Margaret Montgomery, Water, Sanitation and Hygiene, WHO headquarters; Dr Edward Kirumbi, Trachoma Focal Point, Ministry of Health & Social Welfare, Dar-es-Salaam, Tanzania; Mr Simon Bush, Sightsavers, Accra, Ghana; Ms Yael Velleman, Senior Policy Analyst Health & Sanitation, WaterAid, London, England*

The F and E components of the SAFE strategy have received less attention than the others in the past. The WASH sector can provide valuable support for trachoma elimination programmes.

The Water, Sanitation and Hygiene programme at WHO places particular emphasis on the promotion of behavioural change and the need for a sound evidence base for action. It is involved in two monitoring programmes of relevance to trachoma. The Global Analysis and Assessment of Sanitation and Drinking-Water is concerned with inputs into sanitation and drinking-water activities, primarily funding. The last analysis, in 2012, found that one half of countries had funding available which they were not using. The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation investigates access to drinking-water and sanitation, which is of relevance to trachoma since those areas with the poorest access also often have a high prevalence of trachoma. The Water, Sanitation and Hygiene programme is currently drawing up guidelines on sanitation and hygiene.

The WHO/UNICEF Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea, adopted in April 2013, provides a framework for ministries of health and water and sanitation to coordinate their goals and targets, for instance by identifying children at greatest risk of diarrhoea who, again, are likely to live in areas of high trachoma prevalence. At the broader United Nations level, the 2010 resolution on the right to safe drinking-water and sanitation (United Nations General Assembly resolution A/RES/64/292) calls upon United Nations Member States to take action to provide safe drinking-water and sanitation facilities for their peoples. In addition, the United Nations Secretary-General's campaign to end open defecation by 2025 provides opportunities for synergy with trachoma control activities.

The Neglected Tropical Disease Nongovernmental Development Organizations Network (NTD NGDO) met in Sydney, Australia in September 2012. The meeting spent an afternoon on WASH interventions, whose contribution to breaking the cycle of disease and sustaining the benefits of preventive chemotherapy is often underestimated. The F and E components of the SAFE strategy must be integrated into the overall strategy in a coordinated way with the involvement of all partners. WASH interventions are often perceived as complex, costly and infrastructure-based, but that is not necessarily the case if the right partners are involved, as shown by the examples of the Gambia and Ghana.

Robust public-private partnerships have been created to combat NTDs, and there is potential for such partnerships in the WASH sector as well, particularly in the area of behavioural





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change. For instance, Unilever already conducts a large-scale, ambitious campaign to promote hand-washing, and this could potentially be extended to include face-washing as well. Households, rather than public agencies, are the main drivers in improving sanitation: however, the primary reason for wanting improved sanitation is often privacy, convenience, dignity or safety rather than health, which influences the approach which should be taken to promotion. The next NTD NGDO meeting, to be held in Brighton, England, on 18–20 September 2013, will spend a full day on WASH interventions.

A roundtable discussion on “Finding Synergies between Water, Sanitation, and Hygiene (WASH) and the Control of Neglected Tropical Diseases (NTDs): Practical Considerations to Collaboration Between the WASH and NTD Sectors” took place in Seattle, United States of America

in December 2012.<sup>1</sup> The meeting discussed the need for sustainable, effective and scalable interventions and an improved evidence base. The goal is to achieve disease-free communities with adequate and equitable access to clean water, sanitation and hygiene services. Four working groups met to discuss policy, advocacy and communications; capacity building and training; mapping, data collection and monitoring, the latter with particular reference to behaviour; and the joint research agenda. The meeting report has been published on the online Public Library of Science (PLoS). Further online collaboration and discussion are planned, and an online manual for WASH programmes is in preparation. A great deal can be achieved by using existing resources more effectively.

<sup>1</sup> Meeting report available at: <http://storage.ugal.com/5116/wash-ntd-roundtable-dec-2012-final-report.pdf>, accessed 17 June 2013.



Ghana has succeeded in considerably reducing active trachoma prevalence between the baseline recorded in 2000–2003 and the follow-up survey in 2007–2008. The full SAFE strategy was implemented in all endemic districts. Many stakeholders from health, education and WASH were involved in the initial planning and budgeting of SAFE implementation, in monitoring of trachoma control activities and in annual review meetings which helped to ensure sustained interest in trachoma control. The WASH sector was invited to undertake the planning and budgeting of the F and E components of the national SAFE strategy.

National, regional and district task forces were put in place, with regular quarterly meetings. Knowledge, attitudes and practices studies were conducted, which led to the development of information, education and communication (IEC) materials for schools and communities. Trachoma and its control were covered in the basic school curriculum. Trachoma data were shared with the

district assemblies and the Community Water and Sanitation Agency. Effective collaboration between the control programmes for trachoma, guinea-worm and cholera led to increased provision and appropriate siting of water and sanitation infrastructure in trachoma-endemic areas.

Key partners included the Community Water and Sanitation Agency, the district assemblies, the ministries of education and women's and children's affairs and nongovernmental organizations including World Vision, WaterAid, ITI and the Carter Center.

The Gambia set up a trachoma control programme in 1997, involving the Department of Water Resources and the Department of Community Development. The latter made good use of the evidence of the health benefits of providing wells and latrines when advocating trachoma control activities with their own donors. An IEC campaign had been conducted in schools to



promote clean faces, a message which, it was hoped, the children would take back to their homes. Trachoma occurs even in urban areas owing to the influx of refugees or rural residents and overcrowded living conditions in periurban areas without adequate water supplies or latrines.

Tanzania's national trachoma task force was integrated into the NTD programme in 2009. The programme has concentrated on increasing the number of districts receiving MDA. The WASH sector and the NTD programme conduct

similar but unconnected interventions for the relatively neglected F and E components. Future activities aimed at greater coordination will involve three main stakeholders (Ministry of Water and Irrigation, Ministry of Health and the NTD programme). A workshop was held in February 2013 to develop a strategy for the elimination of NTD through water and sanitation activities. Nineteen activities were identified, and work is currently under way on milestones, time frame, costings, sources of funding and target locations.

## Discussion

*The trachoma community should stress the importance of safe water and sanitation, which benefit people's health in many other ways as well, but should also ensure that other sectors appreciate the need for activities to prevent blindness. Universal access to water and sanitation can be achieved using small-scale solutions which do not require major investment in infrastructure.*

*Role of the media.* Radio health messages and jingles are a valuable means of communication in remote areas of Ghana. In general, the press and radio reach a wide audience and are thus appropriate media for health messages. IEC materials based on studies of knowledge, attitudes and practices (KAP) are used for school health programmes.

In the Gambia, eye care programmes are integrated into general public health programmes. A successful campaign to provide safe drinking-water for every village in the country, as well as the eye care sector's advocacy of sanitation programmes funded by the World Bank, were key factors in reducing trachoma. A "Clean the Nation Day" takes place once a month. It is a small country, so interventions will need to be scaled up to suit larger countries.

# 8

## Country focus: reports from countries in different stages of SAFE implementation

### Successful elimination efforts

*Dr Oscar Debrah, National Coordinator Prevention of Blindness, Accra, Ghana; Dr Jaouad Hammou, Chef de services, Maladies oculaire et otologiques, Rabat, Morocco; Dr Saleh Al-Harbi, National Program of Eye and Ear Health Care, Muscat, Oman*

Three representatives of countries in the post-elimination phase described the reasons for their success and the remaining challenges they face. Trachoma control activities in Ghana began in 2000, with a baseline prevalence of 16% of TF among children, and the full SAFE strategy was implemented from 2004. By the time of the mid-term evaluation in 2007–2008, the highest prevalence detected was 2.8%, 70% of households had access to potable water and 38% of households had access to household latrines. The success of the SAFE programme is due to the fact that many stakeholders from health, education and WASH were involved in initial planning and budgeting of SAFE implementation. There was strong collaboration between the Ministry of Health, other ministries and nongovernmental organizations. The full SAFE

strategy has been implemented in all endemic districts. Active screening is carried out by ophthalmic nurses using a loupe and flashlight. Passive screening is conducted by appropriately trained health workers, who submit a list of suspected cases to the subdistrict health authorities every two weeks. An ophthalmic nurse will then visit the community and screen schoolchildren and the families of suspected cases. At the beginning of every academic year, five schools in every district undergo screening.

Challenges include the inaccessibility of certain areas at some times of the year, attitudes of the population towards the control programme, e.g. surgery refusals, the long distances between districts and communities. These challenges were addressed by ensuring proper planning and implementation of activities, so that active case-finding and treatment took place in the dry season when there were no farming activities going on. The campaign was promoted through regular messages broadcast on local radio stations and through community leaders, school health activities, production of IEC materials and involvement of local chiefs and community leaders. Vehicles, motorcycles and bicycles were made available for SAFE activities. The threats



to the maintenance of elimination include case-finding, since it is not possible to train all health workers and community-based surveillance volunteers in trachoma identification and the fact that ophthalmic nurses who have been trained in trachoma treatment might be transferred away from endemic areas. The elimination Q was threatened by the abrupt withdrawal of funding and support by one international nongovernmental organization once trachoma prevalence fell below 5%, since this organization expected that surveillance was funded from MoH resources, but was not saved at planning time.

Trachoma prevalence in Morocco was up to 70% in children aged 1–9 years. The success of SAFE implementation, in a campaign which began in 1997, is due to the emphasis on implementation of the full SAFE strategy, with UIGs being achieved for all four components, as well as good coordination at all levels and the availability of epidemiological data and appropriately qualified staff. Surveillance systems were set up, including post-elimination surveillance. The commitment of national and international partners was invaluable. Challenges include the risk of undetected re-emergence at the community level, the need to maintain the F and E components, and the risk of a decline of commitment among national and international partners once the UIGs have been achieved. UIG is not the end of the trachoma control process, but the beginning of a new phase. The challenges have been met through a number of development initiatives, including the National Human Development Initiative (*Initiative nationale pour le développement humain – INDH*), the National Agency for Development of Oasis Zones (*Agence nationale pour le développement des zones oasiennes*), the National Charter on the Environment and Sustainable Development (*Charte Nationale de l'Environnement et du Développement Durable*) and the extension of the medical assistance programme for the poor. Trachoma is included in the Ministry of Health's national action plan for the period 2012-2016. Morocco has strengthened its partnerships with WHO and the NGO (IAPB-Italy). Morocco planned the consolidation of trachoma elimination by means of active sentinel surveillance and passive surveillance for TF and exhaustive and systematic screening for TT. The surveillance system has been adapted for the post-elimination period following a community evaluation survey in 2009 and two

expert meetings in 2008 and 2010. Door-to-door visits are conducted to identify the isolated new incident cases of TT, encourage people who have previously refused surgery to think again, and follow up those who have undergone surgery. It is essential to preserve institutional memory of trachoma and its symptoms among health-care workers and in the community so that any re-emergence is quickly detected. Morocco has documented its experiences for the benefit of countries at an earlier stage in the process, and the relevant publication is available from the MoH for those interested.

In Oman, where trachoma prevalence has been reduced from 70–80% in 1980 to less than 0.5% now, the success of the trachoma elimination campaign is due to sound leadership and decision-making, an increase in the number of health-care institutions and their more rational distribution across the country, and a general improvement in socioeconomic conditions, especially among the Bedouin population.





There are now over 200 health-care facilities in the country, and three major new hospitals are to be built under the national Health Vision 2050 initiative. The correct method of face-washing is taught when children begin to take part in the Muslim prayer ritual. Challenges at the start of the trachoma control campaign in the 1970s included a high level of illiteracy, although the country now boasts several universities and over 2000 schools. Another challenge is the remote mountain and desert areas where much of the population lives, which require the deployment of helicopters and specialized vehicles. Trained school nurses screen schoolchildren for trachoma on school entry and in the fourth, seventh and tenth grades, using a loupe and flashlight. Trachoma in adults is detected at primary health care facilities, and

patients are sent to secondary- and tertiary-level facilities for TT diagnosis and surgery or other treatments as required. Screening is then conducted in the community where suspect TF children live, in their families and their contacts. TT surgery and azithromycin are provided free of charge. Training courses for school nurses and primary-care staff take place twice a year, and the national supervisor visits most health facilities and schools annually. TF and TI in children under 10 years are recorded in the national disease surveillance system as Group B diseases, which means that cases must be notified within one month. There is a large volume of trachoma research, and two trachoma control manuals have been published, with another due out in late 2013.

## Discussion

*Preparing for verification of trachoma elimination.* Dr Mariotti said that the new verification procedure is being revised and needs to undergo field testing, but it will definitely require at least three years of surveillance following achievement of the UIGs, as recommended by the global scientific meetings on trachoma. Some countries can integrate trachoma surveillance seamlessly into their existing disease surveillance systems, while others will need to come to an agreement with national health authorities. During the surveillance period, procedures will need to be put in place to identify and treat new incident cases of trichiasis, which are bound to occur. Countries should begin to plan for the post-surveillance period as they draw near to achieving their UIGs, with the support of WHO and partners if so required.

In Mauritania, local deputies are active in lobbying for the creation of water-supply infrastructure, and have been encouraged to take into account the requirements of trachoma control as well. The country is in the final stages of trachoma elimination, but the remaining endemic villages are small (200–300 people) and widely spaced, and surveillance will thus prove a challenge.

The Gambia is also at the surveillance stage. Its three-year surveillance plan, operating from 2011, divides the country into nine zones, from which 16 villages are surveyed for TF, trachomatous inflammation (TI) and TT every year. Evidence of re-emergence of trachoma has been found in areas where the disease had been eliminated, although prevalence is very low. An intensive campaign of TT case-finding, including TT camps, is conducted, but this brings its own problems: radio messages reach not only the local population, but also people from neighbouring countries. Mobile telephone ownership is widespread even among the poor, so people summon their relatives when azithromycin treatment is due to be delivered. Thanks to the generosity of donors, sufficient drug supplies are available to treat everyone, but it is difficult to predict the resources required or collect reliable statistics. Moreover, the outsiders may have returned home by the time the TT surgery teams arrive and thus miss out on treatment.

The post-elimination period must be taken seriously: in Niger, trachoma prevalence in two districts was reduced from 60% to 7%, but because there was not enough knowledge of the correct post-elimination procedure, the disease has re-emerged.

## Reaching the unreached

*Professor Lucienne Bella, Coordinator, PNLG, Ministry of Public Health, Yaoundé, Cameroon; Mr Sailesh Kumar Mishra, Programme Director, NNJS, Katmandu, Nepal; Mr Benjamin Nwobi, Trachoma Programme Manager, NPPB, Abuja, Nigeria*

After surveys were completed, Cameroon was found to have 16 endemic districts, with around 23 000 people affected by trachoma and prevalence as high as 42% in some districts of the Far North province. Trichiasis is found in the south of the country, but no active trachoma, except for a few imported cases. SAFE implementation began in 2011. In 2012, 2769, or 64%, of the planned 4300 operations were performed, and a catch-up campaign was launched in early 2013. Antibiotic treatment expanded from eight health districts in 2011 to a planned 13 districts in 2013: supplies of azithromycin have been delivered, and supplies of tetracycline ointment are expected soon. The drugs will be distributed in a joint campaign including other NTDs. The F and E components have not yet got off the ground, partly because of the need to respond urgently to outbreaks of cholera. The Ministry of Water and Energy, which is responsible for water-supply infrastructure, is setting up a task force which will also consider the requirements of the F and E components.

Challenges include the need to promote a sense of ownership of trachoma control activities among local communities, which tend to resent solutions which they perceive as being imposed upon them by a distant central Government. There is a lack of awareness of the importance of the F and E components among stakeholders with a medical background and it is difficult to schedule MDA, which has to take place in the dry season and respect the competing demands of other health campaigns, such as vaccination against poliomyelitis. There is a need for a strategic plan for eye health, for more staff, for better communication with endemic communities and for financing for impact studies, if the latter are feasible at all when only two of the four SAFE components have been implemented to any great extent.

Opportunities include the creation of the above-mentioned task force, the commitment of Cameroon's international partners, the sharing

of best practices with other NTD programmes and the Government's triennial budget process, which allows for relatively predictable planning over a three-year period.

Threats include political instability in the endemic provinces, a potential lack of funding and unfavourable weather conditions.

The national trachoma programme in Nepal has been running since 2002. A total of 67 districts out of 75 underwent a trachoma rapid assessment, and 19 endemic districts were identified, mostly in the lower-lying western area of the country. The prevalence of TF is now below 5% in 15 of those districts. Implementation of the SAFE strategy is generally satisfactory: by 2012, approximately 23 000 TT operations had been conducted in hospitals and outreach facilities, out of the backlog of 40 000 cases estimated in 2002. The quality of surgery is good, but the number of operations is unsatisfactory because priority is given to surgery for cataract, the leading cause of blindness in Nepal. Eye hospitals are now being encouraged to pay more attention to trachoma, but little funding is available. The TT surgery programme is no longer supported by the Government of India, as in the past: to replace it, an application for funding will shortly be submitted to the Nepalese Government. The three-year MDA programme has been completed in 15 districts and will be completed in two more districts during 2013. A total of 13.4 million people have been treated since 2002. In the F and E components, drinking-water supplies have been improved in endemic areas and IEC materials have been prepared, including materials for school grades 1-5 and radio broadcasts.

Challenges include the mapping of the remaining eight districts. Twenty-nine districts where TF prevalence is between 5% and 10% will be mapped at subdistrict level in 2013-2014. Some people are refusing TT surgery because of a lack of motivation and awareness about the procedure, and further IEC work will be carried out to remedy this.

Opportunities include the integration of SAFE activities into the work of other stakeholders, e.g. working on the S component with eye hospitals, the A component with Government health networks and the F and E components with the Department of Water Supply and Sewerage;

integration of training, logistics and other activities with the NTD programme; and scaling-up of TT surgery in synergy with the outreach camps for cataract surgery.

The A component of the SAFE strategy in Nigeria has been scaled up satisfactorily over the past three years. MDA capacity has been improved, although there are still difficulties in getting drug supplies to the places they are needed. The remaining components are experiencing problems. There is a serious backlog of TT surgery because of insufficient financial resources and the concentration of available staff in urban rather than rural areas. More donor support is needed. The F and E components are affected by programmatic constraints: budgets are allocated but the funds are not released, liaison with ministries of education and water and sanitation is poor.

Challenges are increasing TT surgery capacity in order to manage the backlog and new incident cases; ensuring prompt delivery of drugs; delivering MDA in areas affected by political instability; and engaging with stakeholders from other sectors, particularly water and sanitation.

Opportunities include the development of targeted and innovative approaches to clearing the backlog of TT surgery, the chance to make use of results from the GTMP, scaling up MDA and evaluating the impact of three years of MDA where this has been completed, and engagement of the water and sanitation sectors to improve the F and E components.

Threats include resource allocation problems, political instability, particularly in the north-east of the country, and integration and coordination with other NTD control programmes. A meeting on Nigeria's trachoma action plan is to take place on 10 June, which donors are warmly invited to attend.

## Discussion

*Cross-border issues.* Trachoma prevalence is often higher in border regions and may be exacerbated by cases imported from neighbouring countries or by an influx of refugees. WHO could facilitate solutions to these cross-border issues, which individual countries may find difficult to resolve. Border regions may also be more likely to suffer from political instability, which can make trachoma control activities completely impossible. Countries need to plan how they will cope with the associated unpredictability in resource requirements, while maintaining a realistic view of the political realities in the areas concerned. The Health for Peace Initiative brought countries together to work on trachoma mapping in Guinea-Bissau and the Gambia. However, some inter-country initiatives, such as those proposed by the West African Health Organization, have not proved sustainable.

*Scaling up TT surgery.* Those human resources qualified to perform surgery may be based in capital cities rather than the rural areas where surgery is most needed, and are therefore unable either to perform the surgery themselves or to train others to do so. Countries with an extensive network of community-based health workers may be able to train them to carry out initial active case-finding for trachoma. In Ghana, health workers and community volunteers carry out the initial screening, working with qualified ophthalmic nurses who confirm the diagnosis and perform the TT surgery straight away, which increases surgery uptake.

*Impact studies.* An impact study should be carried out at the subdistrict level after completion of the recommended number of rounds of MDA, even if the F and E components have not yet been fully implemented. The impact study may serve to identify opportunities for improving implementation of the F and E components. However, it should be borne in mind that, if MDA is discontinued on the basis of the impact study while F and E implementation is still inadequate, trachoma is likely to re-emerge.

Trachoma mapping data in Burkina Faso have now been updated and 30 districts out of a total of 53 have been identified as endemic. The prevalence of TF among children aged 1-9 years varies between 0.5% and 21%, and among adults aged over 15 years it varies between 0.12% and 21%. The S component of the SAFE strategy requires more assistance from donors. In the last three months, 119 people underwent TT surgery, of an estimated 200 people who needed it. A total of 15 million doses of antibiotics have been distributed, with 4 million people completing three rounds of MDA. Four more districts will complete the three rounds in 2013. Education on face-washing is included in health education activities and taught in primary schools. As for the E component, the Government has pledged to improve people's access to safe drinking-water. Recent impact surveys show that TF prevalence has decreased in all endemic districts. Elimination is likely to be achieved on schedule, but further prevention and post-elimination activities will be required. More support is needed for TT surgery, MDA, impact and post-elimination surveys, the promotion of face-washing and the engagement of other sectors.

Burundi has identified four endemic districts, in which azithromycin and tetracycline ointments are distributed, and is also implementing the other components of the SAFE strategy. The prevalence of TF in the two districts surveyed so far has fallen sharply. There are pockets of endemicity outside these districts at the subdistrict or community level, and the true prevalence of trachoma is not known, but the country nevertheless hopes to eliminate trachoma by 2015.

## Accelerating implementation

*Dr Seiha Do, National Coordinator, Prevention of Blindness, Phnom Penh, Cambodia;*

*Dr Djoret Dezoumbe, Coordinateur PNLC, N'Djamena, Chad;*

*Dr Khaled Amer, National Coordinator, Prevention of Blindness, Cairo, Egypt*

The trachoma rapid assessment conducted in Cambodia in 2000 revealed TF/TI in 61% of the survey villages and TT in 93%. The overall prevalence of TT in individuals over 14 years of age was 0.7% (highest value 3%) and the percentage among the selected children of TF/TI in children under 10 years of age was 2.9% (highest value 11.7%). The rapid assessment was repeated in 2004 and showed TF/TI to be present in 72% of the survey villages and TT in 76%. The overall prevalence of TF/TI in individuals over 14 years of age was 1.96% (highest value 2.93%) and the percentage among the selected children of TF/TI in children under 10 years of age was 3.23% (highest value 15%). The latest estimates from the Global atlas of trachoma (ITI reference) show 4.43 million people living in endemic areas and 29 200 suffering from trichiasis. However, no data are available for large areas of the country. Approximately 350 eyelid correction operations are performed every year (324 in 2012). Surgery is performed at all of the 22 eye health facilities. Outreach eye screening services cover all the remote areas of the country. Approximately 25 000 tubes of tetracycline 1% ointment are distributed every year. Face-washing is included in the school health programmes of five provinces and will be extended to others when funding permits. TV and radio spots and other IEC materials, including posters and a leaflet, are also available. The strengths of the eye care programme include the existing eye care network throughout the country, the presence of ophthalmologists in all 22 eye health facilities, the perceived decline in active trachoma prevalence, improved access to safe drinking-water, widespread availability of eye health education, and the provision of appropriate training for mid-level health workers in all provinces. The Ministry of Rural Development is active, and nongovernmental organizations are involved in health-care and



eye-care partnerships. The Government provides financial support for screening and TT surgery, and eye care has been integrated into primary health care.

Weaknesses include poverty, limited access to eye care for people in remote areas, variations between communities in the severity of trachoma and potential for blindness, the high level of endemicity in some areas and the lack of awareness of eye health issues among the public.

Threats include the high backlog of TT surgery and the low priority of eye health in the public health system.

Opportunities for expansion include the presence of ophthalmologists in all eye health facilities, the availability of trained health workers and volunteers who can refer suspected cases for confirmation of diagnosis and treatment, the mobile outreach services and the improved promotion of eye health.

To sum up, active trachoma is declining but more efforts are needed by the Government and nongovernmental organizations, with support from international donors, to eliminate blinding trachoma completely. Implementation of the full SAFE strategy is very important.

Trachoma is one of the leading causes of blindness in Chad. Thirty per cent of the population have access to latrines and 33% to safe drinking-water, mainly in urban areas. Surveys conducted between 2000 and 2004 in 33 of the 61 health districts in the country revealed a prevalence of TF ranging between 17.5% and 33.2% and a prevalence of TT ranging from 1.3% to 6.2%. A national strategic trachoma control plan was drawn up in 2012 but has not yet been implemented. Activities under the S component of the SAFE strategy are limited to a few TT operations carried out by mobile cataract units, amounting to 3428 operations since 2007. The only antibiotic treatment currently available is tetracycline 1% ointment. Further studies are needed before MDA can commence as the existing data are so out of date. The F and E components are also facing problems owing to a low level of public awareness and a lack of partners, although some support is received from the ministries of education and the environment and from UNICEF. The Ministry of Water participated in the development

of the strategic trachoma control plan, and it is hoped that it will join the proposed trachoma task force along with the ministries of the environment and public health. Recent cholera epidemics have encouraged people to dig latrines and wells, which also benefit the F and E components.

Challenges include the validation of the 2000-2004 data baseline mapping of the 28 remaining districts, the training of supervisors and distributors for MDA of azithromycin, training of surgeons, education and awareness-raising among the public, the launch of MDA, planned for November 2013 and the launch of the TT surgery programme, planned for 2014.

Opportunities include the national strategic trachoma control plan for the period 2013-2017, the national NTD control plan, which includes trachoma, the signature by the Ministry of Public Health of a protocol on MDA and ITI's commitment to supplying azithromycin for MDA. There is a need for technical and financial support for implementation of MDA and TT surgery.

Egypt has the highest number of people with trachoma in the world. In 2011, the prevalence of active trachoma in children aged 1-9 years was 20%. Trichiasis normally occurs only in people over the age of 40 years. There is currently no specific trachoma control programme. There are problems with the S component of the SAFE strategy, since there are not enough surgeons in rural areas where the disease mainly occurs. Most patients are treated individually rather than as part of a public health campaign. Antibiotic treatment has not yet started because trachoma mapping has not been undertaken. The F component is covered only by general talks under the primary health care system, and does not form part of school curricula. The E component is likewise weak, since living conditions, hygiene, drinking-water supply and sanitation are all generally poor. Proposals to create a ministry of water and sanitation have been put on hold because of the recent change of government and financial constraints.

Challenges include the lack of public awareness and public health education, the need to improve the surgical skills of ophthalmologists in rural area and the need for greater cooperation from the Ministry of Health, nongovernmental organizations and other partners.

Opportunities include the forthcoming trachoma mapping exercise, due to start in the next few months, the presence of primary health care units in most rural areas and the presence of specialized eye hospitals and eye departments in all governorates, with an adequate number of ophthalmologists.

The most urgent needs are for trachoma mapping using standardized international guidelines, international technical support and accreditation and resource mobilization and fundraising for all components of the SAFE strategy.

## Discussion

*Criteria for mapping.* Generally, mapping will not be required in urban areas, since the prevalence of trachoma there is very low. However, health authorities should remain aware of the possibility of cases being imported into cities from rural areas. If reliable data are available, it will be clear where mapping is required and where it is not. But some countries may need guidance in deciding which areas can be excluded from mapping, both pre-elimination and during the verification phase. Egypt will begin mapping in just one or two districts because of its very high population density. Mapping will initially be concentrated in rural areas, and may move on to periurban areas later. Desert areas, where population density and trachoma prevalence are low, have been excluded.

Chad selected the districts to be covered by the 2000-2004 surveys on the basis of the results of earlier surveys. Some central regions surveyed early on in the process revealed TF prevalence rates of 17-33%. A training workshop and a series of validation surveys later in 2013 are planned in areas perceived as high-prevalence, before MDA is introduced. However, trachoma rapid assessments will also be conducted as a precautionary measure in some districts in the south, traditionally considered free of trachoma, since the disease may have been introduced by people moving down from the north. Mobile cataract teams identify TT cases and operate on them where necessary: in some districts, there are actually more TT cases than patients with cataract.

Cambodia carries out repeat surveys in provinces where trachoma patients have been identified by hospitals: however, nine provinces have very similar characteristics to those already due to undergo the survey and have thus been excluded. Senegal undertook a regional survey in 2000, which provided a rough indication of those districts which warranted a more detailed survey. Some districts in which mobile trachoma teams had recorded a very low prevalence of trachoma were excluded from the survey. Administrative problems which had affected drug supplies have been resolved since 2010-2011, with the intervention of WHO. However, integration between trachoma control and other NTD programmes is still a problem. In the Democratic Republic of Congo, pre-visits are conducted before mapping proper begins.

The planned distribution of azithromycin in the Central African Republic was delayed by the coup d'état on 24 March 2013, although the stock of drugs is intact and is being held in secure storage until distribution can be arranged. The country has suffered five coups d'état since independence, and has had seven Ministers of Health since 2004. Every time a new minister takes office, the trachoma control programme has to explain the importance of the programme all over again. However, ophthalmologists are sometimes summoned by senior Government officials to treat them or members of their families, and thus have an opportunity to plead the cause of eye health at the highest level. The first

trachoma surveys took place in 1987, and the country currently has four endemic districts, out of a total of 16, of which two are hyperendemic, with a prevalence of 47% for TF and 2.7% for TT. Support has been forthcoming from UNICEF for WASH sector activities, since trachoma particularly affects children.

The Islamic Republic of Iran has a population of approximately 76 million, of whom 92% have access to safe drinking-water. Children are screened for trachoma and other eye diseases every month in primary school, and less frequently in middle and high school. Children are also given a hygiene kit containing soap, handkerchiefs and a toothbrush. Health monitoring by a family physician, including trachoma screening, is covered by free health insurance in rural areas. There is an efficient drug distribution system and drug prices are low, especially for eye medicines, e.g. tetracycline ointment costs approximately 20 US cents per tube. There are 1500 ophthalmologists in the country and at least one eye surgery centre

in each city. In a 2012 survey of children aged under 10 years and women aged over 15 years in one province in the south-east of the country, 60 suspected cases of trachoma were identified, but on subsequent polymerase chain reaction (PCR) testing none of them tested positive.

Senegal conducted regional trachoma surveys in 2000 which served to focus attention on certain regions. Some districts were excluded from further surveys at that point, and others were excluded later because of the very low numbers of TT patients identified by mobile trachoma teams. Administrative problems affecting the supply of trachoma drugs were resolved in 2010-2011 with the help of WHO. Integration with other NTD control programmes is still a problem.

Yemen conducted a trachoma rapid assessment in nine governorates, which identified three endemic districts in the north of the country. A training workshop will be held at the end of April 2013, and surveys are due to begin in five governorates in May.





## India

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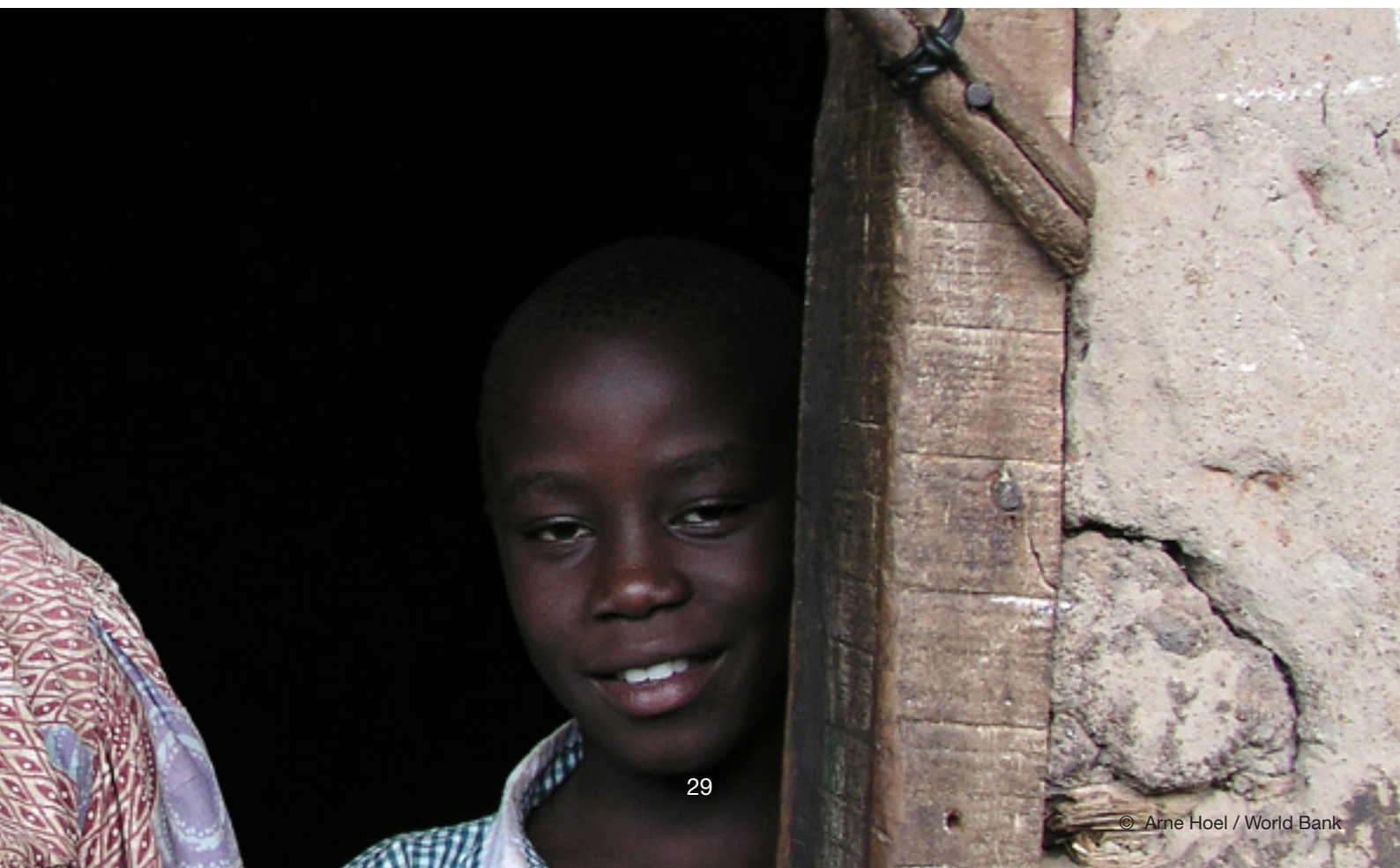
In a survey conducted in 1959-63, the prevalence of active trachoma infection (TF/TI) in three Indian states, Haryana, Rajasthan and Punjab, was over 70%. By 2006, prevalence had fallen to 4%, 7.8% and 5.5%, respectively. However, in 2010 a trachoma rapid assessment on Nicobar Island identified an active trachoma prevalence of 50%. After three rounds of azithromycin treatment, a repeat survey in 2013 showed that prevalence had fallen to 6.6%, with a TT prevalence of 3.8%. A sentinel surveillance programme (passive surveillance) for all causes of blindness, including trachoma, identified 274 cases of trachoma in 2012-2013. A meeting of international experts in Hyderabad, India in September 2012 decided that trachoma rapid assessment should be conducted in 15 districts and a prevalence study in 10 districts over the next year. Blinding trachoma is on the verge of elimination in India, largely owing to the priority accorded to the control programme by the Government. The state of Uttar Pradesh is, however, still giving some cause for concern and will be surveyed again this

year.

## China

*Dr Silvio Paolo Mariotti, Medical Officer and GET2020 Secretary, World Health Organization, Geneva, Switzerland*

A two-day meeting took place in Beijing, China in March 2013, to prepare for an assessment in 13 provinces of China where trachoma has occurred in the past, to determine whether the disease is still a problem and discuss approaches to verification of trachoma elimination. Training in field assessment is being conducted in Inner Mongolia to prepare for a rapid trachoma assessment in the former endemic provinces and other areas with a high degree of poverty. The first assessments will take place in Shandong and Sichuan provinces. A province may have a population of up to 100 million people. The Ministry of Health is committed to ensuring the elimination of trachoma by 2016. Preliminary data have given no indication of the presence of trachoma.





# 9

## Donors' panel

*Dr Angela Weaver, USAID, Victoria, Australia; Ms Caroline Roan, Corporate Responsibility, Pfizer, New York, United States of America; Mr Scott Morey, Senior Program Director, END Fund, Lutry, Switzerland; Dr Andrew Cooper, Director of Programmes, Queen Elizabeth Diamond Jubilee Trust, London, England; Mr Philip Albano, Sight Programs Department, Lions Clubs International Foundation, Oak Brook, IL, United States of America*

Partners, nongovernmental organizations and WHO have done a great deal to raise the profile of trachoma control. More resources are available for the campaign to eliminate the disease than ever before. The pharmaceutical company Pfizer is the manufacturer and donor of the anti-trachoma drug azithromycin (brand name Zithromax®). The company has participated in trachoma control for over 15 years. END Fund is a private philanthropic initiative, launched in 2012, which aims to mobilize private-sector funding to combat five neglected tropical diseases. It now funds projects in 13 countries, including trachoma control activities in Burundi, Central African Republic and Zambia.

The Queen Elizabeth Diamond Jubilee Trust was likewise launched in 2012, to celebrate the 60th year of the reign of HM Queen Elizabeth II of the United Kingdom. It operates in Commonwealth countries in two main fields: avoidable blindness, including trachoma, and investment in young people. The Trust is currently fundraising to match a grant of £50 million from DFID, and

thus hopes to be able to allocate £40-50 million pounds to trachoma control over the next five years, specifically in the area of SAFE implementation. Through its work with the Alliance, it hopes to achieve significant advances in trachoma control in one or more countries, while simultaneously contributing to health systems strengthening.

The SightFirst programme is part of the Lions Clubs International Foundation. Since the programme began in 1990, it has disbursed over US\$ 16 million in grants. At that stage, trachoma was a major cause of avoidable blindness. The programme currently operates in China, Ethiopia, Kenya, Mali and Niger and other countries.

USAID has been involved in NTD control since 2006, disbursing over US\$ 300 million in 25 countries. Its activities in trachoma control are mainly concerned with scaling up MDA programmes, supporting mapping in collaboration with GTMP and monitoring and evaluation. The attraction of NTD control is that interventions are cost-effective and reach the poorest people: the prospect of elimination of trachoma and lymphatic filariasis over the next few years is also politically attractive.

DFID has increased its spending on NTD control, including trachoma, by a factor of five. NTD interventions involve many successful public-private partnerships, including the azithromycin donation programme supplied by Pfizer. DFID has invested in GTMP, which has made great progress in just four months, and a new programme of SAFE implementation. The mapping of trachoma

prevalence in every country in the world will allow treatment to be delivered safely and effectively to those most in need. In the current difficult financial climate, it is necessary to demonstrate results, so monitoring, accountability and communication of results are critically important.

It is essential to build on the new funds committed to trachoma control to generate additional local and global resources. Coordination by the recipient country will become more and more important as more donors join in.

## Discussion

*Communication and access to funding.* Countries expressed their appreciation for the opportunity to communicate directly with donors, and called upon them to discuss more openly with countries when deciding whether or not to fund a particular activity, and to explain the reasoning behind their decisions. Countries are invited to talk to donors directly and provide a clear action plan for trachoma control or NTD control, showing the country's needs and the support it is already receiving. WHO can play a valuable liaison role here, particularly at country-office level, as well as providing technical assistance. Pfizer is guided by ITI and stipulates that the countries it assists should be committed to implementing all four components of the SAFE strategy. The Lions Clubs International Foundation works with governments and WHO, but projects are often sponsored and implemented in collaboration with a local Lions Club in the country concerned.

*Country ownership of projects.* It is essential that activities are incorporated into the country's long-term health plans right from the beginning. The achievements of the project and the data generated remain in the ownership of the government.

*Duplication of efforts* should be avoided with donors exchange information about the programmes they support. Donors in the area of NTD programme implementation already meet informally whenever other meetings bring them together. Pfizer and other pharmaceutical companies liaise informally with one another and with donors and implementing agencies. Some private donors want their contribution to be used in a particular country or district, perhaps the one where their company operates, and that can make coordination more difficult. Coordination is particularly important at national level, where donors need to see the country's national plan and know what other international programmes are operating in the country and how their contribution might fit in.

*Partner exit strategy.* From the very beginning, thought needs to be given to the time after the project has finished, when partners will no longer be involved, and contingency plans must be made for eventualities such as a sudden loss of funding, so that countries can manage the project without support if necessary.



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## Conclusions and recommendations

### Conclusions

C1. Country reports and discussion focused on the importance of full implementation of the SAFE strategy. Countries reported the greatest number of antibiotic treatments and surgeries performed since the establishment of the Alliance. TT surgery rates are, however, still failing to reach the targets to clear the backlog. Quality of TT surgery is also a concern.

C2. The hallmark of “SAFE” strategy implementation is programme ownership at various levels which includes: national, provincial/regional, district, community.

C3. Countries that reported successful progress towards elimination of blinding trachoma implemented the full SAFE strategy and included active involvement with the education and WASH sectors. Countries facing continued challenges in the implementation of SAFE highlighted the need for political support and in-country coordination.

C4. The Alliance continues to stress the need for coordination between trachoma programmes and other NTD activities. The Alliance recognized the appointment of a public health expert with knowledge of trachoma on the STAG-NTD.

### Recommendations

R1. The Alliance stresses the importance of including data from Brazil, India and China in the annual GET2020 meeting reports.

R2. The Alliance recommends that, when preparing and implementing national Trachoma Action Plans and particularly as achievement of UIGs becomes imminent, relevant ministries, WHO, partners and donors should plan for activities during the surveillance period and the verification process, and decide what is required as post-verification activities. These stakeholders should be prepared to continue to support the programme through this entire process.

R3. The Alliance recognized the progress made through the Global Trachoma Mapping Project. Country programmes with unmapped districts should work with GTMP and its partners to plan and complete trachoma mapping in suspected endemic districts by March 2015. The endemic status of some countries remains unclear and they should be included in GTMP plans for mapping to initiate programmes or achieve verification of elimination. WHO is requested to clarify the criteria to determine where mapping is not required.

R4. The Alliance requests WHO to convene a working group, to spell out 1) the process and

scale of data collection required to demonstrate achievement of elimination and 2) the nature, scale, and duration of post-elimination surveillance required to ensure that the achieved level of low endemicity will be sustained in the future or further reduced. Its report should be presented at the 18th GET2020 meeting.

R5. The Alliance recognizes the unprecedented donor and funding support for trachoma global elimination in 2013. It is encouraged by the presence of several new donors and international partners and appreciates the engagement of the donors at the meeting. The Alliance encourages the donors to use the annual GET meetings to coordinate their efforts, in order to ensure maximum impact of available donor funding.

R6. Presentations by countries highlighted the importance of actively engaging ministries, donors and implementers working to improve water, sanitation and hygiene as part of an integrated disease prevention and control effort. The Alliance Secretariat should continue to reach out to water, sanitation and hygiene partners to join the Alliance with the aim at coordinating and targeting their efforts to improve the provision of these services, especially in trachoma-endemic areas. Each Alliance meeting should review progress on environmental health components.

R7. Future Alliance meetings should reach out to and engage with as many other partners and countries as possible which are interested in participating in continuing the growth of the trachoma community WHO is requested to ensure that meeting space and funding are adequately planned to host as many participants as possible to consistently ensure the growth of this international partnership.

R8. The Alliance recognizes the importance of the TSIW and recommends it take place in conjunction with the GET2020 Alliance.

R9. The Alliance expects an expansion of activities and of the work required once the global mapping activities are complete. The capacity of WHO to provide technical advice and support should be strengthened in the future.

## Date and place of next meeting

The 18th GET2020 Alliance meeting in 2014 will take place outside Geneva, possibly in an endemic country.

## Closure

Following the customary exchange of courtesies, the meeting closed at 12:10 on Wednesday 24 April 2013.





## Annex 1.

### Scope and purpose of the meeting

The purpose of the Annual Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma by the Year 2020 (GET2020) is to monitor progress towards elimination at global level, exchange information and experience on SAFE strategy implementation, review the partnership opportunities at global and national level, discuss obstacle and barriers to the achievement of the common goal, i.e. the elimination of blindness from trachoma by the year 2020.

The 17th meeting is expected to provide these opportunities and specifically to allow discussions on the following:

- Review of the global status of SAFE strategy implementation in endemic countries: Ultimate Intervention Goals (UIGs) and Annual Intervention Objectives (AIOs); detailed review of specific country situation.
- Update on the global Neglected Tropical Diseases (NTD) framework, with particular reference to the human resources training which can profit trachoma elimination;
- Update on the global funding initiatives for mapping trachoma;
- Review of the recent results of scientific and coordination meetings;
- Report from WHO and NGOs on various activities relevant at global level;
- Discuss the cooperation with WASH

Progress reports on the implementation of the

SAFE Strategy and activities to meet the Annual Intervention Objectives (AIOs), prepared in collaboration with all the national stakeholders, will be submitted by Country Representatives to the WHO Secretariat for presentation at the meeting.

Results from recent evaluations and lessons learnt will be presented to provide an opportunity for countries and partners to discuss further.

Updates on ongoing research projects and recent research findings on the SAFE (Surgery, Antibiotics, Facial cleanliness and Environmental improvement) strategy will also be presented.

Additional objectives of this meeting are:

- to review the progress made in the mobilization of resources at global/regional and national levels.

**Expected outcomes of the meeting are:**

- global monitoring of progress towards the elimination of blinding trachoma;
- improved understanding of financing mechanisms for NTDs among the WHO GET2020 Alliance partners;
- exchange of information on SAFE implementation at national level;
- report of the meeting to share progresses towards WHA51.11 with all endemic countries and partners.

# **Annex 2.**

## **Agenda**

**Opening of the meeting**

**Introduction of participants**

**Nomination of officers**

**Administrative announcements**

**Adoption of the agenda**

Agenda Item 1: Report from WHO on GET2020 and NTD

Agenda Item 2: Report from the Trachoma Scientific Informal Workshop

Agenda Item 3: Report of the International Coalition for Trachoma Control

Agenda Item 4: Azithromycin donation: report on donation and issues from programmes

Agenda Item 5: Report from the Global Trachoma Mapping Project

Agenda Item 6: Case-management challenges

Agenda Item 7: WASH panel

Agenda Item 8: Country focus: Reports from countries in different stages of SAFE implementation

Agenda Item 9: Donors' panel

**Conclusions and recommendations**

**Date and place of next meeting**

**Closure**

# Annex 3.

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