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**World Health
Organization**

Prevention of Blindness and Deafness

**Report of the Twelfth Meeting of the
WHO Alliance for the
Global Elimination of Blinding Trachoma**

Geneva, 28–30 April 2008



GLOBAL ELIMINATION OF BLINDING TRACHOMA BY THE YEAR 2020

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1. INTRODUCTION

The Twelfth Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma by the Year 2020 (GET 2020) was held at the headquarters of the World Health Organization (WHO), Geneva, Switzerland, from 28 to 30 April 2008. The meeting was attended by 80 participants, of whom 35 were national coordinators for trachoma control programmes (Annex 1).

Dr Ala Alwan, Assistant Director-General, WHO, Geneva, opened the meeting and welcomed the participants. The significant drop in the estimated number of cases of trachoma from 60 million in 2005 to 40 million in 2008 showed that the WHO-endorsed SAFE strategy – with its four components, eyelid surgery (“S”), antibiotic treatment (“A”), facial cleanliness (“F”) and environmental improvement (“E”) – was clearly working. It was providing improved treatment of infection and better care, reversing the eye damage caused by the disease, and tackling the underlying causes. In addition, data collection was improving, so that estimates were increasingly based on reliable information, and more and more populations were rising out of poverty. Nevertheless, some countries, including China, Ethiopia, India and Sudan, continued to face a considerable trachoma burden, and recent food crises and the impact of climate change on health would exacerbate efforts to improve the situation. The impressive progress made by several countries, especially the Islamic Republic of Iran, Morocco and Oman, was an optimistic sign, however, and should inspire others to follow their approach. Experience showed that sustained political commitment and the fruitful partnerships developed and maintained through GET 2020 were crucial for the successful delivery of the SAFE strategy, and WHO was committed to working with other Alliance members in the remaining endemic countries. The current meeting provided an opportunity to review global progress in combating blinding trachoma and to learn lessons that would enable countries to move forward to the attainment of the GET 2020 goal, and he looked forward to its conclusions and recommendations.

Dr Lorenzo Savioli, Director, Control of Neglected Tropical Diseases, WHO, Geneva, welcomed the opportunity to participate in the meeting and assured Alliance members

that WHO's cross-cutting initiative for the control of neglected tropical diseases (NTDs), which included trachoma, was being given high priority by the Organization.

Dr Anarfi Asamoah-Baah, Deputy Director-General, WHO, who joined the meeting on the second day, paid tribute to the Alliance for its contribution to the elimination of blinding trachoma and for the example it had given in showing how partnerships – governments working together with international and nongovernmental organizations, academia and the private sector – could be so effective in tackling disease. He also looked forward to receiving the Alliance's suggestions as to how best to move forward in controlling NTDs, including trachoma, diseases of poverty that should be eliminated.

Professor Nohou Konkouré Diallo (Guinea) was elected Chairman, Ms Catherine Cross (Sight Savers International) Vice-Chairman, and Mr Ansuma Sillah (Gambia) and Dr B. Bernadette Yoda (Burkina Faso) Rapporteurs. The Agenda was adopted (see Annex 2).

2. REVIEW OF TRACHOMA DATA FORMS

Dr Silvio Paolo Mariotti, Medical Officer, GET 2020 Secretary, World Health Organization, Geneva, Switzerland

The growing participation of country representatives and other partner organizations in its annual meetings indicates sustained interest in the Alliance work.

The increasing availability of district-level data based on surveys rather than estimates and evidence from countries that have not reported previously have greatly improved knowledge of the trachoma burden. The information supplied by countries shows that delivery of the SAFE strategy has expanded and there has been an increase in links with poverty-reduction activities and education. There is better coordination of activities between governments and their nongovernmental partners, and increasing collaboration between sectors. Benefits are also accruing from the long-standing commitment of international partners in some countries, the engagement of new

partners, and the integrated approaches to the control of NTDs, including trachoma. However, many countries are still not using the ultimate intervention goals (UIGs) and annual intervention objectives (AIOs) to monitor their trachoma control programmes. Political commitment is often confined to expressions of support, with no practical action, and national plans do not provide a road map for implementation by partners. Moreover, opportunities are lost and resources wasted when new initiatives fail to take advantage of existing efforts and competences.

The revised trachoma data forms were sent to 45 endemic countries in 2008. Completed forms were received from 38/45 (84%) compared with 28/40 (70%) in 2007. Countries are once again urged to submit their forms in good time to permit their analysis prior to the annual meeting. For 2008, 31 were received on time after reminders were sent. However, the quality of the data supplied remains disappointing in many cases. To avoid problems in interpreting hand-written forms, countries will be requested to complete the forms electronically in future.

Survey data were supplied by 25 of the 38 (66%) countries that submitted forms. Endemicity at the district level was reported by 30 countries; in three, Islamic Republic of Iran, Morocco and Oman, there are no remaining endemic districts. Information on UIGs and AIOs for surgery was reported by 26 (68%) and 27 (71%) countries, respectively; for antibiotic administration by 25 (66%) and 23 (61%) countries. Although surgery is gradually expanding, the gap between the number of operations performed and the AIOs is increasing, indicating difficulties in delivering this component. Greater focus in this area is needed in order to eliminate blindness due to trachoma. Antibiotic treatment continues to expand at an encouraging rate and coverage exceeded 80% in 42% of countries presenting data. Information on AIOs for the “F” and “E” components was reported by 13 (34%) and 35 (92%) countries, respectively. Collection of data on the “F” component remains difficult without a clear definition of indicators. Information in relation to the attainment of Millennium Development Goal 7 was provided by 28 (74%) countries, although knowledge of requirements does not guarantee action in this area.

Target dates for the elimination of blinding trachoma have been adjusted for some countries, but the 2020 goal remains attainable.

Discussion

Data form completion. It is disappointing that, despite the demonstration of the new trachoma data forms at the Eleventh Meeting in 2007, completion of the forms remains inadequate. Endemic countries are urged to improve their reporting in order to provide a better assessment of the global trachoma burden and progress towards GET 2020. Particular efforts are needed to obtain data from endemic countries for which no information is currently available

SAFE coverage. The data supplied on the trachoma data forms shows how far countries have progressed towards the attainment of their AIOs rather than giving a clear indication of geographical or population coverage with the SAFE components. Countries are encouraged, with the support of partners, to include district-level coverage targets in their national plans and to undertake coverage surveys as for the other disease control programmes that make use of mass distribution of antibiotics.

Annual national plans. WHO should support countries in developing annual national plans that translate longer-term strategic plans into policies for action by government and partner organizations.

3. INTERNATIONAL COALITION FOR TRACHOMA CONTROL

Mr Chip Morgan, Vice President, Operation Eyesight, Vancouver, Canada

The International Coalition for Trachoma Control (ICTC), a grouping of non-governmental organizations involved in trachoma control, has agreed that it will continue to hold two meetings each year: one independent meeting held in conjunction with the annual meeting of the Alliance, and one joint meeting with the **Global Network for Neglected Tropical Disease Control (GNNTDC)**.

ICTC continues to advocate implementation of the full SAFE strategy. This has been recognized by the GNNTDC as it is becoming increasingly apparent that this integrated approach can offer benefits in the control of the other NTDs, and that mass

drug administration is not enough. The position of ICTC in relation to the other disease groups involved is still not entirely clear but it appears likely that NTD initiatives may provide the best source of funding for trachoma control in the future.

ICTC provides a range of opportunities for increasing collaboration between its members within countries and regions in the areas of trachoma control funding and research, and the sharing of expertise in addressing all four components of the SAFE strategy. This collaborative approach will be crucial as trachoma control becomes integrated in NTD control programmes.

Discussion

Trachoma and the integrated control of NTDs. As new NTD initiatives evolve, it will be important to ensure that important specific characteristics of the control programmes for the individual diseases, including trachoma, are maintained.

ICTC representation at NTD meetings. ICTC should consider establishing a mechanism to ensure that it is always represented by at least one member at the increasing number of meetings of various NTD alliances at the national, regional and international level. Such representation will ensure that trachoma and the SAFE strategy are included in all strategic plans.

4. PUBLIC-PRIVATE PARTNERSHIPS IN NEGLECTED TROPICAL DISEASE CONTROL. THE PERSPECTIVE FROM THE PRIVATE SECTOR: PFIZER AND AZITRHOMYCIN DONATION FOR TRACHOMA CONTROL

Mr R.L. Mallett, Senior Vice President, Worldwide Alliance Development, Philanthropy, and Corporate responsibility, Pfizer Inc., and President of the Pfizer Foundation, New York, NY, USA

Mr Mallett, welcoming the opportunity to address a public session at the Alliance meeting, said that, thanks to the work of all those in the front-line of delivering the

comprehensive SAFE strategy, great progress has been made towards the elimination of blinding trachoma. In the early twentieth century, people trying to enter the United States of America were turned away if found to have trachoma. The country only became trachoma-free in the 1960s, and it was only in the 1980s that a research programme at Pfizer, initially unpromising, finally showed signs of success with tests on its new antibiotic, later named Zithromax (azithromycin). For treatment of trachoma, an annual dose of azithromycin has now replaced a 6-week regimen of tetracycline ointment that was painful for patients and painstaking to administer. Moreover, research results published recently suggest that, in communities with low levels of trachoma (although not where the disease is hyperendemic), a single or two doses of azithromycin may be enough.¹

Pfizer is proud of its role in developing and supplying the drug that is helping to conquer trachoma and of being a co-founder, with the Edna McConnell Clark Foundation, of the International Trachoma Initiative (ITI). Together with its many partners – including the Bill & Melinda Gates Foundation, the Carter Center, the Helen Keller Foundation for Research and Education, Lions Clubs International, Sight Savers International and World Vision – ITI now works in 250 districts in 16 countries. By the end of 2008, Pfizer will have met or exceeded its pledge to the United Nations to increase its donation to 135 million doses. Clearly, azithromycin treatment is only one component of the SAFE strategy. ITI is also involved in training surgeons to perform trichiasis surgery, and working with partners in many countries to deliver the other components of the strategy, such as the building of latrines to improve sanitation. For example, with ITI support, the Carter Center has exceeded all expectations in its project in the Amhara region of Ethiopia, where more than 300 000 latrines have been constructed. ITI must continue to build stronger partnerships that support governments and sustain health systems, find new sources of funding and encourage more participation in the SAFE strategy. Pfizer is committed to this long-term partnership, which is central to its core mission of working together for a healthier world.

¹ Solomon AW et al. *New England Journal of Medicine*, 2008, 358: 1870–1871.

The integrated approach to NTD control should prove beneficial since such diseases often occur together in areas where there is poverty. Moreover, the initiative is generating political commitment at the highest level across the world and looks set to generate a significant increase in financial resources. The coordinated control of onchocerciasis, lymphatic filariasis and other parasitic diseases has shown that disease control programmes can be combined, and there is no reason to believe that trachoma control cannot also be successfully incorporated. WHO will have a leading role to play in defining the steps necessary to ensure effective coordination.

While governments have the responsibility for their disease programmes, and must make resources available to them, they cannot succeed without support from international and nongovernmental organization and the private sector. With successful public-private partnerships, it should be possible to attain the important goal of eliminating blinding trachoma.

Discussion

Expression of appreciation. The Alliance expressed appreciation to Mr Mallet for his participation in its meeting and reiterated its thanks to Pfizer Inc. for the company's enormous contribution to the control of trachoma to date, and for its renewed commitment to continue its support for activities to attain GET 2020.

Public-private partnerships. Key elements for success include: respect between partners; recognition of cultural differences; respect for the core competences of different partners – who should be held to account for those competences – while recognizing interdependence; and monitoring and evaluation to ensure that successes and failures are properly understood. Public-private partnerships have the potential to support countries in strengthening health systems and expanding the capacity of their health ministries to exercise ownership of policies undertaken within their borders.

Antibiotic regimen. While results with azithromycin have undoubtedly been highly successful, caution is urged in interpreting the results of studies of interventions comprising a single dose of azithromycin, since conditions vary and additional interventions, e.g. with tetracycline, may be needed. It should be emphasized that a single-dose regimen is not applicable to hyperendemic areas.

Update on Ethiopia. The project in the Amhara area now involves the entire population (19 million): 10 million doses of azithromycin have been administered; 100 000 operations to correct trachomatous trichiasis have been performed; and it is hoped that, by the end of 2008, 500 000 household latrines will have been constructed.

5. REPORT OF THE TRACHOMA INFORMAL SCIENTIFIC WORKSHOP 2008

Dr Rajiv Bhalchandra Khandekar, Ophthalmologist, Epidemiologist, Eye & Ear Health Care, Eye Health Care Programme, Ministry of Health Muscat, Oman

The 2008 Trachoma Scientific Informal Workshop took place at WHO headquarters, Geneva on 25 April; with around 20 participants. Scientists generating evidence-based information in countries are encouraged to participate in future meetings. The Workshop came to the following conclusions.

Post-UIG activities. Countries are required to provide evidence-based data to show that they have attained their UIGs for the elimination of blinding trachoma. Once this stage has been reached, it is vitally important to maintain vigilance to ensure that there is no resurgence in trachoma.

Rapid assessments for avoidable blindness. Such assessments provide a valuable opportunity for determining the burden of trachomatous trichiasis (TT). Assessment protocols should be adjusted to permit the recording of TT.

TT diagnosis and management. Special care is needed in the diagnosis and management of TT in children. Follow-up of all TT cases after surgery should be undertaken to ensure that there is no recurrence. Recurrent cases should be specifically addressed. Emphasis should be given to the inclusion of TT service provision in NTD control and Vision 2020 programmes.

School surveys. School surveys for NTDs may be useful in identifying trachoma hotspots, but only where school enrolment rates are high. Such surveys will not identify adult TT and are not intended to replace the surveys currently recommended by WHO.

Trachomatous inflammation as an indicator. WHO trachoma grading guidelines give due importance to intense trachomatous inflammation (TI). However, indicators for trachoma control have tended to focus on follicular trachomatous inflammation (TF). Further research is warranted to investigate the potential of TI as an indicator in evaluating the impact of interventions.

Hygiene measures. Further research is needed to evaluate the effectiveness of hygiene measures – hand-washing, clothes-washing, latrine use, control of flies, etc. – in reducing trachoma transmission.

Antibiotic coverage. Antibiotic coverage data should be interpreted with caution since the methods used to collect and calculate such data vary considerably between and within countries.

Point-of-care test for trachoma infection. A satisfactory test is not yet available. A rapid method for the detection of *Chlamydia trachomatis* in eye swabs that does not require electricity was presented to the Workshop. The test is sensitive but specificity and the test format require further research; the test also requires field testing.

Discussion

Rapid assessment for avoidable blindness (RAAB). A rapid assessment for cataract surgical services was developed some three years ago and has been used in Vision 2020 activities. It has now been modified to become the RAAB, which assesses the burden of all major causes of avoidable blindness. It comprises an epidemiological cluster survey of people aged >50 years – 80% of blindness in low- and middle-income countries occurs in this group. Corneal scar is covered by the RAAB but TT as such is not. It should not be too difficult to modify the RAAB further to include TT. However, the assessment would not pick up cases of TT in younger people.

TT in children. TT is a public health problem in children aged 1–14 years in some areas, for example, in southern Sudan and Ethiopia, with a prevalence of 3% recorded in some locations.

School surveys. National trachoma elimination programmes should continue to conduct surveys as recommended by WHO.² As trachoma programmes develop, prevalence data at the district and then community level should be collected. Where school enrolment is high and district-level prevalence of TF in children 1–9 years of age is between 5% and 9%, trachoma surveys in schools may be useful, as an additional tool, to identify communities needing trachoma intervention. Further, school-based trachoma surveys may be integrated with mapping of other disease programmes that take a community approach to assessment and intervention (e.g. schistosomiasis control programmes). However, such surveys should be interpreted with caution and should not replace district cluster surveys because they do not provide a true estimate of the prevalence of TF in children aged 1–9 years (preschool age children are not sampled and school enrolment varies widely), or an estimate of TT in adults.

Antibiotic coverage. Work undertaken in a hyperendemic area in the central region of the United Republic of Tanzania showed that, after three annual rounds of azithromycin treatment with reported coverage of 80%, trachoma prevalence in 100 villages was reduced from 50% to 12.5%. On the basis of these results it has been estimated that after 10 years the prevalence could be reduced to <5% in most communities. It is therefore desirable to increase coverage, especially in younger children, and it may well be necessary to continue annual rounds of mass drug administration for a longer period than has been anticipated.

² *Trachoma control. A guide for programme managers.* Geneva, World Health Organization, London School of Hygiene & Tropical Medicine, and International Trachoma Initiative, 2006.

6. POST-ENDEMIC SURVEILLANCE SYSTEMS FOR BLINDING TRACHOMA

6.1 Oman

Dr Rajiv Bhalchandra Khandekar, Ophthalmologist and Epidemiologist, Eye & Ear Health Care, Eye Health Care Programme, Ministry of Health Muscat, Oman

Oman is on the verge of applying for certification of the elimination of blinding trachoma and has appointed a team to conduct the certification process. Oman began surveillance for trachoma in 1983. Surveillance – the systematic collection, analysis and dissemination of data to inform public health activities – may be active or passive. Active surveillance requires specific action to obtain information, while passive surveillance relies on the recording of information that comes to the notice of the health system.

Oman, a Member State of the WHO Eastern Mediterranean Region, has 11 health regions divided into 61 districts (*wilayats*), and the 200 Ministry of Health institutions have well-demarcated catchment areas. The eye health care programme is conducted under the guidance of a national eye health care and Vision 2020 committee through numerous optical and cataract clinics. The Ministry of Health has one tertiary hospital and nine regional hospitals, 21 eye clinics with ophthalmologists for outpatient care, and 163 primary health care centres where the physicians are trained in primary eye care. There are also private health and eye care facilities, and a nongovernmental organization, Al Noor Association for the Blind, supports many activities to combat blindness.

Education is free and school enrolment is 100% at the primary and 80% at the secondary level. Each year, all primary schoolchildren (around 45 000) undergo a comprehensive eye screening, and prevalence rates for TF and TI in children aged 6–7 years are generated. The households of all the children with active trachoma are visited and family members are screened for TF, trachomatous conjunctival scarring (TS) and TT (1200 persons in 2007). All cases of active trachoma are treated with

azithromycin. Health care facilities implement a surveillance system that comprises notification on a monthly basis of all cases of TF and TT presenting for care.

Regular surveys have also been undertaken. In 1996–1997 a community-based survey of blindness showed that active trachoma was not common in the south of the country; prevalence in the north was 1–5%. Prevalence of TT was also low in the south and higher in the north. In 2005–2006, there were only two regions where TF was >5%. In 2004–2005, an additional survey of all primary school children aged 6–12 years in three districts showed that prevalence was <5%. Active surveillance for TF in preschool children in three regions endemic for trachoma, undertaken as part of a poliomyelitis campaign in 2005, indicated a prevalence of 0.4–1.0%. It is hoped that pre-school surveillance can be implemented in the future. In 2005, a national glaucoma survey used to estimate the prevalence of TT in people aged >40 years showed a prevalence of >5% in two districts. Surveillance in people aged >12 years since 1998 has consistently shown that prevalence of TT is higher, but not significantly so, in females; uptake of surgery, which is free of charge, is also higher in females. Primary health care centres maintain a TT registry. In 2007, 1648 cases of TT were reported; corrective surgery was undertaken in 125 and electroepilation in 77. A study of TT in 2008 indicated a prevalence of 4.3–14.6%, including previously managed cases; however, in some districts no new cases were found.

There is a clear and regular flow of computerised trachoma surveillance information from the periphery to the centre and on to the international level. The data are analysed at the national level and results are disseminated every six months. The private sector reports information on eye diseases annually but data on trachoma are not currently included.

Incidence of active trachoma has declined significantly since surveillance began and in recent years has remained at <5%. Active trachoma is classed as a group B notifiable disease and, in 2007, 64 reported cases of TF were confirmed, mostly from previously endemic areas.

Trachoma control, including the importance of face-washing, is incorporated in the school curriculum, and health education campaigns are conducted weekly in schools

and also for adults. Activities related to the “E” component are integrated in those aimed at the attainment of the Millennium Development Goals. In schools, quality of water, ventilation, illumination and sanitation are checked twice a year. Such efforts may be sufficient to monitor the “F” and “E” components, without specific activities related to trachoma control.

Surveillance has helped Oman to monitor the reduction of trachoma and progress towards the elimination of blinding trachoma. It also helps in identifying trouble spots, in generating internationally acceptable indicators and timely action in pockets of high endemicity, and in appealing for additional funding from higher government authorities. It has also highlighted areas where resurgence was occurring. The Oman programme shows that surveillance for active trachoma can be incorporated in health, eye-care and school-based programmes, and in communicable disease surveillance. A TT register can be useful in case-finding in high-risk populations. A reliable health information and management system can incorporate information on eye care, including trachoma, thereby avoiding duplication of effort.

Discussion

Socioeconomic indicators are useful in assessing disease data; trachoma prevalence tends to be higher in areas of low socioeconomic development. In Oman, information related to the indicators for the attainment of the Millennium Development Goals is collected; gross domestic product is around US\$ 7000.

Surveillance system. Countries must implement active surveillance in order to control trachoma and to attain and be certificated as attaining the elimination of blinding trachoma. In many cases, existing systems will require strengthening to ensure that surveillance is effective.

Surveillance cost. Separate costs for trachoma surveillance in Oman have not been calculated. However, sufficient resources are available and health staff, often from overseas, are paid good salaries. Oman is a country in transition from developing to developed, and noncommunicable diseases are becoming a burden. Its primary health care and eye care systems are well developed and provide a good model for others.

TT surgery. Oman is seeking to distinguish post-surgical recurrence of TT and number of patients refusing surgery after contact from unapproached cases. In terms of unapproached cases, Oman is in line with the GET 2020 target. The TT registry

includes all cases detected and these are followed through primary health care centres, which have a clear catchment area and screen those aged >40 years every six months.

6.2 Mexico

*Dr Miguel Angel Lutzow Steiner, Urgencia Epidemiologicas y Desastres,
Centro Nacional de Vigilancia y Control de Enfermedades , Mexico*

As reported at the Eleventh Meeting of the Alliance, Chiapas is the only state in Mexico where trachoma remains endemic. The endemic zone extends across 250 communities in five municipalities, total population 135 000. The human development index is lower here than elsewhere in Mexico. Active surveillance, prevention and control activities, including implementation of the SAFE strategy at a community level through a system of microregionalization, have been implemented since 2004.

Results to the end of 2007 indicate that coverage for house-to-house case detection was 81.9% compared with 89.4% in 2006 owing to a diminution in the resources available and to staff and political changes. All detected cases of active trachoma and their family members and contacts (1695 people) were treated with azithromycin. Prevalence of TF/TI in children aged 1–9 years was 0.62%. Prevalence of TT in males and females aged >14 years was 0.12%. A total of 11 operations to correct TT were performed in 2007. A further 66 persons require surgery; the AIO for 2008 is 50. Facial hygiene was assessed in children aged 1–10 years in 2005 during ocular examination, at which time 96% were considered to have a clean face. Environmental activities have emphasized the construction of latrines and water supply systems, training in responsible use of water, cleaning of house yards and building of corrals. Some 1500 large water storage tanks have been distributed. Nearly 415 teachers have been trained in three municipalities. The regional week to fight trachoma was again held in October, with extensive community participation.

Trachoma control activities are integrated in the municipal health plans of the five affected municipalities, with strong intersectoral collaboration involving the health,

education, water and social development sectors, and research institutions, through the social network to fight trachoma. Further details of Mexico's programme are given on the PAHO web site (www.mex.ops-oms.org).

Strengths. The programme has a specific budget and the microregional approach ensures participative management. Despite diminished financial resources, an advance of 40% has been received for 2008. The programme is intersectoral and employs trained personnel. The active surveillance system provides reliable epidemiological data.

Weaknesses. The 2007 budget was not properly assigned and there were changes in personnel. Access to the affected areas remains difficult. Analysis of comprehensive risk factors and evaluation of the impact of interventions has not been undertaken.

Opportunities. The 2007 national strategy for attention to those municipalities with a lower human development index covered three municipalities where trachoma is endemic. The Chiapas programme can be used as a model in other states to determine whether trachoma is endemic. The process of elimination of blinding trachoma can now be initiated in Chiapas.

Threats. Administrative political transition, with a change in local authorities every three years, and resistance by the population to government services affect delivery of the programme. The emergence of other diseases, such as dengue, may reduce the resources available for combating trachoma once it is no longer considered to be a major public health problem.

Discussion

Surveillance. In Chiapas, a brigade of specially-trained personnel continues to undertake house-to-house visits in affected communities annually to seek cases of active trachoma and TT. Some countries have attained their UIGs but have insufficient data to apply for certification. Countries need further guidance on the duration and extent of surveillance at all stages of trachoma control, especially where resources are limited.

Target date. It is hoped that elimination of blinding trachoma can be achieved in Mexico between 2011 and 2013.

6.3 Brazil

Dr. Maria de Fatima Costa Lopes, Coordinator, National Trachoma Program, Ministry of Health Brasilia, Brazil

Brazil has 27 states and a population of around 183 million, 80% living in urban areas; 77.8% of households are linked to the public water system. In earlier years, the Ministry of Health undertook trachoma surveillance and control activities in endemic areas, where prevalence was >30%. By 1970 it was believed that trachoma had been eliminated and services were reduced. After 1998, trachoma control and surveillance were decentralized to the state and municipality level, with coordination at federal level and technical support funded by the Ministry. Activities were being implemented in 25 states by 2007. A school survey undertaken in 26 states between 2002 and 2007, which covered nearly 165 000 students, showed a prevalence of active trachoma of 4.8%, TF in 99.5% of cases. Among the 1 130 municipalities sampled in 18 states, prevalence was >10% in 166 (14.6%) and between 5% and 10% in 192 (22.0%). Prevalence was higher in states in the northwest of the country. Household surveys for TT between 1989 and 2006 in various states indicated that prevalence ranged from 2% to 8%, with higher levels recorded in the Amazonian region.

Surveillance comprises active searches for TF and TT in high-risk areas (prevalence >10% and >1%, respectively). Mass drug administration is instituted in areas where TF prevalence in children aged 1–9 years is $\geq 10\%$. Where TF prevalence is <10%, household searches are conducted and cases and contacts are treated in accordance with WHO guidelines. Cases detected and management activities are recorded on two forms. Households are re-examined six and 12 months after treatment. If there is no TF or TI after 12 months, the case leaves the information system. Where prevalence is <5%, epidemiological surveillance will be implemented. Information on trachoma is recorded electronically in the national information system, which has a geo-

positioning facility to pinpoint cases. Personnel are trained in surveillance procedures and recording forms and manuals are distributed to all states and municipalities.

Challenges. There is a need to overcome logistic problems so as to scale up active searches in remote regions, especially among indigenous peoples, for active trachoma and TT, and to increase referrals of TT cases. Trachoma is not considered to be of high public health priority and awareness of the disease is generally low among health professionals. Primary health care services have increased significantly over the past decade and the family health programme covered 86.7% of the population by 2007. Trachoma surveillance and control activities, and ophthalmological services will need to be integrated into the primary health care system if the target date for the elimination of blinding trachoma of 2015 is to be attained. Laboratory availability of polymerase chain reaction (PCR) technology will need to be expanded.

Discussion

Surveillance. In Brazil, surveillance will be continued to ensure that there is no resurgence of trachoma, integrating activities in the primary health care surveillance system.

7. UPDATE ON TRACHOMA EPIDEMIOLOGY

7.1 Mauritania

Professor Sidi Ely Ahmedou, Coordinator, National Programme for the Prevention of Blindness, Ministry of Health, Nouakchott, Mauritania

Mauritania has an area of just over 1 million km² and a population of around 3 million, 60% living in urban areas. The current GNP is US\$ 500. Trachoma is endemic in seven of the 13 regions and in 29 of the 53 districts in the affected regions. The population at risk totals some 1.5 million.

A regional survey in 2004–2005, which covered eight districts, showed that the prevalence of TF/TI was 24.2% (range 2.4–25.6%) and the prevalence of TT in

people aged >14 years was 0.26%. The trachoma control programme was started in two regions in 2004 and has now been extended to all endemic regions. The UIO for TT surgery is 1816. For 2007, 83.8% of the target (260 operations) set as the AIO were performed. The AIO for 2008 is 180. Although 26 trained personnel and surgery kits are available, with support from Lions Clubs, strategies for case-finding and referral are difficult to implement, and the quality of surgery could be improved. Thanks to the Bouamatou Foundation and ITI, computerized distribution of more than 500 000 doses of antibiotic was achieved in 2007, a coverage of 84.4%. The target for 2008 is 103 000 doses to be distributed in two remaining districts and as a fourth round in two districts where the prevalence remains at >10%. There has been a sharp decline in prevalence of TF/TI since 2004. For example, in the Adrar and Tagant districts the prevalence of TF fell, respectively, from 25.4% and 25.6% in 2004 to 9.7% and 6.1% in 2007 after three rounds of treatment.

Although results have been satisfactory in respect of the antibiotic component of the SAFE strategy and some progress has been made on surgery, there are insufficient resources available to tackle the “F” and “E” components. Various factors restrict activities: political changes, other burdens on the Ministry of Health, and the lower donor interest in these areas. Partners are requested to provide enhanced support in order that Mauritania can implement a comprehensive SAFE strategy in future years.

Discussion

TT. It is difficult to compare rates of TT unless they are age specific. Strategies for TT case-finding should be improved in Mauritania to make better use of personnel trained in TT surgery.

7.2 India

*Dr K.P.S Malik, Additional Director-General, Ophthalmology Division,
Directorate General of Health Services, New Delhi, India*

As reported to the Eleventh Meeting, a Trachoma Rapid Assessment was undertaken in 2006 to determine whether trachoma remained a public health problem and to

assess the need for intervention. The assessment was conducted in accordance with the WHO guidelines for rapid assessment, with some modification, by one reputable eye institution in each state. Trained teams visited 2772 households in 101 villages in 10 districts in six previously hyperendemic states in the north-west of the country. The most deprived houses in each village were identified through a process of consultation and observation and from these houses 50 children aged 1–9 years were examined. Tally sheets were used to ensure that equal numbers of children below and above the age of 5 years were examined. Facial hygiene was observed, unclean faces being defined as the presence of discharge from the eyes or nose, crusting of discharge around the eye or nose and/or the presence of flies on discharge around the eyes or nose.

The assessment indicated that percentage of children with TF/TI ranged from 0.6% to 15.2%, with two districts showing an estimated prevalence of >10%, while prevalence of TT ranged from 0.04% to 0.27%. It was concluded that trachoma control efforts were still needed in some districts and that improvements in personal and environmental sanitation would make a valuable contribution. District programme officers in six states have since been trained on the SAFE strategy.

In 2007, a population-based study was undertaken in Bulandshahr, Uttar Pradesh; it included 60 village clusters with a population of 111 493. A total of 4 498 households were contacted: 7 070 children aged 1–9 years were examined for active trachoma and 9 363 females aged ≥ 15 years were examined for TT. Active trachoma was found in 67 children (0.94%) of whom 41.3% were judged to have unclean faces. TT was found in 185 females (1.97%), 73 with and 112 without corneal opacity; TT was recurrent in 15 of the cases. Prevalence of TT ranged from 0.2% in females aged 15–30 years to 10.4% in those aged 61–75, with a sharp increase in prevalence in those aged >45 years.

It was concluded that, while active trachoma is not a public health problem in the village clusters surveyed, antibiotics should be available to treat cases, TT surgical services are needed for women aged >45 years and there is room for improvement in personal and environmental sanitation.

Discussion

Trachoma rapid assessments (TRAs). While TRAs are useful, especially to identify presence of blinding trachoma, it should be emphasized that they do not yield prevalence estimates since they are focused on the most affected areas. India is planning further population-based surveys to determine whether pockets of active trachoma remain. India is encouraged to collaborate with Nepal in areas along the border.

TT. If household visits are made, it makes sense to examine both men and women for TT in order to obtain a better indication of the need for surgical services and to set the UIG for TT surgery more accurately.

Prevention of blindness. Trachoma control in India is part of the national programme to prevent blindness, which is undertaken in collaboration with IAPB and Vision 2020, although some activities are subcontracted to particular institutions. Cataract surgery has been the main priority to date, although greater attention is now being paid to other causes of blindness, including TT. The programme provides a good model for other countries. General economic development and improvement in environmental sanitation as well as antibiotic treatment have contributed to the decline in the prevalence of active trachoma.

7.3 Nepal

*Mr B.B. Thapa, Programme Director, National Trachoma Programme,
Kathmandu, Nepal*

Trachoma remains endemic in 15 of Nepal's 75 administrative districts, placing a population of 6 million at risk. The national trachoma programme started in 2002 and is implementing the SAFE programme in the endemic districts. The "A" component has now been phased out in five districts in which TF has been reduced to <5% since 2002, although activities in respect of the "S", "F" and "E" components are continuing. The disease burden in 46 districts has been determined and TRAs will be conducted in the remaining 29 districts during 2008. A mid-term review of the five-year strategic plan is under way to confirm the target date of 2010 for the elimination of blinding trachoma.

In 2007, 1 477 TT surgeries were performed (13 358 to date) by the 46 trained surgeons, and training in the SAFE strategy was given to 5 252 female community health workers and 822 health promotion staff (20 876 and 2 692 to date, respectively). The target for antibiotic distribution was 3.8 million doses, but because of budget constraints due to political changes, only 0.9 million doses were administered. In the course of a designated sanitation week, 18 530 household latrines were built (46 351) and 1 534 water points were improved in collaboration with the Ministry of Housing and Physical Planning.

In districts where an initial TRA indicates a prevalence of >10% in children aged 1–9 years, a full prevalence survey is conducted. The SAFE strategy is implemented in any district with a prevalence of >10%. Efforts are continuing to mobilize national and external resources to implement the programme. ITI supported prevalence surveys during 2007. It is hoped to expand interventions in endemic districts during 2008.

Strengths. There are eye hospitals and trained human resources available for TT surgery in trachoma-endemic districts. The Ministry of Health and Population gives priority to the trachoma control programme and can use its existing network for azithromycin distribution. Water and sanitation partners are committed to delivering the “F” and “E” components as part of their regular programme.

Weaknesses. The national programme is unable to determine the trachoma burden throughout the country or to mobilize sufficient resources for all the SAFE components, so that the expansion to new districts has been delayed. It also lacks the capacity to monitor the drug distribution campaign adequately.

Opportunities. Nepal has secured the support of Pfizer, through ITI, for donation of the required quantity of azithromycin, and the Ministry of Health and Population will provide financial support for customs clearance and drug distribution. The Indian Embassy stands ready to provide financial support to the Nepalese nongovernmental organization that provides eye care for TT surgery, and “F” and “E” partners are willing to collaborate with the national trachoma control programme.

Threats. The annual budget approval process for the Ministry and the Embassy of India makes long-term planning difficult in respect of the “S” and “A” components. Funding from donors does not include support for human resources or the running costs of the national programme. After six years of implementation of the SAFE programme, blinding trachoma has been eliminated in five districts, but it remains a public health problem in 10 districts. Unless further support from the Government and donors is mobilized, it may not be possible to eliminate blinding trachoma by the target date, 2010.

Discussion

Surveillance. Nepal conducts prevalence surveys to determine whether mass drug administration is indicated (prevalence of active trachoma >10%). If an impact survey after three rounds of treatment indicates that active trachoma is <5% and TT is <1%, the district is considered to be free from blinding trachoma. Maintenance surveillance should be continued to ensure that there are no remaining trachoma hotspots once the district-level prevalence has declined to <5%. Nepal is therefore encouraged to seek funding for community-level surveys.

7.4 Democratic Republic of Congo

*Dr J. Ndjemba Yermbangh, Chief, Office of Eye Diseases, Ministry of Health.
Kinshasa, Democratic Republic of Congo*

The Democratic Republic of Congo is a vast country (2 345 000 km²) with an estimated population of 65 million. Trachoma is endemic in two areas (Ituri and North Kivu), which adjoin the borders with Sudan, Uganda and the United Republic of Tanzania, with a population at risk of around 9 million. The country’s infrastructure has been decimated by prolonged war, which has also exacerbated the socioeconomic crisis. Gross domestic product is US\$ 147 and public funding is US\$ 4.5 per inhabitant per year, which includes funding for control of HIV/AIDS. Poverty affects 80% of the population. Drinking-water is available to 21% of the population and the literacy rate is around 65%. Access to and use of health services is low, and maternal

and infant mortality are high (1 285 per 100 000 live births and 126 per 1000 live births, respectively). The Government is therefore giving priority to health in its efforts to improve socioeconomic development.

Trachoma is confined to certain isolated districts of Ituri and North Kivu and transmission has been exacerbated by the poor living conditions resulting from the war and the influx of refugees from endemic regions in neighbouring countries. Trachoma control efforts have also been hampered by the war, the lack of organized programmes and trained staff, and the lack of reliable epidemiological data.

The current objective is to eliminate blinding trachoma within five years. A TRA will be conducted in Ituri and North Kivu as soon as possible, hopefully during 2008, and the SAFE strategy will be implemented where required. Support from WHO and other partners will be needed to establish a national trachoma control committee, to mobilize resources for trachoma survey and control activities, to formulate a trachoma control plan and to provide the necessary training, equipment and health education. A timetable for the proposed activities has been drawn up, with a preliminary budget of US\$ 120 000.

7.5 Uganda

Dr Stanley Bubikire, Coordinator, National Eye Care, Disability Prevention and Rehabilitation, Ministry of Health, Kampala, Uganda

Trachoma is endemic in 24 districts, with a population at risk of 7 million. It is estimated that 700 000 children aged <10 years have active disease, 35 000 people have TT and 12 000 are blind from trachoma. The Ministry of Health is giving priority to the elimination of blinding trachoma in the affected districts through the five-year plan 2005–2009. A national trachoma task force has been established and is using the WHO standard protocol for baseline trachoma surveys to determine the disease burden more accurately. A workshop to train trainers facilitated by ITI experts was organized in September 2005.

After the completion of the first batch of seven surveys in 2006, a trachoma control plan was developed and control activities are under way in the districts concerned. Azithromycin tablets and syrup donated by Pfizer were distributed in the first mass drug administration between November 2007 and January 2008, with coverage of 51–86%. Uganda is a landlocked country, which can sometimes lead to logistic problems. For example, implementation was affected by supply problems resulting from political unrest in the neighbouring country, Kenya.

Teams completed surveys of four more districts in 2007–2008, bringing the total to 11. The 2008 surveys (in Moroto, Bugiri, Nakapiripirit and Mayuge) were conducted as reported to the Alliance's Eleventh Meeting. The parish was used as the primary cluster since it was the smallest administrative unit with census data. A questionnaire was administered and household members were examined in 20 clusters (parishes) in each district. All cases of active trachoma were treated with tetracycline eye ointment and cases requiring TT surgery were referred to the nearest health unit for surgery as soon as possible. No revisiting of households was possible in Moroto and Nakapiripirit because of insecurity and the semi-nomadic nature of communities. Analysis of the data indicated that the overall response rate ranged from 69.6% to 78.9%. The burden of trachoma is higher in the semi-nomadic areas and this is associated with lower levels of environmental hygiene. Prevalence of TF in children aged 1–9 years was 10.4% in Bugiri and 14.9% in Mayuge, but 57.1% in Moroto and 57.8% in Nakapiripirit. In respondents aged ≥ 15 years, prevalence of TT was 2.8%, 3.2%, 14.8% and 17.8%, respectively, and the proportion aware of trachoma and the need for facial cleanliness was 76%, 78.6%, 31.6% and 24.9%. The proportion of the population with access to a water source was 76.8%, 81.9%, 44.8% and 43%, and the other environmental measures showed a similar pattern. Mass drug administration in the four districts is planned for October 2008 and it is hoped to expand TT surgical services to these districts.

Uncertainty regarding support from the United States Agency for International Development (USAID) programme has affected survey activities, but it is hoped that further surveys will be conducted in the near future. The trachoma control plan envisages that efforts will be continued through use of the mass media, the development and dissemination of information, education and communication (IEC)

materials to increase the awareness of the general public and teachers of the importance of measures to control trachoma through the SAFE strategy, and kinship mobilization for antibiotic distribution (with the support of the Carter Center). Further training and health education are needed to increase the pool of TT surgeons, establish mobile surgical clinics, improve the quality of surgery, and increase community awareness and acceptance of surgical services. Support in this area has been provided by Sight Savers International and Lions Aid Norway. Environmental measures to improve water supply, sanitation and garbage disposal are continuing, and in two districts local legislation has been strengthened to accelerate development in this area. Integrated approaches to the control of neglected tropical diseases are being implemented but it is too early to evaluate their impact.

The National Trachoma Control Programme Task Force is a cross-cutting programme that coordinates partnerships at the national, regional, district and community levels. The Disability Prevention and Rehabilitation Section under the Directorate of Clinical and Community Health coordinates trachoma activities at the Ministry of Health and acts as the secretariat for the Task Force. Stakeholders include the ministries responsible for health, education, local government, water, gender, labour and social development, the Karamoja Diocese, the Busoga Trust, the Carter Center, Christian Blind Mission, Lions Aid Norway, Lions Clubs International, ITI, Pfizer, Plan International, Sight Savers International, USAID/RTI International and WHO.

Challenges. The integration of trachoma control activities into the NTD control programme has just commenced and to date only the “A” component of SAFE is included. There is a lack of funding for eye care, and infrastructure and equipment remain inadequate. There are insufficient trained human resources and there is a danger that voluntary community distributors will become fatigued. Insecurity and inaccessibility are further constraints in some endemic areas.

Opportunities. National and local government commitment is strong and the elimination of blinding trachoma is a target in the current health sector strategic plan. Willing partners are providing support in trachoma endemic districts. The integrated approach to disease control should provide further opportunities.

7.6 Zambia

Dr Davison Kwendakwema, Ophthalmologist, Ministry of Health, Ndola, Zambia

Trachoma was not considered to be a public health problem in Zambia but there was little information on the trachoma burden, apart from some earlier work in two areas. In 1985, prevalence of active trachoma was found to be 17.6% in children aged <6 years in Luapula Valley, and in 2001 TI was found to be 53% in children and 37% in adults in Gwembe Valley. Increasing numbers of cases of active trachoma began to be reported and, as indicated at the Alliance's Eleventh Meeting, a survey based on the standard WHO protocol was therefore planned to cover five districts. The Ministry of Health has endorsed the SAFE strategy and a national eye health strategic plan has been developed as part of the national health plan for 2006–2011. It also has a programme to sink boreholes to improve water supplies.

The objectives of the epidemiological survey were to estimate the prevalence and distribution of trachoma, to determine the risk factors for the disease, to establish baseline data, and to identify and prioritize target areas for control interventions. With the support of the Ministry of Health and Sight Savers International, the survey has been completed in two of the five districts to date, Choma and Mufulira, and the remaining districts should be covered during 2008. Mufulira is close to the border with the Democratic Republic of Congo. It is hoped that the survey results will encourage support from potential partners such as ITI, the European Commission and the Carter Center.

The population examined totalled 2544 in Choma and 2235 in Mufulira, an overall response rate of 78.9% and 79.5%, respectively. In the age group 1–9 years, 1283 were examined in Choma and 1162 in Mufulira, a response rate of 96.0% and 95.6%, respectively. Prevalence of TF in this age group was 19.4% (11.5–28.6%) in Choma and 24.2% (19.2–27.9%) in Mufulira. Prevalence of TT was 1.1 in Choma (0 in males and 1.6% in females) and 0.1% (0.4% in males and 0 in females) in Mufulira. Prevalence of corneal opacity was 0.4% and 0.2%, respectively. Shallow wells were a

common source of water; piped water and deep water supplies were available to only 27.2% and 10.9%, respectively in Choma and 8.7% and 37.3% in Mufulira. Water was available all year round to 61.7% in Choma and 50.5% in Mufulira, and walking distance to the main water source was <30 minutes for 76.5% in Choma and 99.0% in Mufulira. Garbage was placed in refuse pits by 25.1% in Choma and 32.9% in Mufulira but garbage was found within 15 m of the house in 46.1% and 60.1% of cases, respectively. Traditional pit latrines were used by 52.1% in Choma and 65.8% in Mufulira, and the proportion using latrines properly was 78.8% in Choma and 65.1% in Mufulira.

The survey showed that trachoma is a disease of public health importance in the two areas and that prevalence of TF exceeds the 10% criterion for mass drug administration. TT prevalence of 0.1% is at the required level for the elimination of blinding trachoma in Mufulira and case-finding might not be required.

Discussion

TT prevalence. The reported prevalence rates for TT should be interpreted with caution given that TT normally manifests in older age groups.

8. INTEGRATED APPROACHES TO THE CONTROL OF NEGLECTED TROPICAL DISEASES

8.1 Introduction

Dr Dirk Engels, coordinator PCT, Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland

The NTDs, including trachoma, are diseases of poverty and are associated with poor living conditions and lack of access to good quality health services. Case management, preventive chemotherapy and transmission control are the three main strategies for NTD control, and it is important to understand the roles of and links between these three components and how they fit into broader health systems. Preventive chemotherapy is a rapid impact intervention that can bring immediate

benefit. When administered to the maximum number possible of people at risk, it can prevent disease and indeed may have an impact on transmission while transmission control measures, such as vector or intermediate host control, environmental improvements and education for behavioural change, are taking effect. It can also be linked with other large-scale interventions, for example, immunization, school health and bed-net distribution programmes, and their delivery channels. Different combinations of NTDs in different countries or areas within countries may appear to present a complex situation but in fact offer opportunities for the integration of activities that can simplify control strategies. For example, in Uganda, some areas are best suited to mass drug administration with ivermectin and albendazole, while in others targeted treatment to schoolchildren with praziquantel and albendazole, or albendazole alone is more appropriate. WHO has issued guidelines to help countries choose appropriate treatment algorithms and to evaluate their control programmes.³ Trachoma cannot yet be fully integrated in such strategies since there are some technical pharmacokinetic questions regarding co-administration of azithromycin with the other drugs concerned that remain to be resolved. However, trachoma control activities can already be linked operationally with those for control of the other NTDs. Thus drug distributors can make a second pass to provide azithromycin treatment, and surgical services, health and hygiene education and environmental improvements can all be integrated.

8.2 WHO evaluation of early implementation of integrated Neglected Tropical Disease control programmes.

Dr Denis Paul Jacques Daumerie, Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland

Dr Lorenzo Savioli, Director, Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland

³*Methodology for the evaluation of neglected tropical disease control programmes at country level.* Geneva, World Health Organization, 2008 (available online at www.who.int/neglected_diseases/Methodology_ntd.pdf).

In September 2006, the United States Congress pledged funding of US\$ 100 million to be given over five years for the control of seven NTDs, including trachoma, in five sub-Saharan countries, Burkina Faso, Ghana, Mali, Niger and Uganda. A programme was designed by the USAID and RTI International and implemented by countries with partners including ITI, Liverpool Associates in Tropical Health, the Schistosomiasis Control Initiative and *Réseau International Schistosomoses Environnement Amenagements et Lutte*. USAID requested WHO to undertake an early evaluation of the programme, which was conducted from September 2007 to January 2008 under the guidance of a strategic technical and advisory group and with the support of an external consultant. The results were discussed at the highest political level with the countries and concerned and were presented to the advisory group by the team leader, Professor D.W.T. Crompton, in April 2008.

The evaluation team collected evidence during country visits, through face-to-face and telephone interviews and teleconferences, using questionnaires and invitations to comment, and through a review of the literature. Implementation of NTD control in three countries not supported by USAID, Cambodia, Sri Lanka and Viet Nam was also evaluated. The team was impressed by the excellent and transparent cooperation received during the evaluation from all partners.

The evaluation was designed to cover all aspects of implementation during the first year of operation, including planning, management, integrated preventive chemotherapy, number of treatments administered, capacity-building at country level and cost-efficiency. Further objectives included reporting on other systems for NTD control and the preparation of a proposed methodology for future evaluation of NTD control.

The team considered that WHO should formulate a clear definition of what is meant by “integrated” control. WHO has since made several proposals in this regard. For example:

“The management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system.”

and

“Integration refers to a package of preventive and curative health interventions for a particular population group with the aim of ensuring that all the individuals in the target group receive all appropriate interventions at a one-stop shop or packaged together.”

WHO is continuing to develop normative guidance on such integrated activities that package preventive chemotherapy and transmission control.

The integration in the countries evaluated was placed in one of four categories, – not integrated, partially integrated, mainly integrated, fully integrated – using a matrix with 23 criteria. NTD control was considered to be partially integrated in Burkina Faso, Mali and Niger, mainly integrated in Ghana, and fully integrated in Uganda (and in Cambodia, Sri Lanka and Viet Nam).

The evaluation team considered that the programme has had a positive impact. Disease programmes were initiated where previously there were none and an additional 9 million treatments with azithromycin for trachoma control were provided. Governments and national coordinators considered that the key challenges in relation to such large-scale programmes are allowing adequate time for planning and logistics, ensuring that all parties know in advance the resource allocations available and their responsibilities, having agreements and contracts signed before delivery starts, and ensuring transparency and good communication in relation to all aspects of management. Some concern was expressed that governments were not always taking programme decisions. Timetables were sometimes dictated by managers abroad and programme objectives differed from those of the Ministry of Health. There was also some evidence that parallel systems of NTD control were developing, and concern that advocacy for preventive chemotherapy may weaken well-established existing vertical programmes and implementation of the “S”, “F” and “E” components of the SAFE strategy for trachoma control. Sustainability was also a matter of concern, although again a clear definition of the term is needed.

The evaluation team recommended that, in order for NTD control interventions to evolve into a sustainable process for health and development, the governments of

endemic countries, who bear 55–60% of NTD control costs, must steadily acquire full ownership of the planning and management of control interventions. Programmes should therefore be designed by the governments concerned with the support of WHO and in collaboration with the external pharmaceutical, financial and implementing partners. The team also proposed that WHO should consider accepting the challenge of overseeing the change in management of ownership from external agencies to governments.

USAID is to be commended for calling for an independent evaluation just 10 months after the start of the programme and for implementing adjustments to the programme in line with the evaluation recommendations. The evaluation has proved a positive exercise for all parties. The United States has pledged a further US\$ 250 million for integrated NTD control and it is hoped that other G8 countries will follow suit in the near future.

Discussion

Evaluation. The results of such an early evaluation have provided useful information that gives a clearer picture of how integrated NTD control may operate. The recommendations should be implemented as soon as possible to ensure the sustainability of programmes. Data on cost-effectiveness are being collected and should provide indications in this area in the near future. An assessment in Cambodia indicated a cost of US\$ 0.70 per person, which represented 10% of the cost of national health interventions. It is clear that external resources – not just for provision of drugs – will be needed to support NTD control, especially in the least developed countries, and that coordinated control of such resources and careful planning at district level will be crucial.

Country selection. It was considered important initially to select countries for intervention where early success might be anticipated. The programme is now expanding and Southern Sudan, one of the countries most affected, is now included.

Country ownership. Donations are increasing as the profile of NTD control becomes more visible. The main challenges will be to coordinate these expanded resources effectively, to incorporate control of NTDS, including trachoma, in national health plans and to ensure that countries are at the centre of all planning and management decisions. Capacity-building and training to ensure a successful move towards cross-

cutting programmes in countries will be essential. Duplication of effort by governments and partners, for example, in staff recruitment, procurement and hiring or purchase of vehicles, should be avoided, and government procedures in these areas should be respected.

Integration of trachoma control. Because of the pharmacokinetic uncertainties relating to co-administration of azithromycin with other drugs, trachoma remains a special case and needs to be given careful attention during integration of NTD control activities. This may require additional resources.

Progress towards GET 2020. A report on progress towards the goal should be prepared for submission to the WHO governing bodies, perhaps in conjunction with the Vision 2020 report scheduled for 2009.

8.3 An overview of the United States Agency for International Development Neglected Tropical Disease Control Program

Dr Dieudonné Sankara, Senior NTD Specialist, USAID NTD Control Program, RTI International, Washington DC, United States of America

The main objective of the USAID-funded project, which will provide US\$ 100 million over five years, is to support, design, and scale up integrated NTD programmes to control schistosomiasis, lymphatic filariasis, onchocerciasis, soil-transmitted helminths and trachoma, with the goal of delivering 160 million integrated treatments to 40 million people. The aims are to achieve national coverage with preventive chemotherapy for co-endemic NTDs in affected countries, to document results, to develop new models and tools for replicating successful integration elsewhere, and to advocate for increased global and national commitment to integrated NTD control. Successful implementation of the project will depend on effective and well-coordinated public-private partnerships between the many parties concerned at the global, national and local levels. The main focus is at the national level.

For the initial phase of the project, five countries were chosen without competition on the basis that early successes were anticipated in these countries: Burkina Faso, Ghana, Mali, Niger and Uganda. Subsequently, a request for applications was issued to invite nongovernmental organizations to present expressions of interest on behalf of other countries. Those selected were invited to submit full proposals and grants have been made for projects in a further three countries: Haiti, Sierra Leone, and southern Sudan. A new request for applications will be issued during 2008. Applicants are required to demonstrate commitment to the project by the Ministry of Health, provision of government resources, and the capacity to integrate programmes and provide “additionality”, that is the ability scale up activities to achieve high coverage in terms of numbers of diseases and people treated, and districts covered. As USAID funds are not adequate to meet all NTD programme needs, evidence of the availability of other resources is also required. From the outset, grantees must plan for how the Ministry will take the lead and eventually take over control of the programme. Their primary role is therefore to support governments in designing and managing a programme that can be run and financed once the grantee leaves. The current partners and grantees are: Helen Keller International, IMA World Health, ITI, Liverpool Associates in Tropical Health, the Malaria Consortium, and the Schistosomiasis Control Initiative.

During the first year, integrated mass drug administration was undertaken in the five fast-track countries. Integrated NTD control plans were drawn up in collaboration with ministries of health; these included a phased approach to the integration of previously vertical programmes. USAID funds are channelled through nongovernmental organizations. The programme is providing technical and grant management support to country programmes, helping countries to develop IEC tools and undertaking post-treatment surveys to validate coverage data. More than 47 million treatments were provided for the control of endemic NTDs: 16.9 million with ivermectin, 18.1 million with albendazole, 3.3 million with praziquantel and 9.1 million with azithromycin or tetracycline. More than 22 million people were treated and geographical coverage was increased. In addition, more than 100 000 people were trained as distributors. Donated drugs were supplied by GlaxoSmithKline, Johnson & Johnson, Merck and Co., and Pfizer to a value of more than US\$ 400 million.

The USAID-funded programme has contributed to trachoma control by helping to deliver the “A” component of the SAFE strategy to more people in more districts and by collecting evidence-based data on the disease in Burkina Faso and Uganda. Mass drug administration with azithromycin has been expanded in Burkina Faso, Niger and Uganda, and in Mali districts have been targeted for the first time.

The lessons learnt from the first year of operation are guiding planning for further expansion of the programme: good preparation and planning can increase cost-efficiency; health education is not sufficient to encourage behavioural change, specific intervention is needed; good training and supervision of community distributors is essential to ensure high coverage rates; the directly-observed treatment strategy (DOTS) can be used to improve compliance. To date countries have been respecting the WHO-recommended two-week window between drug package administrations. However, evidence suggests that it may be possible to administer a triple therapy with albendazole, ivermectin and praziquantel, and studies are under way to determine how azithromycin can be added.

Challenges. Those working in vertical disease programmes are showing some reluctance to accept integration. It will be important to build on vertical efforts not dismantle what is already working, and to ensure that treatments for additional diseases do not over-burden existing mass intervention programmes. Effective social mobilization and communication measures to promote behavioural change in different settings are needed.

Opportunities. The programme will continue to support countries in scaling up their NTD control efforts and in mapping the NTD burden, including that of trachoma. It will also continue to learn from the experience of integration and to advocate for further national and international commitment to NTD control.

Discussion

Funding. USAID funding should be additional to and not a substitute for government funding; countries should be encouraged to continue their commitment to provide resources. Early successes may stimulate further donations initially but these may decline if donors consider that the diseases concerned are no longer a major problem.

Experience shows that disease control programmes have to run far longer than any government term, and that the last steps towards elimination or eradication are often the most difficult. It is therefore vital to ensure sustained long-term funding, beyond the five-year USAID project. Applications for funding under the project are made by a lead nongovernmental organization as this provides a means of channelling funding and coordinating activities in partnership with the government concerned.

Sustainability. Long-term sustainability of activities at the community level is also crucial. Each disease has a World Health Assembly resolution, with goals, targets and strategic approaches for control. But there also strategic approaches, such as mass drug administration in which a single dose of a safe and effective drug can be administered without specific expertise. The concept is similar to that of the Expanded Programme on Immunization; preventive chemotherapy programmes will continue even if one of the diseases included has been eliminated. For the foreseeable future, regular treatment will need to be kept in place to prevent mortality, reduce morbidity and prevent the long-term sequelae of NTDs. Moreover, new tools should become available that will expand control possibilities. The global concept of an integrated approach provides a framework for use by countries in tailoring interventions to suit their own endemic situation.

Behaviour change. Experience has shown that efforts to change behaviour need to be focused and give consistent messages. The economies in logistic costs provided by integrated approaches to NTD control should not result in a loss of focus in the messages delivered. All possible IEC methods should be employed including, for example, drama.

8.4 Opportunities for trachoma control through integrated approaches

Dr Ibrahim Jabr, President, International Trachoma Initiative, New York, NY, United States of America

The integrated approach to NTD control has brought significant benefits for trachoma control. In one year, trachoma prevalence surveys have been completed in 33 of 52

districts in Burkina Faso and four districts in Uganda, and mass drug administration has been expanded, for example, providing treatment for nine additional districts and 1.8 million people in Burkina Faso, eight additional districts and 3 million people in Mali, 17 additional districts and 6 million people in Niger (50% of the population), and 11 additional districts in Uganda. These countries have expanded their national implementation plans and new countries, such as Sierra Leone, are being added to the USAID-funded project.

The benefits have not been confined to mass drug administration. Funding has been provided to train health workers and drug distribution volunteers, health education materials have been produced, logistics have been streamlined and there has been a reduction in duplication and waste of resources. Most importantly, the project has stimulated a larger commitment from the United States of America, with a pledge of US\$ 350 million over five years for 30 countries, and it is likely that other G8 countries will join in providing funding with a view to attaining a target of US\$ 1 billion. Moreover, the Global Network for Neglected Tropical Disease Control has been established and new major players are becoming involved, such as the Bill & Melinda Gates Foundation. It is important to capitalize on this current interest in NTDs, of which trachoma is now a part, and on the many common elements of the individual disease control programmes.

The six main activities in trachoma control are: assessing the disease burden; providing treatment with azithromycin until prevalence has been reduced to <5%; operating on TT cases; improving water supplies and sanitation; promoting behavioural change; and monitoring and evaluation. Although there have been advances in mass drug administration, progress in dealing with the large backlog of TT surgeries is slow. Furthermore, governments are not reallocating funds to the “S”, “F” and “E” components, and national water and sanitation programmes are not necessarily being implemented in trachoma-endemic areas. The SAFE strategy will only succeed if it results in sustained behavioural change. It is therefore important to recognize those elements of trachoma control that will not be advanced and for which other support must be sought. The current integrated NTD control project will not move trachoma control forward to elimination of blinding trachoma and it does not support rehabilitative, preventive, water and sanitation, and surveillance activities.

ITI has been reviewing its position in view of recent changes. It remains the world's leading international nongovernmental organization dedicated solely to the elimination of blinding trachoma. It is 10 years old and has 10 more years to help countries towards the GET 2020 target. The organization currently works with 15 of the 56 countries identified by WHO as trachoma-endemic and is expanding support to other countries, and not just in activities to reduce TF. However, further support for the "S", "F" and "E" components of the SAFE strategy will still be needed from governments, United Nations organizations and nongovernmental organizations. Over the past year, ITI has focused on fundraising for support for TT surgeries and wishes to express appreciation to AmeriCares (supply to four countries of up to 1000 surgery kits per year for three years), the Bouamatou Foundation (support in Mauritania, Mali and Niger), the Izumi Foundation (for support in Niger and Burkina Faso), and the Lavelle Fund for the Blind (support in Ethiopia) for their contributions. It is hoped that the Lions Club International commitment to the Sight First II programme will also focus on clearing the TT backlog. There will need to be a committed response from others also. Trachoma control is a responsibility of governments, and governments must allocate the necessary resources, ensuring that ministries of health work with other ministries in a coordinated intersectoral effort. Nongovernmental organizations must learn to work better together, with due regard for comparative technical and geographical advantages. Finally, WHO should clarify any remaining ambiguity about the inclusion of trachoma as part of its NTD control approach.

Given the present rate of progress, the present ITI model will never deliver activities to all 56 endemic countries. Since 2006, therefore, ITI has been reviewing its operations and has concluded that it will need to mobilize increased resources, to develop the capacity to expand and deliver programmes, and to make greater efforts to bring partners together. It has therefore been seeking a new major partner agreement. Six nongovernmental organizations expressed an interest and, following a selection process, two organizations were short-listed in March 2008. A due diligence process is under way and it is anticipated that an announcement about the new agreement will be made in June 2008. Under the new arrangement, ITI will retain its name and autonomy, but it will have access to a greater pool of expertise and resources through association with the new partner.

Discussion

ITI and the SAFE strategy. Although ITI is committed to the comprehensive strategy it cannot cover all its components and is seeking support from other partners, for example through its current drive to raise funds for TT surgery. The concern remains that the USAID-funded project is placing too great an emphasis on mass drug administration and does not cover the “S”, “F” and “E” components. It will be important to find a way to bridge the funding gap for the other SAFE components in those countries where the project is under way. The Alliance must continue to set the priorities for GET 2020 and ensure that the integrity of the SAFE strategy is maintained.

The WHO approach. The Organization has made progress in developing its integrated approach to NTDs, including trachoma, and has clarified how it proposes to move forward. It takes a comprehensive view and is committed to a global strategy for trachoma control that includes all the components of the SAFE strategy.

TT surgery. A concerted effort is required to map the backlog of TT cases in endemic countries at the district level in order to develop UIGs for TT surgery. While national campaigns are needed to deal with the backlog, especially in priority areas, in the long-term TT case-finding and surgery will need to be integrated within eye-care systems to ensure sustainability. Countries will need support for capacity-building in this respect. India is willing to share its experience in providing training in TT surgery and running surgery camps.

8.5 Neglected tropical disease control in Mali

*Dr Sanoussi Bamani, Coordinator, Prevention of Blindness Programme,
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Intestinal helminths, lymphatic filariasis, onchocerciasis, schistosomiasis and trachoma are among the NTDs endemic in Mali. The plan funded by USAID focuses on the integration of mass drug administration. The other strategies for the control of NTDs are implemented through other programmes and in accordance with WHO recommendations.

Trachoma is the leading cause of avoidable blindness in Mali. Between 2001 and 2007, >25 000 TT surgeries were performed and >12 million treatments with azithromycin were administered. Prevalence surveys indicated a dramatic reduction in active trachoma after three years of mass administration of azithromycin in Kayes and Koulikoro. Prevalence of TT remains high. A national survey in 2004 showed a prevalence of lymphatic filariasis of around 7%. The entire population is at risk of this disease. Onchocerciasis is no longer a public health problem, with prevalence in the range 0–0.86%. Urinary and intestinal schistosomiasis are present throughout the country; prevalence varies. Results of a survey in schoolchildren in Bamako, Koulikoro and Ségou undertaken in 2004 indicated that prevalence of intestinal helminths ranged from 0.5% to 22.1%.

The appropriate conditions for integrated NTD control are present in Mali. There is an ideal framework for integration at the national level, although NTDs have not previously received much attention, and there is substantial overlap in the endemic zones of the various diseases. The integrated control plan covers most of the country and includes provision of drugs for integrated mass administration campaigns, promotion of behavioural change, integrated training of social and health personnel and community teams, monitoring and evaluation, and provision of institutional support.

Drug treatment is supervised at community level from central points and on a house-to-house or outreach basis, depending on the community, and is given once per year for between three and five years depending on the diseases present. Communities themselves decide who will distribute the drugs and how they will be distributed. The duration of each mass treatment campaign in 2007 was 45 days with the following plan: week 1, azithromycin; weeks 2 and 3, no treatment; week 4, ivermectin and albendazole; weeks 5 and 6, no treatment; and week 7 praziquantel. The objective is to treat at least 80% of the eligible population with antibiotics each year from 2007 to 2011, with 100% geographical coverage. The drugs are donated by partners (azithromycin through ITI and Pfizer) and supplied to regional and district levels from the national level, and then on down to the community level. Activities to raise public awareness and promote appropriate changes are undertaken each year at the national,

regional and local levels using various channels of communication. Integrated training for the five diseases is provided through a cascade system from the regional level to social-health workers and community volunteers.

Mass drug administration is monitored during and after the treatment campaign by social-health workers and the impact is evaluated at the district and regional level and, on an annual basis, at national level. There will also be a final evaluation of the programme. The indicators include population and geographical coverage, NTD prevalence, level of mobilization of resources and level of implementation of planned activities.

At the national level, the plan is implemented by the national NTD coordination committee and monitored by the NTD steering committee. At the regional and district health levels, there are NTD focal points. The external partners include ITI, Sight Savers International, *Organisation pour la Prévention de la Cécité*, Helen Keller International, WHO, the Carter Center and Lions Clubs International for prevention of blindness; Global Alliance to Eliminate Lymphatic Filariasis, GlaxoSmithKline, Mectizan Donation Program, and WHO for filariasis; Helen Keller International, *Organisation pour la Prévention de la Cécité*, Sight Savers International and WHO for onchocerciasis, and the National Project for Rural Infrastructures (PNIR), *Organisation pour la Mise en Valeur du Fleuve du Sénégal*, the Schistosomiasis Control Initiative, and WHO for schistosomiasis and intestinal helminths.

In 2007, the plan was implemented initially in eight of the 24 districts. Results for three districts indicated coverage with ivermectin/albendazole of 80% in Kayes and Koulikoro and 81% in Sikasso; coverage with praziquantel of 69% in Kayes and 86% in Sikasso; and coverage with azithromycin of 85% in Sikasso. Azithromycin was administered to 1.77 million people in the eight districts, average coverage 85% (79.8–93.2%). It is hoped that activities can be extended to the entire country in 2008. Integration of control of lymphatic filariasis and trachoma will be studied in one district, Gao.

Strengths. The integrated programme tackles five diseases under one management system and provides funding for mass drug administration. It has also expanded the range of partners for trachoma control.

Weaknesses. Trachoma control has been reduced to a single component, mass drug administration. Geographical coverage targets were not attained in 2007. Because of cumbersome administrative processes around €150 000 was not used. The Ministry of Health was not fully involved in the planning of the USAID project and there was a lack of attention to the real needs of the individual disease programmes. Community teams were overburdened, leading to a risk of confusion of treatments. The new project resulted in the abandonment of some areas covered by previous programmes of drug administration and there was a lack of information on the project and its costs.

Conclusions and recommendations. Further integration of programmes should take into account all the specific control strategies of the original separate disease programmes so as to ensure the attainment of their respective objectives. There is a need to improve communication in planning and the management of funds.

Discussion

Government ownership of NTD control programmes. It is regrettable that Government funding for NTD control, which was provided in 2005 and 2006, was withdrawn in 2007 when the USAID-funded project started. Moreover, there appears to have been insufficient Ministry of Health involvement in the formulation, validation and implementation of the new project, and inadequate consideration of previous control activities.

Emphasis on mass drug administration. There is a danger that the current plan is giving too much attention to antibiotic distribution and that the other components of the SAFE strategy are being neglected. However, it may be better to move forward with antibiotic treatment, which certainly reduces disease prevalence, rather than waiting for districts to be in a position to implement all the components. It would be useful to map all activities so as to see which partners are providing support for the different SAFE components.

TT surgeries. TT prevalence and therefore the risk of blindness remains high. No money was provided under the USAID-funded plan to perform surgeries in 2007 and

none has been offered for 2008. A plan was drawn up to tackle the problem in Ségou, with funding from the Bouamatou Foundation, but payment problems have resulted in delays. The Government is providing some funding and other partners in this area include Helen Keller International, Sight Savers International and WHO.

8.6 Neglected tropical disease control in Burkina Faso

Dr Bernadette Yoda, Coordinator, National Programme for the Prevention of Blindness, Ministry of Health, Ouagadougou, Burkina Faso

Towards the end of 2006, Burkino Faso formulated an integrated USAID-funded project for the control of five NTDs, including trachoma, which focused on mass drug administration. Other control measures were to be undertaken by the individual disease-specific programmes.

A national survey in 2000 showed that lymphatic filariasis was endemic throughout the country and activities were implemented from 2001 to provide treatment with ivermectin and albendazole, to treat hydrocoele and elephantiasis and to undertake IEC activities. Thanks to control efforts, endemicity of onchocerciasis has declined from 34 districts in 1991 to 7 districts in 2007. Urinary and intestinal schistosomiasis are present; prevalence varies across the country and treatment is provided accordingly. In 2007, trachoma surveys in 31 districts indicated that prevalence of TT in people aged >15 years was >0.5% in 22 districts and that prevalence of TF in children aged 1–9 years was >9.7% in 19 districts and 5–9.6% in 8 districts. From 2004 to 2007 around 2500 TT surgeries were performed, and in 2007 1.2 million people were treated with azithromycin or with tetracycline ointment. Various intestinal helminths are present in the country; mass drug treatment is integrated with that for lymphatic filariasis or schistosomiasis.

The criteria for integrated NTD control are met, there is overlap of endemicity, the staff working on the individual diseases and the populations affected. The USAID-funded project includes mass drug administration campaigns, training, activities to raise public awareness of the campaigns, epidemiological surveillance and institutional support. There is a clear administrative structure from the Director-

General for Health and a committee at the national level down to regional and district health teams. Communities have been involved in choosing distributors and determining distribution methods, which include fixed-point and house-to-house distribution, and specific methods for certain target groups. A training module has been developed and training has been undertaken from the regional level cascading down to the community level. The project was launched in April 2007 and IEC activities commenced prior to the integrated mass drug administration campaign in January 2008. Partners in the project include GlaxoSmithKline, Health & Development International, Helen Keller International, the Liverpool Lymphatic Filariasis Support Centre, the Mectizan Donation Program, Rotary Clubs for lymphatic filariasis; the Government, the African Programme for Onchocerciasis Control, Helen Keller International, the WHO Multidisease Surveillance Centre and WHO for onchocerciasis; the Schistosomiasis Control Initiative for schistosomiasis and intestinal helminths; and the Government, Helen Keller International, ITI and WHO for trachoma. The project covered five districts in 2007, with a population of 1.9 million. Population coverage with the various drugs in three districts ranged from 76% to 100%. The project will be extended to more districts in 2008.

Strengths. Political commitment to the project was rapid. The project has permitted common activities to address five diseases and resources have been mobilized. Trachoma prevalence has been mapped in 31 districts.

Weaknesses. The non-drug components of NTD control have not been addressed, especially TT surgery, for which there is great need. Amendments made to the project were not always communicated to those responsible in the disease-specific programmes concerned. The priorities for trachoma and the costs of data analysis for the trachoma surveys were not taken into account, and the trachoma programme was not involved in training activities. Project results were not adequately shared.

Conclusions. While integration is a good solution for mass drug administration, further thought is needed as to the mechanisms for integrating other control measures to eliminate blinding trachoma.

Discussion

Trachoma surveys. The results as reported indicated areas where prevalence of TT was >0.5% and prevalence of TF was 5–9.6% and >9.7%. For comparative purposes, it is preferable to report data in line with the agreed targets and goals of GET 2020. The goal for TT is a prevalence of <1% and TF prevalence is usually reported in bands of 5–10% or >10%, prevalence of >10% being the level at which implementation of mass drug administration is recommended.

Changes of plan. National staff should be kept informed about any changes in plan agreed by USAID and the other partners.

8.7 Neglected tropical disease control in Niger

Dr Abdou Amza, Coordinator, National Programme for the Prevention of Blindness, Ministry of Public Health, Niamey, Niger

The trachoma control programme was launched in 2001 at which time trachoma was hyperendemic in three regions. A 2005–2009 strategic plan for the elimination of blinding trachoma was formulated and a Vision 2020 plan was finalized in August 2006. Prior to the USAID-funded NTD project, which was launched in 2007, there were insufficient resources for the continued implementation of the vertical strategic plans for the various NTDs – for trachoma this followed the end of ITI support for the SAFE strategy in 2006. This led to loss of interest by the various agents in the field, in particular for trachoma control.

A task force was established to manage the integrated NTD control project, headed by the Director General of Public Health and including representatives of various ministries, institutions and governmental and nongovernmental organizations. A national structure for implementation was also put in place comprising, among others, the national coordinators of the four disease-specific programmes concerned.

Regional and district coordination structures were also established. A coordination unit was set up to manage programmatic and financial aspects of the USAID-funded activities and this unit finalized the plan without involving the other structures.

Prior to the NTD control project, the main objective for trachoma control was to reduce the prevalence of TF/TI in children aged 1–9 years from 36.4% to 7.5%, and the prevalence of TT in women aged >15 years from 1.7% to 0.3% through the implementation of the SAFE strategy by the end of 2009. The main objectives of the integrated NTD control project are: to reduce the progression of infections with schistosomiasis and intestinal helminths to serious complications in young people and the development of further complications in adults through treatment with praziquantel and albendazole; to reduce the prevalence of TF/TI in children aged 1–9 years to 15% and the prevalence of TT in adults to 25% by the end of 2010; to eliminate lymphatic filariasis from Niger by the end of 2010; and to maintain surveillance in order to detect, at an early stage, any signs of re-emergence of onchocerciasis. Specific targets for each disease were also set. For trachoma these were to treat at least 80% of the population in the intervention zone with azithromycin by the end of 2009; to obtain clean faces in 80% of children aged 1–9 years in villages in the intervention zone by the end of 2010; to operate on 25% of cases of TT by the end of 2010; and to promote the proper disposal of waste and excreta in 50% of the villages by the end of 2010. The strategies to be employed include mass administration of antibiotics, management of complications, IEC and advocacy activities, training, strengthening of technical and logistic support, and the provision of water supplies and sanitation. Emphasis is also given to intersectoral collaboration, research, monitoring and evaluation, exchange of experiences and the dissemination of results.

The range of regional prevalence is 4.8–49% for TF/TI in children aged 1–9 years and 0–2.6% for TT. In the regions where intervention was started earlier, which were different to those included in the integrated NTD control project, the prevalence of TF/TI declined but further rounds of treatment were not offered in these regions after the launch of the project.

Partners involved in trachoma control prior to the NTD project included the Government (all SAFE components), AmeriCares (“S”), the Carter Center (“F” and “E”), Helen Keller International (“S”), ITI (“S” and “A”), Lions Clubs (“S”), SAPTA (a local nongovernmental organization; “F”), UNICEF (“A”, “F” and “E”) and the West Africa Water Initiative (“F” and “E”). Partners involved in trachoma control in

the NTD project are the Government (all SAFE components), ITI (“S” and “A”), the Schistosomiasis Control Initiative (“A”), UNICEF (“A”) and USAID (“A”).

TT surgeries rose steadily from 1999 to 2005 but declined from 6 500 in 2005 (AIO 7 560) to 4 500 in 2006 (AIO 10 580; disengagement of ITI at this point) and 2 804 (AIO 15 660) in 2007 (start of NTD control project) as funds for this component declined. Azithromycin was distributed to 2.4 million in 2005 people (AIO 3.3 million), 2.5 million in 2006 (AIO 4.4 million). After the start of the NTD project, distribution rose significantly to 6.0 million in 2007 (AIO 8.2 million). The faces of some 55 000 children were examined under the 2005–2009 strategic plan; 89.4% had clean faces. This component was not covered by the NTD project. Under the strategic plan, the number of latrines constructed was 7 940 in 2005 (AIO 8 400), 6 777 in 2006 (AIO 8 400) and 10 725 in 2007 (11 400) Again this component was not covered by the NTD project. These results have implications for the success of elimination of blinding trachoma.

In summary, the implementation of the NTD control project has led to a rapid expansion in the zones covered by mass antibiotic administration, with the associated rationalization of use of resources. Interprogramme cooperation has been established but it has proved difficult to incorporate the different specific approaches of these programmes and some regions previously covered by the strategic trachoma control plan were abandoned before the strategic plan had been completed.

Strengths. The NTD control project receives strong political support and provides rapid simultaneous control activities for several diseases, with good social mobilization at the community level.

Weaknesses. It has proved difficult to implement disease-specific strategies and the involvement of partners has declined. Project management is too centralized and there are discrepancies between the plan and the activities implemented. Moreover, there is insufficient information available on the validated plan and its costs and implementation.

Opportunities. There has been an increase in the resources available and there are national control programmes for each disease. Political commitment to NTD control and poverty reduction is substantial. There is a decentralized health system.

Threats. Project management is not shared appropriately and the agreed plan was modified. The current plan does not incorporate disease-specific requirements and did not take into account existing strategic disease control plans, which has led to frustration and demotivation among the staff of individual NTD programmes.

Conclusions and recommendations. Integration of NTD control is possible but good communication regarding coordination and management is essential and plans should take into account disease-specific requirements and respect existing strategies and priorities. Task forces should be established at regional and district levels as well as centrally to improve coordination and management and increase integration, and efforts to involve external partners should be increased.

Discussion

Difficulties encountered. It is disappointing that, apart from antibiotic distribution, the strategies and goals of GET 2020 are not being pursued with vigour in Niger, especially given that a strategic trachoma control plan exists and was reducing TF/TI and TT prevalence in some hyperendemic regions prior to the launch of the integrated NTD control project. Involvement of national staff at the central, regional, district levels in the new project has not been well developed and a sense of community ownership is lacking. The discrepancy between the AIO for TT surgery and the number of operations performed is of particular concern.

Antibiotic coverage. The targets for population coverage with the antibiotics used in integrated NTD control projects vary for the different diseases, ranging from 75% for schistosomiasis to 100% for lymphatic filariasis. The coverage guidelines should be reviewed and every effort made to ensure that coverage for all the drugs used is as high as possible.

Future action. The external evaluation of the USAID-funded programme was generally positive. However, in the first year of any such operation there are bound to be some problems. Efforts are needed to see how implementation can be improved and how the progress made in antibiotic distribution can be harnessed to the best

advantage of the SAFE strategy, ensuring the continued involvement of partners providing support for the other components.

9. OTHER BUSINESS

9.1 Lions Campaign Sight First II

Mr Philip Albano, Manager, Lions Club International Foundation Sight Programme Department, Oak Brook, IL, United States of America

Lions Club International, founded in 1917, has 1.35 million members in 45 000 clubs in 200 countries and areas who volunteer their time to serve humanitarian causes. The Lions Club International Foundation is the grant-awarding arm, which allocates the resources mobilized by Lions Clubs. Funding is only offered to projects with significant Lions involvement.

The Foundation's worldwide prevention of blindness programme, SightFirst I, began to run out of funds in 2006. Campaign SightFirst II, which runs until June 2008, is a three-year global effort to raise US\$ 150–200 million for the SightFirst II Program. A total of US\$ 160 million had been donated or pledged prior to this meeting. The Foundation's three main goals in this area are: controlling and eliminating major causes of avoidable blindness; combating emerging threats to sight; and providing "Vision for All" through research, rehabilitation and outreach activities in vulnerable populations. The scope of activities has been broadened for SightFirst II and an approval policy has been instituted to limit approved funding to US\$ 12 million per year in order to extend the life of the programme. The long-term planning process involves a comprehensive and data-driven approach, emphasis on equity, quality and sustainability, and action to target underserved populations – all with Lions as advocates.

SightFirst I funded eight trachoma control projects in six countries to an amount of around US\$ 6.4 million in partnership with ITI, the Technical Consultative Committee of the African Programme of Onchocerciasis Control and local Lions

Clubs. SightFirst II will continue the work on trachoma control, focusing on the “S” component of the SAFE strategy; other components can be included in certain specific situations. The “S” component has been chosen because activities in that area are cost-effective and have a measurable impact at the local, national and international level; they are also suitable for Lions involvement and offer clarity to programming and public relations.

One proposal has been approved, in the Amhara region of Ethiopia, and six further proposals are currently under development. Applications are routed through local Lions Clubs and the SightFirst technical adviser, and must be received 60 days prior to a meeting of SightFirst Advisory Committee, of which there are three per year. Projects must demonstrate that trachoma control is a priority within national blindness prevention plans and that there is political commitment and potential for local Lions involvement and recognition. The aim must be to integrate surgery with the other components of SAFE and to focus on areas with the greatest backlog of TT surgeries or where SightFirst II can make the greatest impact. Surgery camps will be supported but long-term capacity-building within the eye-care system is preferred. Projects should add to existing activities and also need to show that competent surgeons are available, and that there are adequate plans for patient follow-up, and monitoring and evaluation. Administrative costs are reviewed carefully and applications must show that the burdens, particularly financial costs, can be shared.

Discussion

Long-term support for trachoma control. Partners such as Lions Club International who support trachoma control over a prolonged period are vital for GET 2020 and their contribution is greatly appreciated.

9.2 Milestones in Kenya

Dr Michael M. Gichangi, Head, Division of Ophthalmic Services, Ministry of Health, Nairobi, Kenya

In 2004, a trachoma prevalence survey was conducted in six districts. A further district was surveyed in 2007. The results indicated a prevalence of TF of 6.4–35.0%, and a prevalence of TT of 1.0–6.0%. TF is a public health problem in five of the seven districts and TT in all seven districts. A two-year proposal to implement the SAFE strategy in the surveyed districts was developed in 2004 and was incorporated into the 2005–2010 national eye care plan, which is in line with Vision 2020. The main aims are to initiate trachoma control activities in all endemic districts across the country, to reduce the TT backlog by 100% by 2010, to reduce active trachoma among children by 70% by 2010, and to improve personal and environmental hygiene. Comprehensive systems to monitor and evaluate the programme will be developed.

The TT backlog is estimated at >45 000; 1 183 surgeries were performed in 2006 and 1 338 in 2007. Efforts are needed to determine why uptake of surgery is poor. Of the first consignment of around 1 million doses of azithromycin received from ITI in November 2006, around 700 000 have been administered in two districts along the border with the United Republic of Tanzania by district health management teams. The community leaders led by example, taking their dose first, and coverage of 91% was achieved in the first district; distribution in the second district is not yet complete. Difficulties were encountered owing to political changes and also with the procurement procedures, customs clearance and distribution logistics, and it is hoped that these will be resolved for the 2008 programme, which will provide a second treatment for the first district and expand distribution to two or three new districts. Activities in relation to the “F” and “E” components include interventions to improve water supplies and sanitation, train community health workers, provide health education and promote behavioural change – in some areas, removal of flies from the face is taboo. The Ministry of Health formulated a National Environmental Sanitation and Hygiene Policy in 2007, and a Ministry of Public Health and Sanitation has just been established.

During 2008, existing plans will be reviewed and a national strategic plan for the elimination of blinding trachoma will be developed, with a target date for elimination of 2015. Prevalence surveys will be conducted in four more districts. There will be a strong focus on socioeconomic development. Collaboration with neighbouring

countries is planned in border areas where trachoma remains endemic. Kenya is receiving support from the following partners: African Medical Research Foundation Kenya, Christian Blind Mission, the Fred Hollows Foundation, the Kenya Society for the Blind, ITI, Lions Clubs, Operation Eyesight Universal and Sight Savers International.

9.3 Pacific island trachoma survey

Professor Hugh Taylor, Professor of Ophthalmology, Centre for Eye Research, University of Melbourne, Melbourne, Australia

There have been no data relating to trachoma in the Pacific islands in recent years, although some of the islands are listed among the countries and areas where trachoma is thought to be endemic. A team from the Centre for Eye Research, University Melbourne has therefore been conducting surveys over the past six months in Fiji, Kiribati, Nauru, Solomon Islands and Vanuatu to determine whether trachoma is present.

The surveys targeted villages and districts with the highest number of risk factors for trachoma. In the communities selected, the team made door-to-door visits and visited schools and central meeting places, and all children aged ≥ 1 – ≤ 10 years were examined for active trachoma and all adults aged ≥ 40 years were examined for TT and TS. Trachoma cases were graded according to the WHO simplified grading system, with checks for inter-observer reliability. A total of 5264 children were examined. Prevalence of active trachoma was 11% in Fiji, 36% and 38% in Kiribati, 21–36% in Nauru, 14–40% in Solomon Islands and 16–36% in Vanuatu. Prevalence of scarring trachoma was 10% in Fiji, 53% and 75% in Kiribati, 0–28% in Nauru, 47–73% in Solomon Islands and 31% and 40% in Vanuatu. Trachoma is thought to have re-emerged in Nauru after economic conditions deteriorated following the exhaustion of superphosphate reserves. TT was found in two of the 652 adults examined, one in Kiribati and one in Vanuatu. TT surgeries have been performed recently in four of the countries visited.

The results indicated the presence of endemic although variable rates of active trachoma in all five countries visited. They also showed high rates of TS and significant rates of TT, although the number of adults screened was low. TT surgery rates are such that TT remains a problem. Further spot surveys in Fiji and the outer islands of Kiribati are planned, and a Pacific subregional meeting has been convened in Suva, Fiji in May 2008, with the participation of ministry representatives and potential partners, to plan implementation of the SAFE strategy and to discuss training in primary eye care and national capacity-building. The Australian Government has agreed to support Vision 2020 activities in the Asia-Pacific region. Further offers of support would be welcomed.

9.4 Extra-ocular surgery: TT and pterygium

*Dr Kazuichi Konyama, Department of Ophthalmology, Juntendo University
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In the Indochina subregion, control measures have successfully reduced trachoma prevalence and the disease has not been considered a public health problem in the past 20 years. Trachoma produces eyelid, corneal and lachrymal complications and the corneal complications can lead to blindness. Pterygium can invade the cornea and cause corneal scarring, and is a major cause of blindness in the subregion. It often recurs quite soon after surgery, which is difficult to perform.

Studies have been undertaken in countries in the subregion to assess the situation. The results indicate that, while TT should not be neglected, it is important not to underestimate the clinical and public health significance of pterygium. For pterygium, it is important to prevent corneal invasion, to operate at an earlier stage and to promote microsurgical techniques to improve the quality of surgery.

Further epidemiological studies are needed in order to set priorities for action. Greater emphasis should be given to the prevention of corneal blindness and the elimination of blinding trachoma. Additional support is needed to provide equipment so as to improve surgical kits.

The Seventh WHO Intercountry Workshop for the Prevention of Blindness for countries in the Indochina subregion will be held in Phnom Penh, Cambodia from 8 to 12 December 2008.

9.5 The “F” and “E” components in Koulikoro, Mali

Ms Catherine Cross, International Programme Manager, Sight Savers International, Haywards Heath, England, speaking on behalf of Dr Elie Kamate, Sight Savers Country Representative, Mali

Interventions for “F” and “E” are based, as are the other components of the SAFE strategy, on a multisectoral approach and require the collaboration of many partners in the areas of health and hygiene, water supply, sanitation, and the environment, including local government and the communities concerned. A stakeholder meeting to design a proposal for blindness control in the Koulikoro region of Mali, catalysed and financed by Sight Savers International in collaboration with the Koulikoro Regional Health Directorate, was held in 2003. Commitment from nongovernmental organizations in the areas of water supply and sanitation permitted the development of a second proposal in 2005 in which “F” and “E” activities were integrated. Four Europe-based nongovernmental organizations formed a consortium to support the programme: Helen Keller International, Islamic Relief, Sight Savers International and WaterAid, with Sight Savers as the lead agency. The consortium obtained a grant of €1.5 million from the European Union. The programme targets all the diseases targeted by Vision 2020 as well as all the components of the SAFE strategy

A request from the Koulikoro Social Welfare Directorate to dig a well for blind people in Tienfala was accepted for financing by Sight Savers International within the framework of a community-based rehabilitation project. As Sight Savers has no competency in building wells, its country office negotiated with WaterAid, and the well was constructed by WaterAid partners with Sight Savers financial support, in collaboration with the community rehabilitation worker based in Tienfala and the local association of visually impaired people. The well is used by the visually

impaired for watering their gardens and by everyone for washing, cooking and drinking.

In collaboration with the local authorities, Sight Savers and WaterAid then decided to pilot SAFE activities in Tienfala village, with Sight Savers responsible for the “S” and “A” components and WaterAid for “F” and “E”. Sight Savers asked WaterAid to take into account the needs of disabled people, especially those who are visually impaired. The well is therefore raised and there are small stones around it to guide visually impaired users. WaterAid is experimenting with a special slab for the toilets. The current model is popular with elderly and some physically disabled users, and also with sighted persons, and 50 slabs and latrines have been built in the village. WaterAid is also supporting activities to sensitize the community about face-washing and sanitation. Sight Savers is supporting surgery and antibiotic distribution. The community rehabilitation worker, visually impaired people and the *Union Malienne des Aveugles* are implementing gardening.

Anecdotal reports indicate that the village environment is cleaner, and visually impaired people are very active in promoting the SAFE strategy because they have seen the direct benefits. Prevalence of TF/TI has decreased from 33% to 2.5% and, according to the village nurse, the diarrhoea rate among the children has decreased from 11% to 6%. In addition, gardening is now possible all year, which constitutes an opportunity for visually impaired people to generate income.

This pilot project has shown that the SAFE strategy can be implemented within a community rehabilitation framework. Water and sanitation activities can take account of the needs of disabled people, including those who are visually impaired, and these people can play an important role in promoting the SAFE strategy. Complementarity and a good partnership are vital to ensure success. The project will be evaluated to determine the impact of the “F”, “E” and gardening activities, and negotiations with WaterAid are under way with the aim of replicating these activities in other communities in the Tienfala commune. Sight Savers is also preparing a publication on the project in order to share this experience with other partners.

Discussion

Latrines. There is no published evidence to suggest that *Musca sorbens*, the eye-seeking fly that transmits trachoma, breeds in latrines, that the ventilated improved pit latrines reduce fly populations or that having a ventilation pipe increases or improves latrine use. Moreover, ventilated latrines are more expensive.

Extending partnerships. Country representatives are encouraged to contact World Vision, which can offer support for “F” and “E” activities.

10. CONCLUSIONS AND RECOMMENDATIONS

The participants in the Twelfth Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma by 2020 adopted the following conclusions and recommendations.

1. The Alliance welcomed the increased representation of national coordinators and nongovernmental organizations at the meeting and urged WHO to make further efforts to encourage the participation of technical representatives from major partners involved in activities relating to all the components of the SAFE strategy.
2. The Alliance reiterated its concern that not all endemic countries are submitting trachoma data forms. Many of the responses are inadequate and arrive too late for inclusion in the analysis presented to the annual meeting of the Alliance. Adequate time should be allowed for the completion of the forms – as a team exercise – by national coordinators, in collaboration with major partners, to ensure accuracy. Particular attention should be paid to information relating to coverage in respect of the annual intervention goals for all components of the SAFE strategy.
3. The Alliance noted with appreciation the continued commitment by Pfizer Inc. to donate azithromycin in the context of the SAFE strategy. WHO should continue to

provide feedback to Pfizer on the progress towards the elimination of blinding trachoma.

4. Experience from ongoing programmes shows that one round and probably even three rounds of mass drug administration are not sufficient to eliminate blinding trachoma in most areas at currently reported coverage rates. Programmes should aim to reach the highest possible community coverage, paying particular attention to the treatment of children aged <9 years.
5. Countries should commence planning as early as possible for trachoma post-intervention surveillance as part of their blinding trachoma elimination plan, taking into account existing national surveillance systems. WHO is requested to issue guidelines for the establishment and management of such surveillance in different settings for presentation at the Thirteenth Meeting of the Alliance.
6. The Alliance noted with concern the reduction in the reported number of operations for trichomatous trichiasis. Countries and their partners are urged to increase their focus on surgery in order to achieve their annual intervention objectives and to reduce the backlog of cases as soon as possible.
7. National trachoma elimination programmes should continue to conduct surveys as recommended in the *WHO Guide for Trachoma Control Programme Managers*. As trachoma programmes develop, prevalence data at the district and then community level should be collected. When the district-level prevalence of TF in children aged 1–9 years is <10%, a community-by-community approach to assessment and intervention is recommended. If school enrolment is very high and district-level prevalence of TF in children 1–9 years of age is between 5% and 10%, trachoma surveys in schools may be useful to identify “hotspots” that need trachoma intervention, in addition to but not replacing population-based surveys.

8. In order to clearly define endemic areas and establish national, regional and global ultimate intervention goals for GET 2020, priority should be given to conducting district-level surveys.
9. The Alliance welcomed the inclusion of trachoma elimination and the SAFE strategy in the global neglected tropical disease (NTD) framework and the progress made in WHO's integrated approaches to NTD control. It also noted the results of the early evaluation of the USAID-funded activities in this area, which indicated an increase in mass drug administration. In light of the reports from USAID-supported countries, the Alliance emphasized the need to address all components of the SAFE strategy and to ensure integration with national plans and priorities.
10. In the context of the integrated approach to the control of NTDs, the WHO Alliance for the Elimination of Blinding Trachoma by the Year 2020 should continue to lead international efforts to eliminate blinding trachoma in accordance with resolution WHA51.11, and should prepare a report on progress for the World Health Assembly.
11. Further information is required about pharmacokinetic interaction of azithromycin with other drug combinations used in the integrated control of NTDs, and the impact and safety of azithromycin treatment in children aged <6 months.
12. The Alliance recommended that the F and E components of the SAFE strategy be a theme of the Thirteenth Meeting of the Alliance.
13. A technical advisory group, appointed and convened by WHO, should meet to refine recommendations on antibiotic use and other issues of a technical nature in the light of new knowledge, provided the required resources can be identified.

11. DATE AND PLACE OF THE THIRTEENTH MEETING

It was agreed that the Thirteenth Meeting should take place in April 2009, at WHO headquarters, Geneva.

12. CLOSURE

With the customary exchange of courtesies, the Chairman closed the meeting.
