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Prevention of Blindness and Deafness

Report of the Ninth Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma

Geneva 21−23 March, 2005

GET 2020

GLOBAL ELIMINATION OF BLINDING TRACHOMA BY THE YEAR 2020

ACKNOWLEDGEMENTS

The World Health Organization gratefully acknowledges the support given to the WHO Alliance for the Global Elimination of Blinding Trachoma by its many partners. Among those activities, the annual meeting of the members of the Alliance is a vital opportunity for sharing of information and experience, as well as articulating the immediate challenges and reaffirming the group's commitment to achieving the ultimate goal of elimination. Thanks are extended not only for the financial support that enables the work of the Alliance, but for the work done during the meeting itself and in the preparation of the report.

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1. INTRODUCTION

The ninth annual 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, Geneva, from 21 to 23 March 2005. The meeting was attended by 31 national coordinators; 14 representatives of WHO collaborating centres for the prevention of blindness, and other research institutions; 14 representatives of nongovernmental organizations and foundations; 6 observers; and 13 technical staff from WHO, including a representative from the Regional Office for Europe.

Dr Serge Resnikoff, Coordinator of communicable disease control and management opened the meeting, welcoming all participants on behalf of the Director-General of WHO and recognizing the value of so many interested parties coming together to exchange information under the new, refocused presentation format. International cooperation and community development ─ both key components of successful programmes ─ were developing strongly. The significance of blinding trachoma elimination went beyond communicable disease control; as a disease of poor, neglected, underserved populations it was related to wide societal and environmental issues that must remain central in discussions. The framework for the certification of elimination had been given formal approval and WHO was now working to develop the process for those countries that were ready to be certified.

Dr Silvio Paolo Mariotti, meeting coordinator, outlined the new reporting format under which country presentations would be made. This reflected the wishes of the Alliance, expressed at the eighth meeting, to reduce the number of presentations, standardize and condense the material presented, and thus maximize the time available for discussion. Accordingly, (in principle) data sheets were received in advance of the meeting, and only the relevant problems, challenges, solutions and opportunities taken were to be reviewed, for selected countries. The Alliance had also expressed the view that countries with large populations should give updates on progress every year, and accordingly reviews would also be presented by Brazil, China and Nigeria.

Dr Grace E.B. Saguti (United Republic of Tanzania) was elected Chair of the meeting, with Ms Dyanne Hayes (Conrad N. Hilton Foundation) as Vice-Chair. Professor Nouhou Konkouré Diallo (Guinea Conakry) and Dr Rajiv Bhalchandra Khandekar (Eye and Ear Health Care, Ministry of Health, Sultanate of Oman) were elected Rapporteurs.

The Agenda was adopted, with modification to the list of countries presenting on the second day and inclusions of various update briefings (Annex 1). The list of participants is contained in (Annex 2).

In May 2005, the International Organization Against Trachoma will award Dr K. Konyama the Trachoma Gold Medal, and he will deliver a keynote address on trachoma control in Asian countries and its essential integration into primary health care.

2. COUNTRY REPORTS

2.1 United Republic of Tanzania (Dr Grace Saguti)

Challenges, opportunities and lessons learnt in upscaling the trachoma control programme in Tanzania

Trachoma control was started in the 1970s by nongovernmental organizations (NGOs) working in specific disease-endemic areas, especially in the centre of the country. Control activities were enhanced in 1988 by the formation of the National Prevention of Blindness Committee, and again in 1999 through the public-private partnership with the International Trachoma Initiative (ITI). With ITI, implementation began of the WHO SAFE strategy and Zithromax donated by Pfizer began to be used in six districts. In 2003, the SAFE strategy was integrated into the district health system, enabling the control programme to expand by 10 districts annually (reaching 30 districts in 2004). The five-year National Trachoma Control Programme (NTCP) was established in 2003, with a strategic plan prepared in 2004 and a baseline survey organized.

Currently, it is estimated that trachoma is endemic in 50 districts (out of 119 districts in the country). Initial survey data have been gathered from 30 districts (together with outreach data). There are 12 million people at risk; 2 million children below the age of 10 years have active disease. The TT backlog is estimated at 54 000. Approximately 45000 people have been blinded by trachoma.

Regular reporting on all eye-care diseases at regional and district level provided the data on the basis of which the first 30 districts were chosen. Of the initial districts surveyed, 26 have more than 10% active trachoma. Only four districts have less than 4% active disease, in focal areas. Contrary to expectations, preliminary mapping shows the incidence of TT as varying throughout the country. It is expected that the remaining 20 districts will be surveyed in 2005, completing the study.

There are many challenges facing the programme, such as a lack of adequate human resources and sufficient capacity to implement the SAFE programme. The baseline survey revealed an increase in the population to whom azithromycin would need to be distributed (from 1.5 million to 7 million) following the programme strategy of mass administration at district level. To accomplish this strategy, the programme has had to find ways of motivating the community distributors, linking with other programmes such as lymphatic filariasis and onchocerciasis control. Advocacy has been vital in convincing districts of the need to allocate resources to trachoma control in the face of competing demands from "killer diseases" such as malaria, HIV or tuberculosis. This is especially critical in influencing decisions on the budget ceilings for disease elimination. There are challenges to enhancing community "ownership" of the blindness prevention programme, and to increasing its integration with other programmes. The "F" and "E" components of the SAFE strategy have progressed very slowly, despite efforts to involve the community in a participatory approach. Although all elements of the SAFE strategy are implemented in all districts under the programme, latrines have been built in only six districts under this participatory initiative. The political environment has not been favourable to the programme, which has been interrupted by elections at local and presidential levels. Furthermore, where districts have fallen below the "10% threshold", there is a challenge to establish surveillance at village level.

Opportunities related to these challenges include the prospect of incorporating trachoma plans into the poverty reduction policies. The elimination of blinding trachoma needs to be given a higher priority, and community ownership increased.

Among the lessons learnt are that advocacy has generally raised the level of awareness of trachoma as a public health problem. In 2004, on World Sight Day, the Vice-President's office was the guest of honour, with strong emphasis on "F" and "E" in trachoma control through the involvement of the ministries of environment and water. The SAFE strategy is the best approach for trachoma control, especially when well managed at grass-roots level. The "S" and "A" components are easily implemented in the health sector, with azithromycin being well accepted in the population. As a broad-spectrum antibiotic the drug has an effect on more

than just trachoma. In order to reduce costs, community-level implementation can be strengthened. Regional level skills need enhancement to provide appropriate technical support with support in finance and programme management particularly needed.

Discussion

Human resources: The issues of affording and training sufficient human resources is one common to many countries. In Tanzania it is a major focus for the National Eye Care Strategic Plan, where mid-level workers, such as assistant medical officers and nurses are receiving training to become "integrated eye nurses" in preference to the lengthier training for ophthalmologists. Policy guidelines in eye care (under review by the Government) will direct districts how to pick and train people who will stay in the districts to implement the programme. Selection will be supported by a committee that will also give advice.

Community distributors: Motivation of community distributors can be problematic given the several competing demands for attention and resources. In Tanzania the first step is to understand the health problems experienced by the community, such as malaria, or HIV, and then to fit prevention of blindness into that picture, using educational tools to illustrate the interlinkages. Incentives for distributors relate to the good of the community rather than to financial gain as an employee. If there is already a distributor for another programme, that person should also be used for the trachoma work. Decisions such as the mode of distribution ─ whether house-to-house, or from a central point ─ are made by the community itself, supported by technical advice from experts.

There are no centralized national criteria for selection of distributors and community representatives. This is done by the districts themselves, selecting people who will stay in the area after training. In districts that do not yet implement the SAFE strategy, treatment of trachoma remains a priority under the national eye-care programme, with surgeries conducted and antibiotic treatment with tetracycline.

Political environment: Although political change can be distracting, especially at ministerial level, the mechanisms of implementation and the advocacy activities continue via the many levels of technical staff in the ministry which remain despite changes at the top management level.

Research: Research is being conducted, in one district, on re-emergence of trachoma after mass treatment. The results of this study are not yet available.

Integration/partnership: Excellent partnership has been achieved through joint work in the National Trachoma Control Taskforce at which all ministries are represented, at both regional and district levels. When members of ministries such as education, sanitation, water and environment attend taskforce meetings, they then share that information with their own ministries. Integration is thus achieved right down to district level.

Among the many partners working in Tanzania, World Vision, in conjunction with the Conrad N. Hilton Foundation and the Carter Centre, has supported trachoma control, with emphasis on the "F" and "E" components of the SAFE strategy, constructing a number of wells and providing water to communities in the centre of the country.

Rather than trying to educate communities programme by programme, the question was raised of integrating public health education and strategies on communicable and noncommunicable diseases for district health services.

Those health services must also have a sense of ownership of programmes if they are to be sustainable. In Tanzania, all education efforts are coordinated through the district health management team, which achieves integration, although some districts need much support and motivation to make this work and progress is slow in the system as a whole. Attempts are being made globally to integrate vertical programmes, combining activities that target similar age groups etc.

Lessons learnt: Three important elements for other country programmes to note would be: a focus on education for the young, to teach the next generations how to prevent the disease; an emphasis in districts on providing safe and permanent structures for water near communities; and strengthening the health services to deal with those who already have the disease.

Lessons have been learnt about mass drug administration from the onchocerciasis programme: in a pilot project observed by five other districts, eye-care personnel drew on their observations of ivermectin distribution for azithromycin mass distribution.

Surveys: WHO guidelines indicate that all districts over the 10% threshold must have mass distribution of azithromycin. Where the district has less than 10% active disease, Tanzania will re-survey the communities to identify treatment needs so that villages without endemic trachoma do not receive unnecessary treatment.

Scaling up TT surgery: Given the human resources deficiencies mentioned, scaling-up the surgical component of the strategy remains a challenge. Guidelines have been prepared on the Bilamellar Tarsal Rotation (BTR) procedure, as recommended by WHO, and given to all surgeons in all districts. Tanzania has decentralized surgery for trachomatous trichiasis (TT) to the district level. In all communities, a health worker keeps a register of cases identified (through screening) for surgery, showing the burden of TT cases. This information provides the basis for planning of training and surgery by the district eye-care coordinator. There are three training centres, teaching six trainees per quarterly session.

Coordination of resources: Ways of best using the resources of the NGOs were discussed, and acknowledgment given of the contribution made by many partners in the field. There are annual forums in which NGOs meet as a group to discuss plans and establish how best to interact, reviewing needs and opportunities. In connection with this, and in response to concerns raised about the possible detrimental effect on programmes if community workers are pulled from one programme to another with competing incentives, the Alliance was informed that a meeting for all the national programmes in the country is planned, involving the ministries of health and finance, as well as NGOs. In order to avoid conflicting programme interests and schedules, all districts require programmes to send their annual implementation plans and budgets to a central planning committee, which then allocates funds. Protocols govern visits to districts and the implementation of activities, which prevents overlap. The importance was stressed of priority-setting at the local level to establish which aspect of eye-care is the most important to the individual communities themselves. In Tanzania, although there is a national eye-care strategic plan, regional implementation plans reflect more specific priorities.

2.2 Ghana (Dr Maria Hagan)

TT surgery challenges

Ghana has a national eye-care secretariat and eye-care programme and has long recognized trachoma as a disease of public health importance. In 1995, the eye-care team drew attention to a disparity in care in the Northern Region, where only one case of TT surgery was being conducted for every 12 cases of cataract surgery

With support from WHO and several partners, including the Carter Centre, Christoffel Blindenmission (CBM), Sight Savers International (SSI) and the International Trachoma Initiative (ITI), planning meetings were conducted and a rapid assessment completed. In 2000, an epidemiological survey was made and programme activities in five districts started. In 2003 the picture was completed with 12 more districts surveyed and a five-year strategic plan for 2004 to 2009 drawn up. There is now support from a combination of partners for all components of the SAFE strategy in all districts, including donated azithromycin for all districts.

Human resources are a critical issue. Ghana currently has 2 ophthalmologists, 16 ophthalmic nurses and 650 primary health care (PHC) workers, with 4 more nurses and 200 more PHC workers in training. Community-based trichiasis surgery is performed free of charge, using the BTR procedure. Detailed records are kept of each operation, (e.g., name of surgeon, name, age, sex, address of patient, visual acuity, and which eye operated on). A manual is under development to support TT surgeons and a process of certification for surgeons is in process. Retraining is available. Studies are under way to assess the recurrence rate.

Overall, the ultimate intervention goal (UIG) for surgery currently is to operate on a total of 12 000 people (Table 1, Annex 3). The annual intervention objective for 2004 (originally of 2100 surgeries) had to be revised to 1200 surgeries because of resource constraints. Some of the new districts brought into the programme did not even have a single TT surgeon. Although 79% of the annual surgery target was reached, this was only 7.9% of the UIG. Coverage for the other components of the SAFE strategy was satisfactory, with excellent results for provision of water and latrines, thanks to the support of partners. The target for surgery in 2005 is 1500 cases, doubling to 3000 cases in both 2006 and 2007 in the expectation of having further trained practitioners.

The challenges include seasonal inaccessibility of certain communities, necessitating timely planning and execution of activities. Staffing is a major problem, but solutions are being tried, such as the training of health workers who already undertake surgical procedures to perform TT surgery as well. The existing surgeons will have most of their schedule committed to performing TT surgery.

Control activities in meso-endemic countries require more time and resources, particularly where compounds are far apart, requiring mobility. Epidemics of other diseases occasionally divert resources, for example to work on national immunization days for poliomyelitis eradication. Poverty is a problem in trachoma-endemic areas, and it is hoped that plans for blinding trachoma and cataract can be included in the GPRS (*Ghana poverty reduction strategy)* and that support will be given to upscale surgery for the two conditions. Ethnic conflict, particularly in the Northern Region, has reduced the programme's effectiveness, as personnel are unable to go in to conduct operations. Some people still have misconceptions about surgery and refuse to be treated, pointing to a need to intensify health education.

Among Ghana's successes are the facts that all districts have been surveyed and the SAFE strategy is being implemented; a trachoma five-year plan has been produced and is being implemented; the national eye-care strategy framework has been developed and launched by the Minister of Health; and four programme reviews have been held.

The principal failure has been an inability to meet surgery targets. Despite efforts to train supplementary workers, the standards have not been satisfactory, and the results are disappointing.

There are several opportunities. There is political commitment to the programme, and a structured approach. Blinding trachoma is a priority disease for elimination, mentioned in the Ministry's programme of work, and included in the five-year eye-care strategy document. Health staff have been trained for case detection and surgery, with a manual prepared, and a recording system established. These staff are monitored to ensure quality control.
All TT surgery is free and accessible, being community-based, with adequate equipment (surgical sets) and donated azithromycin.

The Director-General of health services has set the date of 2010 for elimination of blinding trachoma. While challenging, this is feasible, given certain assumptions for all elements of the SAFE strategy, such as that the trained TT surgeons are able to perform at least 60 operations annually and that health education is able to convince reluctant patients to undergo surgery; that the supply of donated antibiotics continues until 2010; and that efforts in water and sanitation projects remain on course.

Discussion

Case-finding: In order to find and operate promptly on surgical cases, in 2004, volunteers and eye nurses conducted active house-to-house searches, rather than simple referral. This was a very successful method, producing more cases in one year than in the total of the three preceding years. These searches also highlighted eye-care problems other than trachoma. All TT surgery in Ghana is free.

Equipment: ITI provided more than 60 surgical kits to each surgeon to cover the expected target number of operations.

Acceptability of surgeons: Supplementary surgeons from other disciplines are being trained in eye care. They work alongside experienced eye-care nurses until they are of an appropriate standard to operate on their own. They are generally well-accepted by communities.

Misconceptions about TT surgery: People are afraid of the surgeon's knife, especially where it concerns sight. Negative experiences, such as a relative's problem with surgery, remain strong influences until health education provides an alternative view. Leadership also plays a strong part, and where the community chief refuses surgery, this impacts others. Conversely, where an operation has been successful on a leading member of the community, this can be used positively for advocacy.

Quality assessment following surgery: Surgeons each have a book for recording and they conduct individual audits. Samples are being taken by the Health Ministry in each district to assess quality and to monitor recurrence rates. The National Programme has set a target of not more than 10% recurrence. The evaluation has not yet been completed, so the present status of recurrence is not known.

Water and sanitation/coordination: Targets for 2004 were vastly exceeded due to the contributions of partners such as UNICEF, the West African Water Initiative (WAWI) and World Vision, and many others interested in providing water sources and latrines. Programmes interested in guinea worm and helminth diseases have been encouraged to join in with trachoma control activities, combining forces and resources. Where there are multiple partners working towards similar goals, good coordination among all partners is essential, whether directly in blindness prevention or in other disease control areas.

Data collection: Generally, it is difficult to obtain consistent and timely data from ministries of health and NGOs. In Ghana this is a problem, as elsewhere. Trachoma taskforces at regional and district levels prepare implementation plans appropriate to community requirements. NGOs and partners have their own agendas, and supplement the work of the national trachoma programme.

Facial cleanliness monitoring data are collected by environmental health workers walking from house to house, reporting monthly. These data do not reflect a "Landrover rolling" syndrome of enhanced behaviour. A comment was made that a simple grading system would be useful for consistent and comparable assessment of facial cleanliness.

A major challenge is how to streamline research-based protocols and turn them into a list of indicators that can reasonably be used to monitor programmes. This needs a common data platform agreed upon by all partners without overburdening the health system and creating resistance. A national taskforce or committee could do such monitoring, with a list of agreed indicators and a standard form completed uniformly by everybody. The periodicity of data collection needs to be discussed and agreed. Furthermore, the committee must agree on the responsibilities for each level so that the same channels for transfer of data will apply to all players, whether NGO or other partner and there can be consolidation of data.

Funding: In the context of praise for the achievements of Ghana and Tanzania for having mapped the disease burden, made plans, and accessed funds from district level to expand the trachoma elimination programme, the suggestion was made that there should be a review also at country and global level for financing options. Funds are needed for programme implementation, operational research and survey work. A general discussion of these points is needed.

Progress review: The suggestion was made that time should be spent on reviewing the conclusions and recommendations made by the Alliance at its last meeting, to assess progress. Similarly, the Alliance should consider overall what progress was being made at the global level towards the elimination target and take stock.

2.3 Morocco (Dr Youssef Chami Khazraji)

Surgical follow-up and surveillance in Morocco

In line with the recommendations made in 2003, by the Second Global Scientific Meeting, on UIGs for trachoma control, a community-based survey was conducted in 2004.

The month-long survey covered 140 000 people, assessed the prevalence and severity of trachoma in disease-endemic regions and resulted in a re-mapping of the disease in Morocco.

Among children aged below 10 years, trachomatous inflammation-follicular (TF) was 0−9.1%. Among the population aged above 40 years, TT was 0.4−6%. Information on facial cleanliness is collected regularly, and indicates that 80−97% of the children surveyed have clean faces according to the definition provided by WHO. For the "F" and "E" targets, 77−85% of households use latrines, and 100% have access to water, however the cleanliness of the water varies between provinces.

Many external partners are involved in the surgical component of the strategy, including the Fondation Hassan II d'Ophtalmologie (Hassan Foundation), which, with its ophthalmologists, ensures that the strategy established in 2004 is implemented. Local development associations participate actively in the "S" and "A" elements of the strategy, helping to identify patients who refuse surgery. Surgical case management of trichiasis is effected both through fixed care for patients who self-admit to health centres as well as outreach services. These are mobile two-day programmes run in the first and third month of every quarter implemented by health workers trained in BTR surgery. Teams take charge of all the identified cases and conduct operations in health posts throughout the district. Thirdly, more specialized trichiasis surgery is carried out in the second month of each quarter by local teams of ophthalmologists who also conduct cataract management, screening of other chronic diseases such as hypertension, and dental care. These teams, under the overall supervision of officials of the National Prevention of Blindness Campaign, monitor patients who have been operated on by local teams and those who have suffered complications or relapses. They are able to go door-to-door to identify patients who need surgery or ophthalmological interventions as well as other health needs.

The quality of post-operative surveillance and follow-up of patients who have had surgery is ensured by this method. Through this strategy the UIGs for each community are closely monitored and managed.

Progress in the UIGs was good: for 2004 the coverage rate was more than 100% of estimated target for all five endemic districts (Table 2, Annex 3). For 2005, there is a backlog of 6678 cases that need surgery, leaving work on severe cases and relapses to be accomplished in 2006 and beyond. Antibiotic therapy coverage in 2004 was 95%. The objective for 2005 is to provide 136 830 doses (based on data gathered from the 2004 survey and the WHO recommended formula for treatment calculation). There are fewer cases needing treatment since the prevalence is now below 5% in most communities apart from two or three communities in which mass treatment will continue over the next three years. For facial cleanliness the average coverage rate in 2004 was 84%, and this rate should be maintained or improved in 2006 and 2007. Environmental change has been supported by local development associations, cleanliness campaigns, better water provision through the drinking-water office (which invested US$12 million for 2004−2005), and better sewage disposal. Further progress in these key areas should be possible in coming years.

Trichiasis mapping shows prevalence going from 1 per 1000 in three or four communities, to 3 per 1000 in two provinces. New UIGs for the "S" component, based on the recent mapping exercise, show a total of 6678 persons to be operated on in 2005. The average rate of surgical coverage in the five districts was 14.8% overall: 15% in Errachidia; 28% in Figuig; 8% in Ouarzazarte; 36.4% in Tata; and 10% in Zagora.

The main challenges are to consolidate the achievements thus far; operating on the remaining cases awaiting surgery by the end of 2005; step up information, education and communication (IEC) activities through the local development associations whose involvement in the programme is very strong; and establish the best possible epidemiological surveillance programme for screening and managing the new TT cases which arise, as well as any relapses.

Many factors have contributed to the successes of the programme: the country's political stability and commitment; strong intersectoral collaboration; state policies of decentralization and support for action at a local level. Civil society has been strongly involved in planning and implementation, as well as in assessment and monitoring. The

epidemiological surveillance for trachoma is completely integrated in the general disease surveillance programme of the Health Ministry. Assessment and monitoring are constant, providing reliable, recent data, thus enabling better planning and targeting of actions. For example, the UIGs for each component of the strategy can be regularly reviewed and updated.

There have been several problems and constraints: it has been difficult to reach the last surgical cases; these are always the most difficult and expensive to deal with, given the large geographical area and the associated logistical issues. Also, the staff are exhausted after almost 10 years of hard work. Unfortunately there are no substitutes to relieve the pressure on staff, and this factor may be a significant problem for the programme. ITI will be reducing the budget for the third phase of the programme, concerning the "F" and "E" components that may be the most crucial in terms of consolidating progress in disease elimination and may cause non-health partners in local development associations to lose interest in the programme.

Opportunities are presented in a variety of areas: involvement in the "Vision 2020" has given impetus to the programme; the elimination of blinding trachoma in 2005 will be evidence that the most avoidable cause of blindness can be tackled. The Government is also involved in the fight against the determinants of poverty, with decentralization and meeting local needs being important aspects of the Government's work to support rural populations.

Morocco will formally request WHO for certification of elimination of blinding trachoma as a public health problem in 2005; a dossier of evidence is being prepared, drawing on various national and international meetings; and achievements are being consolidated through the strategies described of decentralization, a participatory approach, intersectoral collaboration, and the stepping up of local activities.

Morocco is set to achieve the objective of Resolution WHA 51.11 by 2005, with the continued support of the Ministry of Health and all its partners. The backlog of surgery cases (6678) is not insurmountable as a comparable number of operations were conducted in 2004 (6088); surgical staff are well trained, the strategy is well understood; and the population is well aware of the problems, to a great extent because of the involvement of the local development associations. The monitoring and surveillance system is well in place, making it possible to identify new cases efficiently, as well as recurrences, and to treat them as they occur.

The epidemiological surveillance system in Morocco supports well focused planning and is based on: biannual prevalence studies; incidence studies; and exhaustive screening of TT cases. A set of guidelines on epidemiological surveillance has been prepared by the Ministry of Health of Morocco[1], in which trachoma is featured. This guide is used in all health training programmes throughout Morocco.

The WHO system is used for calculating prevalence, from which the UIGs are derived for each of the components of the SAFE strategy. The detailed data from the biannual studies provide an informed perspective on the seriousness of the burden of disease, and support evaluation of the impact of control activities. Whereas initially, in 1997, studies were conducted on a district basis, this was changed to community level from 2004 (endemic areas only), using the same geographical units as those for the population census – i.e. municipal populations of between 20 000 and 50 000.

The incidence studies follow the incidence of inflammatory trachoma and disease transmission, providing cumulative rates for the cohort communities. Environmental and societal factors were studied, looking at healthy lifestyles and behavioural change issues as well as at numbers of clean faces. The studies were conducted from 2001 to 2003, providing both prevalence and incidence rates. The villages selected were those, which, on the evidence of the 2001 prevalence study, had TF levels higher than the district rate. In total, 55 villages and 8500 people were monitored from September 2001 to September 2003. The studies were generally conducted before the antibiotic distribution campaigns.

The approach of exhaustive screening results from intensive discussion between the multidisciplinary programme team. It is of crucial importance to the programme as it is the

[1] *Guide : normes de la surveillance épidémiologique*

only means accurately to identify TT cases and get their addresses. It also is a way of locating TT carriers and following up those who have recently undergone operations to apply post-operative tests and check for recurrence. This level of contact has an additional benefit of building confidence between the health workers and the populations they serve.

The methodology is modelled on the mobile strategy outlined above. There are three screening teams, which cover all the cities and towns in the area under their charge, supported by the local development associations. The problem with the prevalence surveys described is the high cost. In economic terms the feasibility of such screening is questionable given the low prevalence rates now in evidence. More than 146 000 people had to be sampled which takes a great deal of time but the data remain crucial. The incidence studies provided essential information on cumulative rates, allowing for monitoring of factors such as behavioural change, but these longitudinal studies were stopped in 2003 due to cost and in recognition of the additional work burden they represented for health workers preparing for the antibiotic distribution campaigns. Exhaustive screening was an excellent public health activity in terms of the information it provided but required a high mobilization of staff with very complicated logistics. Detailed standardized forms have been prepared for data gathering and compilation, and for trichiasis case management etc.

Discussion

Mopping up: The last stages of blinding trachoma elimination may be some of the hardest, in terms of the epidemiological surveillance that is needed to establish the level of cases, and the amount of work involved in dealing with the final cases, possibly spread over a wide geographical area.

Behavioural change: Given the remarkable coverage achieved for water and sewage disposal in the five provinces, it seems that behavioural change must be the main problem. At the beginning of the programme noone seemed to care much about trachoma. The population is now very much aware of the problem of trachoma, and understand that there are connections between latrines, drinking-water and disease. It is important not to fall into complacency, as trachoma is not present in all areas, but in pockets. The programme must continue to educate the population for at least another two to three years until the disease has been finally eliminated.

Poverty: The Government's interest is very high in the five provinces. The King of Morocco has also taken a close interest in the work of trachoma control, recognizing the underprivileged nature of the area. Three new film studios have been inaugurated recently, one in Zagora. This will attract funds to the area. There may well be a change in poverty rates in the region, but no data on this will be available until the end of June 2005 when the census results are published.

Sustainable support: Once elimination has been declared, there is a chance that external support for the programme may wane, leaving it vulnerable to resurgence. One example of this is ITI's decision to cease funding for the "F" and "E" components of the strategy this year. However, in an unprecedented move the Government has declared that it will fund the work of all local associations in this area.

Lessons from South-East Asia: Republic of Korea, Myanmar, Thailand all experienced poverty and trachoma problems. Extensive government investment in rural development in those countries had a considerable effect on living standards, and on public health. Social and rural development in Morocco may parallel the benefits of health system development, to help the trachoma programme. The ministries of internal affairs, transport, forestry have all contributed to the resolution of these countries' trachoma problems.

2.4 Sultanate of Oman (Dr Rajiv Bhalchandra Khandekar)

Elimination of Blinding Trachoma by 2005 in Oman

Since the 1970s, when a WHO consultant reported the rate of trachoma as 70−80%, with blinding trachoma a major cause of loss of vision in the elderly, several reports have been made. By the early 1990s, a dramatic decline in active trachoma among children was reported, although trichiasis remained a problem among older people in the community (an

estimated 22 000 cases). In 1996, mapping from the prevalence survey showed no active trachoma in the southern zone. The major problems were in northern and central Oman (apart from the capital area) where active trachoma is prevalent at rates of between 1−3% among children under 15 years of age, and trichiasis among adults over 15 years of age is less than 5%. Data from regular screening of all first-year primary schoolchildren shows a decline in TF from 37% in 1986 to 0.56% in 2002−2003.[2] In 2004, data from 165 primary health care institutions and 24 ophthalmic units shows 0.5% active trachoma in primary 1 schoolchildren and 1159 cases of trichiasis. Surgical methods are primarily BTR (245 cases), with 272 cases of electro-epilation and 65 laser trichiolysis. Three wilayats (the smallest administrative unit of health) have been identified as being endemic for trachoma with intensified efforts for control. Overall, however, blinding trachoma has declined to the point where it is no longer considered a public health problem.

The advent of oil dramatically improved people's living standards. However, a positive effect on health is not an automatic sequel. Credit is due to wise leadership and the re-investment of the oil revenue into the development of infrastructure. This accounts for the disappearance of most infectious diseases and the identification and addressing of noncommunicable diseases in the last 20 years. To deal with trachoma in the three willayats where it remains endemic, the many elements of the community ─ community leaders, police, ladies, and health staff─ joined in the effort.

Contributory factors in the success of the campaign include dramatic socioeconomic development, supported by income from oil; the programme approach; expansion of health services; the PHC approach; political commitment, community involvement; and excellent "F" and "E" components. It must be noted that the population of Oman is equivalent to that of a region or province in larger, high-population countries. The health goals have been achieved without any help from NGOs but by the people of Oman and the Ministry of Health, with the support of WHO and UNICEF.

Under the National Eye Health Care Committee there is an extensive network of eye health care providers, ranging from tertiary ophthalmic care to ophthalmic nurses, all coordinated by the Committee, under a national eye care programme as well as an ophthalmic services structure. Planning, implementation and evaluation is mainly done by the national eye care programme, with close links to the ophthalmic services. Additionally there are willayat health committees, which are very useful for implementing elements such as health education, counselling and retrieval of defaulters. In addition the National Eye Care Committee includes representation from many other eye-care related institutions such as the blind school associations for children with special needs, armed forces hospitals, and private sector eye care clinics. Currently there are 24 functioning ophthalmic units (from one in 1975). This rapid expansion of services including PHC has created easy access to trachoma care.

The programme has had several name changes, but is currently the "Eye Health Care Programme". One of its goals, linked to Vision 2020, is Elimination of Blinding Trachoma by 2010.

Treatment has reflected changing circumstances. Until 1998, when azithromycin was introduced by the Government for schoolchildren and their families, tetracycline was the only treatment available, first as the oral form, then as ointment. From the requirement to undertake mass treatment in the 1970, this changed to family treatment in the 1980s, and presently treatment is on an individual basis (with family treatment if required). For trichiasis, the BTR procedure is the primary method of treatment. A TT register was kept from 1996 to 1998 in all PHC centres; now only in the three willayat of high endemicity. For those who refuse surgery, even after repeated counselling, electro-epilation is available. fewer cases of corneal opacity have been found among those who have had this form of treatment.[3] Recurrence rates of 56% for BTR procedures result from misclassification of TT cases, with

[2] The data take into account a change in 1992 in the reporting system to reflect amendments in the WHO trachoma grading.

[3] Research to be published shortly.

many cases of dysplastic and acquired distichiasis cases which had been conflated with trichiasis cases, distorting the statistics. However, over the long term, recurrence rates for the BTR procedure are high (as in Tanzania). Laser electro-epilation is being used experimentally in a tertiary centre. Sharing of results with others using this procedure would be welcomed.

Environmental change has come about through increased standards of housing, but also through regular removal of household refuse in both rural and municipal areas which has reduced fly problems.

Oman's UIGs have been established and trachoma control incorporated into the communicable disease control programme, providing information on the method of identification at a primary care level; the method of reporting, and on the surveillance system (Table 3, Annex 3). Electronic mapping should be operational in mid-2005.

Challenges include: the high level of recurrence, and the related negative impressions spread by patients; metaplasia of eyelashes; high refusal rates; home treatment with epilation; TT in advanced age groups with co-morbidities (in these cases, the trichiasis is dealt with first, before cataract or glaucoma is treated); and competing demands within the prevention of blindness programme as well as from other pressing diseases such as diabetes.

Acknowledgement for the progress in trachoma elimination is due to the many Omani people; eye health care staff; schoolteachers, community support group members; health and political leaders; and WHO.

Communication of health-related messages, vital to mobilizing public awareness and support for public health programmes, can be achieved through cable television and regional media, taking advantage of shared languages across borders. Oman is working with *Al Jazeera* to promote common messages on health in Arabic.

Discussion

TT in south Oman: Although there is no active trachoma in the south, there are still cases of TT in that area. The climate is generally very hot, although the south receives good rainfall from July to September. Water availability is therefore good and washing a frequent habit. The south has attracted migration from the north, including health problems such as trichiasis, which may explain why there is no active trachoma, but only some cases of TT.

Education: Initially health education was a separate process, but was amalgamated under school health, under the curriculum of PHC. The school health programme invited the trachoma programme to include its messages in the curriculum. For example, regarding the use of khol; health education, through the curriculum, actively works to discourage mothers from applying eyeliner to children, although the practice is still seen in the south.

Oman has achieved the lowest under-five mortality rates in the Region. The first school started in 1970. In many willayats, when pre-school children come for vaccination (where coverage is almost 100%), they are screened for trachoma. Pre-school children do not have trachoma of a public health magnitude.

Recurrence rate: The Alliance noted that the level of relapse rate is of concern, in combination with the refusal of patients to undergo surgery at all. The BTR procedure has been perceived as being the best recourse, although not always the most effective. There is little reason to believe that the high recurrence rate is attributable to the providers as TT surgery is done only by qualified ophthalmologists and an ocular plastic surgeon is managing most of the recurrence cases from early operations. The BTR procedure is essentially a palliative treatment. If the fibrosis process is ongoing, even cases that have had a successful operation are likely to experience recurrence. One year after surgery, the recurrence rate is 10−15%. The higher rate published reflects the situation four years after surgery, which may be inflated, for example, by the misclassification of displastic cases. The situation presents a dilemma for decision-making on surgery for the elderly. Alliance members commented that it is important to differentiate between true recurrence, and that which is part of the expected effect of long-term chronic infection, i.e. dystichitic or hyperplastic lashes.

Quality assurance of surgery: All the ophthalmic surgeons in Oman are qualified with at least three years of experience after graduation. A manual for review and evaluation of TT surgery is in process (see below, section 6.1). In 2005, one surgeon per region will be trained

by the plastic surgeon to review the BTR procedure to make sure that the process is not responsible for the high rate of recurrence. In Tanzania, the study reviewed surgery in five districts. The overall recurrence rate, four years after surgery was 28%. In some districts the rate was as low as 16% after four years. It would be useful to consider what factor made the difference in the setting with the 16% recurrence. In that district the surgeon was an ophthalmic nurse. In Morocco the protocol for evaluation of the quality of surgery was the same as that used in Oman. The results of the evaluation in Morocco indicate ─ paradoxically ─ an association between ophthalmologists and the highest rates of recurrence while the lower rates are associated with health workers. It might be useful in Oman to assess those who conduct the operations.

2.5 Pakistan (Professor Mohammad Daud Khan)

District trachoma control programme as part of the district comprehensive eye-care control programme, pilot project

In 1980, the first survey noted that there were only 80 ophthalmologists for 100 million population. Presently there are 1800 ophthalmologists. The national eye-care programme is located in the Ministry of Health with a well articulated structure, ranging from the Ministry to district committees under a broad-based national committee, which includes representatives from the Ministry, provincial and national coordinators, international and national NGOs and representatives from national eye institutes. For service delivery the focus is the district (80−85% of delivery). Each district has a primary eye-care centre for populations varying from 200 000 to 3.5 million people. There are one or two centres of excellence, and tertiary centres take 7−8% of referred cases.

A trachoma control task force was established in 2001, which conducted a rapid assessment. A national planning meeting was held and a strategic plan developed in 2002. International partners such as CBM and SSI then reviewed the task force's proposals and the rapid assessment results and allocated funds to district-level pilot projects in four provinces: the North West Frontier Province (Batagram), Punjab (Sheikhupura), Balochistan (Quetta), and Sind (Umer Kot). In each district a door-to door survey was made of the disease burden (TF, TT); and the "F" and "E" components and the level of health education were assessed. Surprisingly, the preliminary survey results in some cases have contradicted the earlier findings. In Batagram, for example, TF, TI and TT disease burden levels were very low. Conversely, there were very high incidences of TF, TI and TT in Umer Kot.

The national action plan will be implemented in the four districts for 2005−2007, after which the areas will be re-surveyed and a decision made on extending the project to the rest of the country. Following the SAFE strategy, azithromycin will be centrally procured and distributed by community health workers using direct observation of treatment, and monitoring conducted by the district health department. Surgical training of the master trainers has started with operations undertaken in priority villages at community level. Environmental improvement will focus on improving community hygiene, with collaboration encouraged at each district level. Facial cleanliness and personal hygiene has been handled by a committee, with guidelines on health education messages to be prepared for all ages, efforts made towards the availability of water, and support given through community networking.

The national taskforce has recommended a series of monitoring indicators. There will be systematic monitoring of these across the country. For antibiotics, the indicators are: the number of cases identified and treated, the number of villages and communities given mass treatment, and the number of people given repeat dosages after six months. For surgery, the indicators are: the number of trichiasis operations, and the number of repeated operations. For facial cleanliness, the number of health education sessions will be assessed, and the number of households that have daily face-washing practices. For environmental aspects, the indicators are: the number of households with latrines and access to safe water supply, the number of households with a solid waste disposal programme and the number of fly breeding sites eliminated from selected villages.

There are many obstacles to success, a major one of which is the size of the populations to be treated. Sheikhupura has 3.5 million inhabitants ─ a daunting prospect for

mass treatment if the rates are found to be over the 10% threshold. The rapid assessment indicated that intervention will be required in 59 districts (out of 119 districts) which will be unaffordable. It might be more practical to eliminate trachoma in the huge districts on a village-by-village basis. The cost of antibiotics for countries with very large populations is a major stumbling block to trachoma control. Compliance through the directly-observed treatment (DOT) approach is seen an opportunity, using community health workers. The district trachoma control programme should not be a vertical project, although managed by the district health authorities. Much training will have to be given to the district eye-care programme in surveillance and monitoring. Similarly, at secondary eye-care level, training will be important and sustainability considered. For the facial cleanliness and environmental elements of the programme, there are challenges to project sustainability, along with monitoring issues. Whilst there are human resources in the country, considerable training and technology support will be needed to cope with the large volumes of TT cases that are awaiting intervention. Large quantities of antibiotics will also be needed given the size of the population.

Discussion

Identifying intervention targets: The issue was raised of defining the lowest community unit to be used in planning inteventions. A basic unit of 3.5 million people is too large, yet terms such as "district" have different meanings in different countries. The important point for assessment of antibiotic treatment needs is to select the smallest group in which treatment would be initiated, which may be 1000−5000 people, and assess prevalence of active trachoma among children. The districts must be broken into smaller units, resurveyed, and villages or communities prioritized for treatment.

Strategies for surgical human resources: Pakistan has considerable eye-care resources trained to varying levels─ whether four-year residency programmes or two year diplomas─ and there are large numbers of doctors and paramedics including opthalmic technicians. The plan in Pakistan is to bring all the master trainers to the PICO institute in Peshawar, who will be trained in BTR procedure, then return to their own provinces to start others training there for the districts where intervention is needed. Technological support will be given, and interventions carried out at the rural health centre, not district level.

Antibiotics: Azithromycin is locally manufactured and available in Pakistan. There is some financial support available for procurement of azithromycin for the four districts. The scale of intervention (i.e. mass distribution to 3.5 million in one district) was not anticipated in the original plans, and the advice to consider planning for districts in terms of smaller units will make this planning easier. Identification of the worst-affected areas will direct resources for mass treatment. The price of locally manufactured azithromycin is approximately $0.50 per dose, which would mean a cost of $1.5 million to treat Sheikhupura alone. Purchasing generic drugs is not an option for any of the countries with large populations. It was recalled, however, that ITI has reserves of 135 million doses of Zithromaz donated by Pfizer that must be used in the coming four years. There are comparable precedents: the target for lymphatic filariasis is 1000 million people to treat each year. In two to three years treatment rose from zero to 400 million annually.

Drug resistance: Given the scale of distribition planned, monitoring of drug resistance may be needed, with plans and recommendations put in in place, and the involvement of WHO. The issue of drug resistence has been discussed at previous meetings of the Alliance. Pfizer has a worldwide network to monitor antibiotic resistance through the adverse drug reaction unit, has been reporting plans to monitor resistance of the drug since the intiation of Zithromax distribution, and has investigated cases where resistance has been suspected. There are plans to monitor the effects of azithromycin on a range of bacteria, including chlymadia, in view of the projected distribution to millions of people. In future, as patents lapse, production of generic drugs will increase, with implications for quality control of manufacturing. It is likely that azithromycin will be widely used, for a variety of infections, although not in mass distribution, and its adminstration is unlikely to be directly observed.

WHO may need to produce recommendations on this issue, as well as perhaps suggesting conduct of research on the bioavilability of drugs from generic production.

Preventive strategies: Aggressive strategies to target water and sanitation programmes may obviate the need for extensive antibiotic use through preventing infections, however such social and economic improvement may take too long. As Pakistan has pockets of infection, antibiotics will be needed.

Costs of implementing SAFE strategy: Taken for a country as a whole, the costs of implementing the SAFE strategy may seem prohibitive, but it is important to do what is feasible. Ghana had presented a budget showing costs of approximately $600 000 for "S", $850 000 for "A", $800 000 for "F" and $22.5 million for "E" . The huge costs of "E" activities were daunting but much could and must be accomplished in small steps, village by village, because of the importance of the task. It must be recalled that the costs presented for "E" were essentially a rural development bill, in which many other partners participate.

Sustainability: The taskforce has played a crucial role in Pakistan in starting up and monitoring water and sanitation projects (among others). The point at which the taskforce should hand over to districts, relegating itself to periodic check ups, is not clear. Advice was offered that monitoring of pit latrines, washing, flies etc is to control trachoma, and whilst important, the "bottom line" was the rate of trachomatous blindness, which is hard to measure, hence the intermediate surrogate measure of active trachoma. Once the level of active trachoma has dropped below the threshold, concern about process indicators such as pit latrines might be relegated, from the Alliance's point of view.

2. 6 Australia (Dr Donna Mak)

A developed country approach to eliminating blinding trachoma

In Australia trachoma is endemic, only in pockets among aboriginal people. The TF prevalence in school-age children in 2002−2003 ranged from 0−27% (district) and 0−60% (community).[4] Trichiasis in indigenous adults in highly disease-endemic communities over the age of 40 years is approximately 10%. There are limited data on face-washing, but a survey of three schools in 2004 gave rates of 55%. The rate of latrine use and access to water is almost universal (96%).

The challenges for Australia include the fact that, as a federation, Australia has no national trachoma control programme, relying on collaboration with state health departments, primary health care services, and aboriginal community-controlled health organizations. Each state has a different health act, none of which mention trachoma as a notifiable disease. There is a currently a lack of consensus among public health and specialist eye health professionals regarding the severity and importance of trachoma as a public health issue. Similarly, there is no consensus on the best practice in surveillance and control activities. There are several trachoma control programmes at district level, only one of which addresses trichiasis. The multiplicity of control programmes has produced non-standardized data (and very little data at all on trichiasis). Those primarily affected by trachoma are in small numbers, highly marginalized and mobile, living in remote, sparsely populated areas. It is estimated that, countrywide, fewer than 5000 have active trachoma, and less than 100 have trichiasis.

Blinding trachoma has a very low profile, and is generally not recognized as existing until surveys provide evidence; it cannot compete with life-threatening disease priorities; and there is reluctance to have the condition treated. Access may be difficult, given the distances involved, and there may be language barriers to treatment. High turnover in health staff is a problem in areas where trachoma is endemic, resulting in low awareness and skill levels. Cultural practices and norms can mean that rubbish collection, water use and environmental cleanliness are poor and behavioural change is difficult, even contentious, given the existence of ritual practices associated with water use, for example. The Federal Government or Ministry of Health has no mandate to change or implement trachoma control programmes as they are state-run programmes.

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[4] Unlike in developing countries, in Australian indigenous populations, "community" denotes groups of 50−100 people, Similarly, in indigenous populations, the population in a "district" may be 10 000.

Successes: Trachoma control programmes have been successfully and consistently implemented by district health units in four disease-endemic areas of Western Australia and one in the Northern territories. Primary health care services, local schools and environment health staff have been closely involved. Active trachoma has decreased in the Kimberly District from 40% (1976−1979) to 11% in 2002. As prevalence decreases below 5%, schools and communities are no longer surveyed, so overall prevalence is less than 11%. National funding for health care provision for indigenous people has doubled since 1996, potentially leading to better access.

Opportunities: Australia has a communicable disease network, which in 2004 recognized trachoma as a public health issue for the first time. Draft national guidelines for public health management of trachoma have been drafted and are undergoing consultation. This will present an opportunity to create national consensus on best practice, better coordination between districts and provinces, and implementation of control programmes in all areas where trachoma is known to be endemic with inclusion of trichiasis. An opportunity to increase detection of trichiasis is presented by the indigenous health check, in which there is now a special item number under the Medicare health insurance scheme. A proposal has been made on the creation of a national uniform data set with reporting to the Australian Government.

From a national perspective, for Australia's 20 million population, blinding trachoma is not a public health problem and has virtually been eliminated. However, it is still a problem for small groups of marginalized people and requires a more collaborative and unified approach.

Discussion

Health status of indigenous peoples: Although it has improved, life expectancy and health status for aboriginal people in Australia is still 20 years less than for non-indigenous peoples. The infant mortality rate among the indigenous population has plateaued but is still much higher than for non-indigenous Australians, Trachoma is not a priority at national level, but at district level, where it is endemic, there are some very active control programmes. Historically governments have been neglectful of indigenous populations and there is still a great deal to be done to balance the equation, reflected in the present health outcomes.

Laboratory testing for infection: Although the rates of HIV/AIDS are not high, there are very high rates of sexually transmitted chlamydia in many areas where trachoma is endemic. Genotyping of ocular trachoma isolates has been done, and has verified the identification of ocular, not genital types in children.

In view of the many infectious disease affecting the aboriginal population, mass distribution of antibiotics might be seen to be useful, to cure several diseases at once. Mass distribution of azithromycin is being done under WHO guidelines as part of the trachoma control programmes, although not yet under a national policy. It has not been possible, given political, cultural and ethical constraints, to make a mass distribution of antibiotics to adults to counter sexually transmitted infections (STI).

Desegregation of data: It is important in making public health decisions, to look at disaggregated data, so as to distinguish where the pockets of disease still exist, and allocate priorities according to those. This applies to Australia, and also to other countries.

Elimination date: No date has yet been announced by the Government of Australia for elimination of blinding trachoma.

2.7 Brazil (Dr Maria de Fatima Costa Lopez)

Update on the trachoma control programme in Brazil

The intention for 2004 was to extend the National School Trachoma Survey to 10 further states. This was modified to four after significant problems with drug supply, interruption of supply of tetracycline ointment and difficulties in purchasing azithromycin at federal level. The surveys done so far (131) have revealed areas of disease endemicity which were previously thought be trachoma-free, for example various rich states in the south.

Trachoma has been found in the areas bordering Bolivia, Guyana and Venezuela. The national school trachoma survey concentrates on areas with the lowest human development index and children 7−10 years old. The prevalence is 98% TF with 1% TI and 1% TS. Since 2000, increasing numbers of people have been surveyed, with decreasing numbers of trachoma cases found.

In 2004, 150 000 people were examined but only approximately 10 000 cases of trachoma were found. Increasing numbers of states are conducting trachoma control programmes, although with varying degrees of activity.

Activities: In 2004, 250 people were trained in 16 states, four more states were surveyed in the school survey, educational materials were printed and an epidemiological survey manual prepared in Portuguese. However, SAFE strategy implementation was disappointing (Table 4, Annex 3). For the "A" component, only 15 000 people were treated (3.1% coverage); an active search for TT cases was conducted in only two states, resulting in 1203 operations (including all trichiasis aetiology). The data on trichiasis surgery are not specific, as the reporting form does not currently specify trachoma. For the "F" and "E" components, prioritization is done by the Ministry of Health. Communities are being encouraged to request the Government to improve sanitation, using trachoma as a reason for funding improvement in environmental standards.

The planned activities for 2005 include, for "A", to assure the drug supply for 25% of TF/TI cases; and to select a pilot study in the Ceará region among the indigenous Indian populations, first making a survey then conducting mass treatment. For "S", the active search for cases must be increased, increasing the sensitivity of surveillance, and coverage of surgery in affected areas. Through cooperation with ophthalmic societies, training of surgeons could be improved. Surveillance is a weakness at present, as many ophthalmologists do not yet believe that trachoma is a problem in Brazil. For "F" and "E", there is a need for more education, in conjunction with the Ministry of Education, using the TV network, for example. Increased integration with primary health care services, such as the family health programme, is planned, and educational materials for family health teams on eye care and trachoma.

Weaknesses in the programme include the denial by ophthalmologists of the presence and scale of the problem and the lack of information and training for health personnel on trachoma. There is no overall system in which data on blinding trachoma can be consolidated and compared for planning. Those data that do exist are not integrated into the national information system, despite assurances that this would happen.

The programme has many strengths, among them the quality of political support at national level and the vigour of the trachoma control programme at federal level with budget, training materials. Government funding exclusively supports the programme in all but one of the 27 states, in which Helen Keller International is the programme partner. Primary health care is strongly established. School attendance is good, with 96% of children aged 7−14 years in education. Brazil has 7000 ophthalmologists who, if made more aware of the disease, can be directly helpful.

Work remains to be done in surveillance and control in 11 states where staff have been trained but the activities were never implemented. Trachoma is not perceived as a high enough priority to compete effectively with other programmes at state and local levels. There is presently no capacity to perform PCR analysis of *Chlamydia trachomatis* in Brazil. A laboratory network is needed for the diagnosis of trachoma.

Discussion

Trachoma among preschool children: Where prevalence among schoolchildren is higher than 10%, there is mass treatment with azithromycin throughout the whole school followed by home visits. If one child has trachoma, the whole family is treated. No TT cases were found among schoolchildren, although some were found among older family members.

Survey rationale: The Government decided to undertake a survey based on schoolchildren rather than a population-based study, because they would be easier to access. It was observed that active trachoma is found in children less than five years of age who are not yet in school, while trichiasis is found in people over 40 years of age. Planning was based

on the results, although many cases have been left out of this group. Other surveys are needed for preschool children and adults. For example, some visits have been made to kindergartens and other locations where very young children are gathered. House-to-house surveys are rare. Attempts are being made through pilot projects to get a community-based survey done, perhaps by training PHC community health workers to do house visits. Currently lack of trained personnel is a problem for the programme as turnover is too rapid.

2.8 China (Dr Quingjun Lu, on behalf of Professor Ningli Wang)

Update on the trachoma control programme in China

China has a three-step trachoma control programme, developed in 2003. In step one an executive model for trachoma control was defined, focusing greater attention on two populations in particular: schoolchildren and seniors (aged over 45 years). Rapid assessment teams were set up to collaborate locally with health workers.

In 2004, step two integrated trachoma control action with public health care. Fourteen provinces were selected for training in the SAFE strategy; trachoma rapid assessment; treatment with antibiotics and surgery; primary health care informatics systems; and education about trachoma. A field study was also conducted in 2004 to estimate the disease burden. Data collected in 2004 from hospitals across the country show trachoma prevalence to be lower than in previous studies (contributing 4.15% or less to overall blindness). For example, in the urban areas of Beijing, Shanghai and Guangzhou, trachoma rates are almost zero, although disease is still found in areas around cities. Clinical data are gathered through the WHO simplified trachoma grading system and in addition, samples are selected on which to perform laboratory tests using imported test kits. In rural areas, screening is conducted through schools, examining children under 14 years, revealing some cases of TF and TI although no cases of TT, TT or CO. In the senior group, trachoma programme action is coordinated with cataract camps. Screening located no active trachoma cases although some TT and CO were found, and those cases invited to undergo surgery. Although some refused, as the operation does not restore vision quality, about 80% underwent surgery.

China's economic growth over the last decade and the national development plan have brought benefits to the environment, and to the "F" and "E" components of the SAFE strategy. Most people now have access to clean water (93.8%).

The challenges for the trachoma elimination programme include the size of the population: assessment takes more time and greater resources. UIGs are hard to define for the "S" and "A" components. Political commitment has improved; having previously viewed active trachoma as no problem, since 2004 the Government has accorded the elimination of blinding trachoma a higher priority in terms of programme coordination, although supported by less money. A regional action plan needs to be defined, to reflect the very varied terrain, climate and lifestyles of the country.

In future plans, the programme will be spread to the rest of China, applying the rapid assessment model further, using the 14 original provinces as leaders. More training courses will be run in 2005. A national workshop and an annual meeting on the prevention of blindness will be held, supported by the Ministry of Health.

Given continued support from all partners, China will be able to achieve the elimination of blinding trachoma by 2010.

Discussion

Water supply: There are three different forms of water supply reflecting the varying economies of different parts of the country. In more prosperous areas, the supply is tap water, in the drier north-west, supply is from government-built treatment systems; and other areas use wells.

Assessment: The 14 provinces are the first step in the assessment process. They then form the training centres of the next step when the programme expands to the areas surrounding each province. An enquiry was raised as to the inclusion of Tibet in the assessements.

TT surgery: Trichiasis surgery provides a minimal improvement in vision as well as a reduction in tearing and inflammation. The major change is in the natural history of the disease. Surgery reduces the risk of developing blindness but has a negligible effect on current vision, unlike cataract surgery. Health education is important to ensure that false expectations of the results of TT surgery are not created.

Global burden of trachoma: The figures so far are the results of rapid assessments, and the results of the prevalence results are awaited. However, if the rapid assessment shows no active trachoma among children in the "worst" sectors of a province, it is likely that the province does not have a significant public health problem with trachoma. That situation applied to five of the ten sites. China's rapid economic development is a contributor to disease elimination; such development in the rural areas also would be welcomed. In the initial estimates of global disease burden China and India together accounted for two thirds of cases, however, China may be able substantially to revise down its disease burden statistics. Acknowledgements and praise were extended to China for the excellent work done on the assessments and control programme.

Change in emphasis: Previously China had a successful trachoma control programme. When the blindness prevention programme began to focus primarily on cataract, this had a detrimental effect on trachoma control. Formerly blindness prevention was through primary eye care, which is more sustainable. Local information to locate pockets of infection is essential for trachoma control and eye health in general. Through the Beijing Collaborative Centre there is a new impetus and a new work plan. Primary eye care can be incorporated into PHC.

2.9 Nigeria (Dr Dienye Iyalla Apiafi)

Update on the trachoma control programme in Nigeria

Nigeria has an estimated population of 130 million people inhabiting 36 states. The estimated prevalence of blindness is 1.3% (North 2%, South 0.6%). Trachoma is believed to exist in 19 Northern states and to be endemic in the 10 Sahel belt states, but no nationwide prevalence survey has ever been done. The estimated national prevalence of TF/TI is 5.2% and TT 1.5%. A national three-year epidemiological survey was started in February 2005 so reliable population-based data will be available on prevalence, causes, magnitude, distribution and risk factors for blindness and low vision. This is being conducted by the Government in technical partnership with the London School of Hygiene and Tropical Medicine (LSHTM), supported by CBM and SSI. The survey will cover six geopolitical zones (two per year). The benefits of the epidemiological survey will be to provide information for planning; data on services; normative data on glaucoma, with specific positive impact in the areas of increased awareness; increased research capacity and skills; and capacity-building.

Trachoma control started in 2002 but is not yet an integrated strategy involving other ministries such as water, women and education. Currently the trachoma control programme is principally supported by four NGOs working in trachoma-endemic areas (Carter Centre, CBM, SSI and HKI), with occasional support from other partners (for example in providing training on BTR procedure). Whenever national campaigns for cataract surgery are conducted, TT cases are dealt with as they are encountered. Currently government involvement is limited to a coordination role.

Progress: Supported by the NGOs, the programme has met quarterly from 2002 to 2004, with three NGOs implementing trachoma control. CBM has conducted rapid assessments of the states in which they are working, but programme implementation has not yet started. Cost implications mainly inhibit NGOs from embarking on "F" and "E" activities, although health education activities, such as talks, training of school teachers on facial cleanliness and personal hygiene for the children, and messages for the community such as radio jingles have been implemented. In 2004, 1047 health educators have been trained (a total of 5700 thus far). Some limited, though encouraging "S" and "A" activities are under way but it is hoped that by 2006 all elements will be undertaken. Data collected by the Carter Centre in two provinces indicate percentages of children with clean face as fluctuating between 68−95% from May to December 2004.

Regrettably the actual programme performance, measured against the annual intervention objectives, is quite low (tables 5−7, Annex 3). In "S" activities, 3830 lid surgeries were conducted (1487 in 2003). In 2004, 30 TT surgeons were trained with a further 19 ophthalmic nurses undergoing training. For "A", every NGO distributes tetracycline eye ointment using mass distribution in most disease–endemic areas. In December 2004, SSI bought azithromycin and treated 2428 people with the antibiotic. It is hoped that ITI will be supportive in this respect. In 2004, 45 582 people were treated with antibiotics (10 492 in 2003). For the "F" and "E" components, thanks to the work by the Carter Centre, there has been progress in latrine construction, with 1872 constructed in 2003 and 2682 in 2004.

There are many challenges for the programme. The greatest is to achieve 75% coverage when currently the rate is 10−20%. Reporting must be improved; although a format is in place, scarcely one third of the 36 states return the forms, so information is gathered directly from the NGOs. There is no direct funding from the Ministry of Health, which often gives priority to other communicable diseases such as malaria, HIV. The programme needs the involvement of other ministries such as water and education, women's affairs, as well as UNICEF. Other areas for action include encouraging CBM to implement its programme by the last quarter of 2005, and all NGOs to implement the SAFE strategy fully by 2005−2006. There are opportunities in the provision of eye camps by other partners, and an improvement in surgical techniques to support uptake of operations. As far possible, funds permitting, there is a will to acquire azithromycin, if necessary from the open market. In the meantime tetracycline use will continue to increase coverage among individuals and community members. More involvement by NGOs is needed in "F" and "E" components, with more health education and the construction of more latrines.

The likely problems are the lack of funding and commitment by the Government, which may in turn deter NGOs from continuing to support the programme; and difficult climatic conditions that inhibit access.

Discussion

Tiers of government: Concern was expressed that, without awareness in the government structure of the programme, trachoma control could not survive pullout by NGOs. When the trachoma programme was started, a stakeholders' meeting involved local government as well as the Ministry of Health and NGOs. Where states are not cooperative, the issue can be brought to a health council involving the Minister of Health and all commissioners of health of the state.

Coordination of data collection: Different states do not answer directly to the programme but to the director to disease control and public health in the states. Coordination is therefore difficult. When there was funding from the centre, data collection was easier. The structure of information gathering is there but is not working.

2.10 Afghanistan (Dr Ahmed Shah Salem)

Introduction to trachoma control

With the objective of starting a trachoma control programme, under the national prevention of blindness programme, a survey was carried out in December 2004, using a simplified rapid assessment method in order to identify and prioritize communities for intervention using the SAFE strategy. Technical and financial support was provided by the Pakistan Institute of Clinical Ophthalmology and CBM respectively. There were three phases (1) identification of areas for the rapid assessment; (2) selection of the team of each region, with collection of data and field work; and (3) the analysis and preparation of the report. Seventeen villages were selected from five provinces (Prawan, Herat, Qandhar, Nagerhar and Takhar). In phase 2, teams consisting of a trained community ophthalmologist, a technician and volunteer were selected and trained in TRA methodology. To collect the data, at least 50 children were assessed in each selected village, with TT searched for in each location. The villages were categorized for TT intervention; 11 were villages rated as high priority and 6 as medium priority (with none in the low category). For active trachoma, one village was of medium priority, one of low priority, and one was not rated as a priority.

The rapid assessment was felt to have been successful in identifying and prioritizing areas for trachoma control, but a door-to-door survey needs to be conducted in villages of high or medium priority and the TRA extended to the other provinces.

Discussion

Follow-up: A request has been made to CBM and other NGOs for funds to continue surveying other provinces and to conduct the door-to-door survey. The Ministry of Health has received the results of the survey but there are few eye-care facilities and no clinics or eye camps to undertake surgeries.

Assistance: Afghanistan has achieved good survey results, but has relatively few resources to allocate to the programme. The country has experienced 25 years of civil war. Pakistan has some very successful trachoma control programmes, achieved using few resources, and perhaps a "twinning" process might be set up so that rapid progress could be achieved. Perhaps some lessons learnt could also come from neighbouring Iran.

Challenge for social development: There is a tertiary eye-care centre in Afghanistan, but there is very little water, and the environmental system is not good. Less than 30% of the country has access to drinkable water. Even in Kabul, houses have only one hour of drinkable water every three days.

Islamic Republic of Iran (Dr Alireza Delavari)
Status of blinding trachoma elimination

The Islamic Republic of Iran has a population of 64.5 million, about 60% of whom live in the urban areas. The country is divided into 30 provinces, 368 districts and more than 65 000 villages. Primary health care became operational in 1984 and is now well developed. The health structure is headed by the Ministry of Health with medical education integrated with public health. At the lowest level of the structure, in the rural area, there are "health houses" (responsible for two to three villages) which are staffed by health workers ("behvarzes"). At the next level of referral, there is one health centre to every two or three health houses. In urban areas there are "health posts" at the lowest level, reporting to health centres, and on to the district general hospital. The highest level of referral is the University Hospital. Nationwide, there are 30 000 behvarzes, 1174 ophthalmologists, and 1632 optometrists. However, trachoma does not rank in the top 100 diseases. Data from one of the national referral hospitals indicate that corneal opacity due to trachoma accounts for about 3.8% of all causes of corneal disease.

Environmental health indicators for 2004 in rural areas show high access to water sources (84.5%), with latrine usage more than 80%. A recent survey on causes of blindness has provided preliminary data showing no cases of trichaisis (11 700 eyes examined, 12 cases of blindness). Data from rapid assessments in four provinces in the south and south-east of the country show, out of a population surveyed of 59 384, nine cases of CO, and only one person with trichiasis without CO. Surveys found that the distribution of active trachoma among children is limited to one district (Systan-va-Bluchestan) bordering Afghanistan where seven cases of TI were found.

There is no programme for trachoma control , but all the components of the SAFE strategy are being implemented. "F" and "E" components are integrated in PHC through "healthy village" activities etc; "S" and "A" are achieved through the referral system. Health insurance is provided for all the rural population by the Government, and many health services are free. Monitoring is through two systems; one for communicable disease, and for noncommunicable disease risk factors. All primary schoolchildren are given a health screening before school entry.

The priorities for Vision 2020 work do not specifically include trachoma (but include other causes of blindness such as cataract, amblyopia, glaucoma and diabetic retinopathy). However, the work carried on by the Ministry of Health, such as public

education, childhood blindness prevention, are effective. The main goal for 2005 is to develop a national action plan for prevention of low vision and blindness.

Discussion

Preschool children: Access for screening is through kindergarten and invitations to screening opportunities broadcast through mass media. The main contact is through TV.

Certification: Iran is ready to start the process of certification, which is excellent news for all those involved in trachoma control, who previously knew Iran when it was endemic for trachoma.

Investment: Iran has invested 30% of its budget in health and education over the last 15 years. This huge investment has had an enormous impact on provision of water and sanitation and is behind the drop in under-five infant mortality. This is shows that, to tackle more than one problem at a time, money must be invested in health and education. Enormous progress has been achieved through the primary health care approach.

3. NGO COALITION REPORT

3.1 International Coalition for Trachoma Control (Dr Jacob Kumaresan and Catherine Cross)

The experience of the NGO coalition for onchocerciasis has been a very positive experience over one decade. The coalition has effectively shared information on country operations and agreed on policy formulation. The coalition's activities were funded by the World Bank and others. This is not the case for trachoma elimination, where funds are limited, and there is a need for resource mobilization to allow increase of activities in countries, with the resulting economies of scale.

In July 2004, under the auspices of a IPB, a meeting was held in Geneva among six organizations to see if a similar organization could be started for trachoma control. In SSI, a meeting of organizations was held to decide on terms of reference of the proposed organization. These are to: contribute to the global efforts to eliminate blinding trachoma; and implement and advocate the SAFE strategy. The work is to be done in a comprehensive way, so that organizations do not implement the strategy piecemeal. The name of the organization is the International Coalition for Trachoma Control. The specific activities are: to exchange information regularly on activities conducted by NGOs; to coordinate activities among NGOs and partners such as governments, multilateral agencies etc; advocate for the global elimination of blinding trachoma by 2020 (many countries are not yet represented in the Alliance); engage new partners, especially in water and sanitation sectors and more partners in education; and mobilize new resources for the expansion of the SAFE strategy in countries.

The overall framework is under Vision 2020. The coalition will report annually to GET 2020, which will in turn present its report to Vision 2020. There will be two meetings, the first of which will be linked to the present meeting. The second meeting will be held later in the year, outside Europe (this year in the United States).

Lessons learnt from the work in the onchocerciasis NGO coalition will be brought to streamline the work of the trachoma coalition.

Discussion

Information sharing: Draft minutes of the meeting organized by SSI will be circulated, and a report made to every GET 2020 meeting of the coalition discussion. Concern was expressed about a possible counterproductive multiplicity of activities. Perhaps the Alliance meeting should be changed to meet the needs of the NGOs, rather than a separate meeting set up? Conversely, it was noted that the countries are at the centre of the discussion, and discussion by the Alliance should not centre on resource mobilization issues.

Membership: National NGOs are welcomed to the coalition, as are all those involved in implementation of the SAFE strategy. There are no membership fees. There is a specific intent to try to make contact with NGOs working in countries that are not yet connected to the elimination effort. Recommendations of likely partners and members are

welcomed, from many different sectors, not just medical. There is no intention to replicate the work of the onchocerciasis system as the programmes are completely different. The main purpose of the GET Alliance is to ensure global monitoring and coordination, reach new partners and to look at development issues.

Involvement of NGOs: The onchocerciasis programme experience was that national NGOs made a great contribution, especially in advocacy, and their efforts should be harnessed as far as possible. Their local knowledge and ability to access and create relationships with communities far exceeds anything that can be achieved by external agencies. There may, however, be a problem in how to achieve their participation in an international coalition given the limited budgets available. The work of uniting and coordinating efforts should also operate at a national level, so attempts also need to be made to link local NGOs on the ground. Once that level of coordination is achieved, one spokesman could present on behalf of all. World Vision practice is to bring together all stakeholders including local NGOs, local government, churches etc, to define roles and responsibilities, regularly reviewing reports on activities. This helps the area to build its own sustainability structures to continue once the international NGO leaves.

The "Organisation pour la Prévention de la Cécité" in France (the Organziation for the Prevention of Blindness) announced formally its participation in the coalition.

Resource mobilization: Within reason, the more attention given to mobilization the greater the opportunity to raise funds. Diseases like HIV are given a great deal of attention, and win a proportionate share of resources despite the lack of specificity in what is being achieved. The information about trachoma needs to be made known to a wider audience through people with marketing skills.

4. UPDATE ON RESEARCH PROJECTS

4.1 Report of the trachoma scientific informal workshop (Dr Kaweh Mansouri)

The meeting was attended by 31 scientists and researchers, and highlighted several important areas of work. Studies on "F" and "E" components were reviewed in two countries. In the Gambia, latrines have been built in 32 villages, with materials subsidized from outside the benefiting communities, however, community involvement and ownership was encouraged, with maintenance done by the community. The approach successfully combined two classic paradigms (subsidized best practice, people building their own) and community-led sanitation. The village development committees were engaged in the process and received a small financial incentive. Of the 666 latrines built (using "improved" technology), 510 were still useable, and in use, after two to four years. A public health intervention study in Viet Nam compared villages using only "S" and "A" components of the strategy with those implementing all four elements. The decrease in active trachoma was 40% greater in the villages implementing all four elements. The study concluded that, when assessing "F" and "E" components, attention should also be paid to the reduction in other diseases. The study faced some resistance to participation by the communities, for example, during harvest time. Some negative attitudes to latrine construction were experienced at the beginning. The creation of a sense of ownership is an essential part of success and long-term behaviour change, through involving local groups such as women's associations and youth groups. A second study in Viet Nam used a targeted approach and compared three types of villages: those implementing the whole SAFE strategy; those implementing "S" and "A" and those with no SAFE at all. The study showed a secular trend towards diminution of trachoma and raised the question of whether the "F" and "E" components alone were sufficient to reduce disease.

Two studies were reviewed on surgery research. In Ethiopia, the effects of epilation were studied among 1500 patients. In minor cases of TT (defined as less than five eyelashes touching the cornea), 10% progress to corneal opacity with or without epilation. The conclusion was that epilation does not prevent CO in cases with no entropion, however, it might be a viable alternative for those who refuse surgery. Of those epilated, 44% had CO, versus 75% not epilated. It is not a substitute for surgery; about 50% of severe entropion cases

are likely to have CO, even without epilation. The second study looked at the natural course of TT in the Gambia assessing 220 at baseline, re-examining again four years later. Out of 220, 153 were re-examined (70%); 41 people in the group had died. There is a four to eightfold increased mortality in people with TT. The main conclusions of the study were that trichiasis does progress even where active trachoma is declining, and that therefore there is a need still to monitor communities for new cases of trichiasis. CO develops in eyes with minor trichiasis. The main risk factors were inflammation (OR 4) and bacterial infection (2.7).

As regards research on the "A" component, a study on the persistence of *Chlamydia trachomatis* was reviewed, specifically, the presence of viable organisms in the deeper layers of the conjunctiva of Vietnamese immigrants to the United States of America more than 10 years previously. This raised questions over persistent or intermittent antigen production providing a possible mechanism for stimulating an adverse immune response, however, it is not clear whether that persistence meant there was active disease. While scarring is due to repeated infections, questions were raised whether persistence also leads to increased scarring and whether antibiotics can treat such a condition. The study noted that 25% of the controls also had *Chlamydia trachomatis*. A mass treatment study conducted in Tanzania showed that, in communities hyper-endemic for disease, infection did not disappear after mass treatment, although it did not increase significantly. There is evidence of re-emergence of disease after 12 months. Risk factors for incident infection at six months were: heavy infection among other family members and previous infection at two months. Travel and visitors from outside the community did not seem to affect the risk of infection. The group also discussed the possibility of using TI as a marker for disease. In future research, seasonal changes should be taken into account, as 20% fluctuations in prevalence were observed. In Tanzania, special analysis of re-emergence after mass treatment suggests that infected households spread over a one mile distance and recommends annual mass treatment. A team from Pfizer has explored the bio equivalence of combining azithromycin, ivermectin and albendazole. Preliminary results show some interaction, but the degree of change in bio equivalence does not warrant a change in dosage of azithromycin. Further research is pending on the two other drugs in the study.

The reliability of PCR for confirmation was discussed, following the study in Pakistan and Guinea villages. In the studies, rates of positivity were obtained from two different PCR systems under strict guidelines and sterile conditions, ranging between 0−65% in Guinea and between 0−33% in Pakistan. The conclusion was that *Chlamydia trachomatis* is detected in a minority of patients with TF and that patients with active trachoma but negative PCR still showed complete healing when hygiene was improved and antibiotics given. The active agent might be in deeper layers of the epithelium of the conjunctiva as has been shown by other research work. Theoretically the Kimura spatula might be preferred to the Dacron swabs currently being used (although expense is an issue). The sensitivity of PCR was questioned given that over 300 copies of DNA are needed to achieve a positive result, in comparison to 50 copies for immunofluoresence (IF)

The question was raised of whether annual mass administration was sufficient periodicity, on the basis of a study in Ethiopia, where coverage was 95% or 96%, with follow-up for more than one year. Elimination of ocular chlamydia may occur with annual treatment over time, but more success might be achieved with biannual treatment. Long follow-up is needed to prove this assertion, however. Questions were raised over whether negative PCR really means that chlamydia has been eliminated, and the need for prudence in comparing PCR results with infection and active disease. There were substantial differences between treated villages. After 18 months the results differed strongly, with infection eliminated in some villages and returning quickly in others. This might be a function of baseline prevalence. However, only small changes were recorded in the clinical level of disease after 12−18 months.

4.2 Research agenda 2005−2006 (Dr Sam Abbenyi)

The Eighth Meeting of the Alliance had discussed several topics on which it was felt further research would be beneficial. Therefore, in 2004, a meeting was convened and the following points were identified as the priority areas for intervention.

Surgery: Interventions to reduce surgical failure rate (recurrence). The main priority area is on surgical training and standardization. Surgical uptake and refusal management are also important areas for research.

Antibiotics: The subjects under discussion were the frequency of azithromycin treatment, and especially when to stop the administration of antibiotics.

Burden of disease: The aim is to find simple methods of epidemiological study to determine the burden of disease. The process of certification of elimination is linked to this, and a country's ability to establish factually that the disease no longer presents a public health problem.

Behaviour change: For "F" and "E" the priority is social and anthropological studies for effective behaviour change, looking at the risk factors for spread of the disease in the community: looking at the host, the agent and the environment.

Discussion

Decision-makers: The priorities were decided by a group of ophthalmologists, experts, NGOs, and country representatives delegated by the Alliance to do this task. These were the issues perceived to be of the greatest priority by the countries in advancing the elimination of blinding trachoma. The meeting also reviewed the available resources and assessed the prospects for new resources. Fund-raising is ongoing for these activities.

Country role: Research is mainly carried out in countries with endemic trachoma, in agreement and collaboration with the national programme. The listing should be reviewed to see if areas of research proposed fit with initiatives ongoing or desired in countries, and liaison or contributions arranged.

Research failure/achievements: Azithromycin use was started 15 years ago; work with trachoma has been ongoing for decades. The progress made in trachoma control is disappointing in comparison with onchocerciasis, where intervention with ivermectin started in 1983, quickly progressing from zero to a very large-scale roll-out in human populations in 1989. Over the last 15 years not enough has been established in terms of antibiotic use: its frequency of treatment, the populations to be covered, etc. No study has yet been published on the effect of the three-year treatment with antibiotics. It is critical to look at the blocks to the full implementation of the SAFE strategy and gear work strategically to solving those obstacles. However, in the Gambia, operational research has been conducted to improve delivery ─ showing azithromycin to be as effective as tetracycline showing how to increase the uptake of surgery through offering delivery in villages or in health centres, and showing the effect of latrines and fly control, as well as a range of other observations made by the eye care team ─ thereby having an effect on the entire SAFE strategy. The evidence base is being improved all the time.

Access: An important theme for research priorities to reflect is the level of access for populations. If 80% coverage is achieved it still means that 20% are still without access to antibiotics, and that proportion may be the most marginalized, underserved, and needy of all. There is a need to ensure that those who are most at risk of blinding trachoma have equitable access to the SAFE strategy.

Implementing research: There is a perceived disconnection between the amount of research being conducted and its application in countries. This needs to be addressed. What are the key issues that countries need to know to be able to implement the SAFE strategy faster? The purpose of the priority-setting meeting was to identify those issues. Behaviour change is one of the biggest of these. There is still a problem with getting those priorities funded, and this must be addressed by the Alliance.

Second round of antibiotics: Where resources are so limited, it is hard to distinguish between the priority of making a second round in one district, and making the first round in another to the people who need it. The logistics problems are enormous in making such distributions. It is not easy to scale up from pilot projects in 10 villages to full implementation

in 10 districts and it is not clear whether this is appropriate or not. Good research and information to meet these questions is needed. By 2010 it must be possible to measure the status of elimination.

Funding: the direction of research can often be influenced by the funding party, rather than stemming directly from the country need. The funding for the onchocerciasis programme came in great part from the resources of the UNDP/World Bank /WHO Special Programme for Research and Training in Tropical Diseases (TDR). Merck also provided a large proportion of the key studies on ivermectin. Attempts to have trachoma included in the TDR programme have failed so far. Pfizer should be invited to take up research on azithromycin. Because funding is so short, the two elements of when to stop administration of antibiotics, and improved ways to effect behavioural change are critical.

In the Gambia, two issues are of concern for the future: the re-infection of areas after they have been mass treated with antibiotics, and the implications of the progression from TS cases to TT. Both have funding implications, as even with donations of drugs, it will be impossible to clear all trachoma cases, given that there is a level of recurrence.

5. NEWLY ATTENDING ORGANIZATIONS

5.1 Fondaciò Ulls del Mòn (Eye of the World) (Ms Vivienne Ferradas)

The Foundation, which started in 2001, is a private, non-profit-making organization, based in Barcelona, Spain, which has the intention of supporting provision of high-quality ophthalmic services to people with visual impairment in developing countries, and raising the profile of the problem to those in developed countries. Currently there is no special action for trachoma in the Programme although there is interest in gaining experience in other eye-care work. The Foundation's work is conducted in Bolivia, Gaza, Mozambique and the Sahara, in conjunction with local communities, health workers, health authorities, government institutions and NGOs. More than 7600 patients have been seen, with 1077 surgical operations conducted over 31 diagnosis, surgery and training expeditions. Qualified health professionals and support personnel are selected to work on planned expeditions on a voluntary basis. Respect for local cultures and technology transfer (through working with and upgrading the skills of local health workers) are two important ingredients of the Programme. Foundation staff in the expedition country identify the best working environment and prepare operationally for the arrival of the main medical team. The team then conducts diagnosis and treatment, including cataract surgery, training the local staff in the techniques used, providing the equipment necessary, and teaching the patients themselves how to take care of their condition, in the absence of professional eye-care in the local area. The provision of equipment is a difficult area as there are often no trained staff locally to maintain it. The Foundation also concentrates on prevention, giving health education workshops to local communities. It is hoped that in 2006 it will be possible to report activities in trachoma control to the Alliance.

Discussion

Surgeries: Although the majority of the operations are on cataract, some other operations are performed by the specialists.

Coordination with new partners: the Foundation represents an example of the Alliance being able to increase access through linkages with other organizations. The logistics of how to interface may present issues that need to be explored. In Mozambique discussions are already ongoing between the Foundation and HKI.

5.2 CHEPE Trachoma education booklets (M. Jean-Charles Mastromarino)

CHEPE has worked on health education materials for 14 years, covering more than 100 topics such as malaria, yellow fever, and the importance of vaccination. The organization drafts and publishes educational material, using local artists wherever possible, such as posters, games and especially cartoon strips that provide simple memorable messages for primary and secondary schoolchildren in their own language. Adults too appreciate the

materials. Experience in Tanzania and Kenya showed primary health care centres and community centres to provide good access to a large number of people. CHEPE uses cartoon characters customized to region, e.g. Iseo (in Europe), Juma (in much of Africa), or Pepito (in Latin America) to talk about different diseases. Most of the organization's work is conducted in East Africa, especially Tanzania, Uganda and Kenya. Zambia has expressed interest in a programme in bilharzias, supported by the Schistosomiasis Control Initiative (SCI). Health education materials are also prepared for other countries. Over the last seven years, CHEPE has worked with many different partners, including WHO. Pharmaceutical companies have also expressed interest in the booklets seeing their potential as a marketing tool with social benefits.

The method of work is to study the country situation, finding key stakeholders, such as ministries of health and education, schools and children, preparing the materials in the local language, and then field–testing them in small target groups. These documents are useful for a number of reasons including their contribution to health education, sometimes being used as school books to teach language in some cases. Mothers and children read them together.

Trachoma is relatively easy to treat when it is detected in the early stages. Appropriate educational materials would teach the community about its clinical signs, its evolution and the risks associated with that, the means of contamination and preventive behaviour. Preliminary drawings have been done for a cartoon book about trachoma, showing clearly what the signs of infection look like. As trachoma mainly affects children under five years old and their mothers, the first educational target is primary schools. It is essential that the teachers fully understand the health messages in order to communicate them effectively in follow-up work on the topic and to answer the children's questions. Children pass on the information to their mothers when they take the books home, and tell them what they learnt at school. PHC workers also convey health messages when they visit villages. All these activities together lead to concrete prevention actions, the impact of which is assessable.

When street children in Tanzania were given the cartoon strips they completely understood the message and retained the images. When the malaria comic was given to 100 schoolchildren of 12-13 years, they were able to recall the information quickly and answer all the basic questions correctly after just 15 minutes. It is now more important than ever to educate the young especially about health matters.

Discussion

Cost: For 10 000 copies each Juma book would cost $0.09.

Accessing illiterate mothers: In Laos PDR, 70−90 % of the population in the mountainous region is illiterate. Posters with pictures only were prepared, and the health messages were conveyed without using any text. If other media were feasible, and time and money available, the cartoons could be adapted to animated cartoons, which mothers might prefer.

6. OTHER MATTERS

6.1 Process of certification of elimination of blinding trachoma (Silvio Mariotti)

The certification process requires a framework to support countries in preventing recurrence after elimination of blinding trachoma. The terms of the certification draw on the directions of resolution WHA 51.11: the general goal is "no more blindness from trachoma by 2020". The procedure contains two stages; the definition of criteria and procedures through two main groups and various taskforces; and the appointment of commissions (the International Commission for Certification of Elimination of Trachoma (ICCET) and National Certification Commissions). The definition of criteria and procedure is done in three steps through a set of recommendations based on evidence. The review of evidence includes the implications of applying each set of recommendations on a population basis. The second step spells out the implications for cost and population health. Thirdly, a set of guidelines is developed for different settings, in view of the very different country situations and therefore the different scenarios that would apply. If there is insufficient evidence on which to base guidelines, WHO may opt to issue consensus statements, acknowledging that these are based

on expert opinion. These statements have a limited lifespan and are subject to revision in view of subsequent findings.

Operationalization of the standard process for development of guidelines will be done with partners. The criteria for selection of partners include that the organization shares the values of WHO; has no conflict of interest in the development of the guidelines; and produces added value.

The first group to be set up is an inhouse guideline steering group, which will oversee the development of each step of the guideline development process. Specific functions include: defining the general parameters of the proposed elimination guideline; drafting the terms of reference, selecting the chair and members of the technical guideline development group (TGDG); monitoring development, ensuring appropriate external review, and reviewing the final draft for approval by the Director -General of WHO. The TGDG, an important group addressing issues raised by the steering group, will undertake a systematic search for evidence, and review it; develop recommendations linked to the strength of the evidence; and draft guidelines. It will discuss and incorporate external reviewer comments as appropriate; draft final versions of the guidelines; make recommendations on dissemination; and document the process of guideline development. The composition of the group will be multidisciplinary, representing both stakeholders and methodologists. These two groups will organize taskforces to deal with specific issues that arise during development of the guidelines. The coordination of all the groups and taskforces will be handled by the secretariat from WHO. As for all expert groups in WHO, there are various requirements, such as to maintain geographical and gender balance in the composition of the groups, resource constraints will not be a barrier to participation in the groups by even the most remote countries. Recommendations will be prepared by the TGDC for the review of the guideline steering group, and once accepted will be forwarded to WHO's Director-General. Once reviewed, and accepted as conforming to the required parameters, the International Certification Commission will be appointed and the terms of reference and criteria for the work proposed.

The status of the process presently is that the Assistant Director-General has approved the development process; there has been a preliminary consultation in the DANA centre in February 2005 on core issues (see below 6.2); planning of the composition of the Guidelines Steering Group has been started; and a budget has been discussed.

Planned year of elimination of blinding trachoma	**Country**
2005	Morocco
2007	Gambia, Oman
2010	China, Ghana, Myanmar, Nepal
2015	Cambodia, Niger, Pakistan, Senegal
2020	

6.2 Informal Working Group on Guidelines for the Certification of Elimination of Blinding Trachoma as a Public Health Problem at DANA Center (Professor Sheila West)

Under the chairmanship of Dr Mariotti, 15 participants, including country representatives, researchers and NGOs, met in February 2005 as a preliminary, informal, working group to discuss potential guidelines for the certification of elimination of blinding trachoma as a public health problem. The formal development of guidelines will take place separately. Goals for certification discussed were: sustained reduction of TF to 5% among children aged less than 10 years for at least three years following cessation of mass treatment, targeted treatment or vertical programme; and satisfactory implementation of a programme to reduce the prevalence of trichiasis through identification and surgical management through the health system with commitment to reach UIGs. Countries fall into three categories: Category A: those with endemic trachoma, at least one district with TF prevalence more than

5% and TT more than 1 per 1000 population. The examples given were the priority countries of the Alliance in 1999. In category B are countries with an ongoing problem with TT but where TF is no longer over 5%. Examples in this category are the United Arab Emirates and Saudi Arabia. In category C are the countries with no recent history of TF or TT in the populations, such as the United Kingdom, France, and Italy. There will be stages in the certification proceedings. First, in the pre-certification phase, when TF is less than 5% in the last communities and TT adequately managed, the country would apply for certification and submit material showing its qualifications. The country would begin to collect its three-year interim data, after which, in the final, formal stage a request for certification would be made, evidenced by the three-year update, the sustained prevalence of TF below 5%, ongoing management of TT, and the incorporation of trachoma control into the public health system.

Documentation to be submitted by the country might include: country information on distribution of trachoma at the start of the programme; a detailed overview of the trachoma elimination programme; two kinds of surveys to document elimination (to justify cessation when TF less than 5% and after three years to document sustained prevalence under 5% in children aged below 10 years); evidence that the health system is able to undertake surveillance for TT, provide treatment and follow-up; evidence of achievement and maintenance of a "certification standard" surveillance for TF and TT ; adequate health systems in place to provide reassurance that trichiasis can be managed in the future, and that trachoma control is merged into public health systems.

Countries can start to prepare and keep appropriate records immediately, keeping the momentum towards elimination going. Country needs should be anticipated as far as possible to help researchers guide the programme managers to work towards certification.

Discussion

Cost of certification: Work of the sort described will be highly resource- intensive; this will almost certainly have to be at the cost of other activities, such as those related to cataract, diabetic retinopathy and glaucoma.

Decision-making: The advantage to be gained from certification has to be carefully weighed against the disadvantages. Once it has been agreed that certification is the right path to follow, then countries should look at the practical implications. It is essential to have the right documentation to show whether the disease is there or not. Many countries are not yet able to do this and therefore lack essential advocacy tools. This is an opportunity to set up surveillance systems in areas where there are none currently.

Water supply coverage: No mention has been made in the certification process of the extent and sustainability of water supply coverage. This aspect, along with behavioural change is essential for sustainability of elimination. It should be recalled that trachoma is not merely a health problems, but an outcome of poverty. Enough money must be available to invest in these issues.

Extent of surveys: Surveys should only be undertaken in the areas where it is felt trachoma is an issue, not countrywide. This would differ depending on individual country circumstances.

6.3 Draft Manual for Assessment of trichiasis surgeons (Dr Emily West)

The draft manual is intended to complement the WHO BTR manual which shows how to conduct the procedure; the preferred background of the person performing the surgery, and the post-operative care needed. However, the WHO manual does not describe a procedure to assess the skill of trichiasis surgeons once they have been trained. This is a critical element in quality control for the surgical component of the SAFE strategy, as not all trained surgeons are sufficiently proficient to operate without trained supervision. The overall aim is to reduce the rate of surgical failure. The specific aims are: to provide information for experienced trichiasis surgeons to assess new surgeons as competent to perform the procedure without supervision; and to provide an objective assessment base that can be used to qualify (or not) a potential surgeon. The primary objectives are to list and describe required knowledge for all phases of surgery; provide a checklist of knowledge and

procedures that should be assessed during surgery; and to provide guidelines for scoring the checklist.

The process involves the trainer, trainee and examiner who will conduct assessment (preferably from outside the region in which the trainee will work). Basic qualifications have been established, which include the completion of basic clinical training in health, previous surgical experience, and a number of trichiasis operations performed under the supervision of the trainer. The process has three basic steps: the examiner meets the trainer and discusses the programme (goal: to see how much the trainer has learnt); then observes the trainer performing two surgeries (goal: to determine how the surgeries are performed and check any deviations from WHO manual procedures); and then watches the trainee as he or she performs five surgeries (the goal: to make sure the trainee understands the theoretical concepts and then to observe the surgeries). Within the evaluation process, the checklist records whether each item of knowledge or procedure is at a satisfactory or unsatisfactory level. For the trainee to be favourably assessed and to get the certificate, certain key items (marked with an asterisk on the list) must always be performed satisfactorily (for example, putting on sterile gloves before the operation begins). Of the non-key items (not marked with an asterisk), over the five operations, the trainee must not be rated as unsatisfactory on more than 10 items. For 5−10 items, the examiner can award a provisional certificate pending additional training or reading.

The manual was tested in Ethiopia. Ten surgeons were assessed and eight certified, with one receiving provisional certification and one not certified. The process was found to be critical for identifying adequately trained surgeons and those who should not be performing surgery. Two appendices were added to the manual giving details and checklists of: Cuenod Nataf and the Trabut procedure. The checklists were refined in Viet Nam.

Discussion

Non-medical surgeons: Given the data on the lower TT recurrence found in operations performed by non-ophthalmologists in some settings, it might be considered that such staff were appropriate to conduct evaluation of trainees, in situations where professional ophthalmologists were not available (although they would not have the same extensive theoretical knowledge). This practice is, however, not acceptable in all settings, and international sensitivities must be respected.

In the Gambia, paramedics perform surgery very well, and fit well into a supervisory structure. In the Gambia, ophthalmologists tend to be less easily regulated and supervised. In Malawi, paramedic surgical training is conducted by another paramedic, under the overall supervision of an ophthalmologist. In China, all operations are carried out by trained ophthalmologists certified by the Government. The certification proposed would have to be merged or integrated in some way with the present system in China.

Combined cases: In South-East Asia, cases of combined eye disease are found, which are more complicated to operate on. The country itself should decide whether the trainee is allowed to operate on such combined cases or complications if they occur. Trainees are certified for the performance of trichiasis surgery and some other minor eye care procedures. Other more complicated cases would be referred to the district hospital, to an ophthalmologist.

Unifying ways of certification: French-speaking countries use the Cuenod Nataf procedure extensively. Through the surgical services in the African Tropical Diseases Institute (IOTA) there are a number of ways of certifying trichiasis operators, and dozens are trained every year. A “skills passport” has been established which ensures that the key skills have been acquired by trainees. The new manual under preparation could be submitted to the *Organisation pour la Prévention de la Cécité* for input and translation and arrive at one single document for assessing trichiasis operator skills. There are a number of documents on this subject and standardization will be needed. Although every effort has been made in the preparation of the draft manual to reflect differences in technique between countries, it is impossible to be exhaustive.

Broader consultation: For broad international acceptance it would be important to consult with the International Council of Ophthalmology to review and approve the proposed

process. In countries like Oman, such approval would be a prerequisite to use of such a manual.

Minor variations in surgical procedure: Even minor variations in suturing can have a significant impact on outcome. Great care needs to be taken in this area, and a controlled clinical trial conducted to show that the variation used is at least equivalent to trials already conducted. In China, different surgical methods are used, adapted to individual patients needs. This may be a problem for the formal certification process.

Ongoing surgical audit: Quantification and comparison of results of surgery is vitally important, with proper follow-up post-surgery, and comparison among the peer group of what makes one set of results better than others. This is an important area for contribution to TT surgery and should be included in the manual. Review meetings for surgeons for such exchange of information and experience could also be a forum for retraining, and if necessary, re-certification.

Influence of volume on surgery: Perhaps one of the reasons that some surgeons do better than others is variation in their level of practice with the procedures. Should there be an insistence on the minimum number of surgeries to be done? It is important to recognize that the vast majority of operations are carried out by non ophthalmologists. However, caution should be exercised in asserting that surgeries are better carried out by non-medical personnel, as that information is not proven. The manual might usefully include that the estimation of surgical needs in various areas as a function of endemicity is important so that a sufficient number of surgical cases are available for skills to be maintained.

Failure, re-certification, de-certification: Those who do not pass the certification process can be retrained and try again. These choices depend on the quality of the trainee and the choices of the country on the suitability of the trainee for other tasks. It would be useful to explore further under what circumstances a surgeon might be de-certified, for example, if no surgery is carried out in the year, and how re-certification would work. Ongoing supervision is an important element of the plan and should be carried out regularly: the manual provides an objective tool for conducting assessments and de-certifying those who no longer fulfil the criteria. In Oman, ophthalmic plastic surgeons may be used to certify the surgeons.

Ongoing monitoring of performance: Adequate tracing data of each patient is essential for follow-up and monitoring of surgeon performance. Systems for tracing data in Ghana and Ethiopia provide good examples in this regard. Those who do that follow-up must also be well qualified. The certification proposed must be followed up in the field and an assessment of those who have already been certified to ensure that they continue to operate correctly. It is for each country's policy-makers to decide on how those medical records are to be kept.

Legal status of trainees: In Morocco, initially there was a problem with the status of trainees, and their authorization to operate on trichiasis. The Ministry of Health issued documentation certifying that each trainee had completed 15 operations under supervision. The tool presented is most interesting and useful, although difficult to review without a French version. In Guinea, the process will be very useful for the persons being trained, as it will ensure that proper training is given, and that those trained have a document to prove their qualification.

Health education: The document should mention health education of patients by medical staff prior to surgery to avoid high rates of refusal.

Formalizing the process: The programme of activities around the manual needs to be developed, with a programme of lectures, training, hand-on practical work etc. The choice of who attends such training should be left to individual countries to decide.

Relevance to country situation: The point was raised that, in Senegal, there is such a demand for personnel to conduct surgery, that certification is a lesser concern than training enough staff to meet demand. Once trained, the problem is making sure that standards are upheld; the few qualified personnel are needed to conduct operations and cannot spare time to follow-up trainees, nor do they have the resources with which to do so. In reply, it was noted that such accelerated training programmes were especially in need of regulation and

monitoring to ensure quality, especially given the very high rates of recurrence that can follow poor surgical work and be counterproductive to later efforts.

Career path: It was noted that those who have such a certificate may have quite different career prospects from those who do not, and certification therefore has a particular value.

Budget implications: The certification will have a cost. Governments may need to allocate a budget line for this procedure. Also, in some countries TT surgeons are paid by NGOs to perform surgery. Governments might consider higher remuneration for those who had passed the certification process and perform surgery properly.

Field test: Ghana suggested that the country would be pleased to run a field test of the manual.

6.4 Trachoma Control: a Guide for Project Managers (Dr Anthony Solomon)

The manual arose from the TIME (Trachoma Initiative in Monitoring and Evaluation) project conducted by LSHTM, funded by ITI, from 2002 to 2004. The purpose of TIME was to establish a common framework to evaluate ITI trachoma control activities, to identify and disseminate best practices to promote programme momentum, and to implement a mechanism for monitoring future activities. Eight countries were selected (Ethiopia, Ghana, Mali, Morocco, Niger, Nepal, Tanzania, Viet Nam). The project reviewed evaluations that had previously been conducted; indicators used by programmes; and developed a draft evaluation protocol. This draft was reviewed in 2002, finalized, and a fieldwork schedule drawn up. Each country was evaluated, with the participation of country staff, Ministry of Health staff, LSHTM and an international expert. Key informant interviews were conducted at all levels, and SAFE activities in communities directly observed. An evaluation for each country was prepared which included comments from programme staff and provided an account of how well the problem had been assessed, how well the SAFE strategy was being implemented, and the quality of the programme management.

One of the tasks of the TIME project was to draw up a guide for programme managers. The manual is designed for managers of national and district-level trachoma control programmes although it also has a wider use as a tool for other staff at district level. It presents best practice in a step-by-step "how to" guide. Its contents include chapters on assessment (grading, validation, prevalence surveys and determining the burden of disease), intervention (the SAFE strategy), planning (including "How to calculate your Ultimate Intervention Goals"), and monitoring and evaluation. Of the 43 pages, 8 are draft forms that may be useful. A CD-ROM will also be provided, including a tool for conducting grader assessments, an antibiotic requirement estimator (number of tubes of tetracycline, number of boxes of azithromycin tablets/suspension), a budget template, and generic evaluation manual.

Discussion

Evidence: While the manual has been kept as slim as possible, there may be scope for adding the supporting evidence to each recommendation, as stakeholders sometimes ask for this, perhaps in an accompanying document. A journal paper has been written (systematic review of the evidence) which might be considered as such an accompanying document.

Corneal opacity: It was noted that CO is not included as an indicator. Efforts will be made to ensure consistency with the proposed draft *Guidelines for the Certification of Elimination of Blinding Trachoma as a Public Health Problem.*

Terminology: It will be important to achieve consistency in describing and defining the population size denominator. The manual cites two denominators: district and community. The expectation is that the smallest unit of discussion is of the order of 1000-5000 people. That is the area that needs to be used, whatever its title, and the calculations and tools adjusted to reflect this consistently.

Unified manual: Several documents and drafts have been presented to the Alliance.

The question was raised as to whether to would be possible to create one unified manual that would cover all these points

Clean faces: The manual does not include clean faces as it is more of an outcome indicator, unlike latrines, water points etc, which are process indicators.

Indicators: Other indicators that Alliance members said had been useful included the London School of Economics' social development indicators including water, air, and transport. The 20 LSE indicators are comprehensive but not as detailed as those in the manual under discussion.

Outcome measures: Comment was made that it may be misguided to focus so much attention on construction of latrines and water points as specific outcome measures for trachoma. There are no risk factor studies that show connection between toilets and trachoma. The measurements to calculate the number of latrines to be constructed may be too complex. However, the decision on which elements of the SAFE strategy to prioritize over others is a country decision, and the manual simply shows how to accomplish the calculation of the UIGs.

6.5 Trachoma control in South-East Asia (Professor K. Konyama)

A brief history of the changes over two or three decades in South-East Asia and the Western Pacific Regions of WHO reveals a dramatic change from vertical to horizontal action in eye-care programmes, with a decline in trachoma prevalence in the two regions. Two types of health action are posited: short-term humanitarian- based disaster management; and long-term eye-health system development. Prevention of blindness is more than disease intervention it is to do with the development of an eye care system within the health system.

In Viet Nam, the WHO trachoma control project changed in 1980 to become a horizontal programme, with trachoma control integrated into primary eye care. The goal of trachoma control was to reduce TF prevalence to less than 5% within the context of other eye-health problems. Viet Nam has many districts and communes, presenting a problem to locate pockets of disease without PHC approach. Trachoma control could not be a priority in comparison to disease such as malaria.

In 1969 Myanmar was one of the first countries to start a trachoma-control programme. In 1980 PHC was introduced to the country, and in 1983 trachoma was integrated into primary eye care, having used PHC funding to develop an action plan. The WHO Regional Office for the South-East Asia Region held a workshop on primary eye care for the first time in Yangoon and then again in Bangkok, where technical discussions were held on how to include the trachoma programme into primary eye care.

In Myanmar and Thailand, the dry dusty areas (upper Myanmar and Isan), were very poor, underserved, with a very sensitive political situation. The PHC trachoma control programme in ASEAN showed how people themselves could do a lot with tetracycline distribution and health education through a horizontal approach. Public health professional intervention was only needed for surgery. This was the beginning of the Thai model of PHC. Korat (North-East Thailand) was the first location for the trachoma programme. It was this programme that showed WHO that health action must have a community base─ the beginning of PHC before Alma Ata. In both Myanmar and Thailand, the governments put in place a rural development programme that has transformed the environment and promoted the decline in trachoma. In addition to health intervention social development is essential, involving many ministries working together. This approach was also successful in the Republic of Korea.

The content of the development programme was very similar to "F" and "E" components of the present SAFE strategy, comprising water, sanitation, education and forestation. In China's PHC strategy, components reflect the SAFE strategy also. PHC included income-generating projects and overall social and health development.

The trachoma control programme has been the entry point for primary health care in 1983. This necessitated a change in teaching method. Guidelines were set up of necessary action for different levels of the eye care network. Manuals and guidelines were developed for health workers on the scope of activities. Supply and equipment, monitoring and supervision systems were all set up as part of the PHC system. Primary eye-care courses were set up in three phases: trainers' course; district course; and community course.

By 2000 trachoma had become a very low priority disease in Viet Nam with good awareness of the role of trachoma in blindness, diagnosis and grading techniques, surveillance etc.

Discussion

Parallel to Morocco: Descriptions of the programme development mirror closely the development of trachoma control in Morocco, using trachoma to generate interest and funds from many groups. This is a very interesting parallel.

Small scale action: It is important not to be too ambitious in trachoma programmes, as good success can be achieved in small steps through primary eye care.

6.6 World Vision Programme Evaluation (Dr Joseph de Grant Riverson, Mr Paul Emerson)

World Vision is a Christian relief and development organization dedicated to helping children and their communities worldwide to reach their full potential by tackling the causes of poverty. In 2004, World Vision served more than 100 million people in nearly 100 countries, drawing on a variety of funding sources including gifts-in-kind, addressing the root causes of poverty through long-term partnerships with children, families and communities.

In partnership with the Conrad N. Hilton Foundation, World Vision has conducted six programmes to eliminate trachoma using the full SAFE strategy in Ethiopia, Tanzania and Viet Nam, from 1999 to 2004. The evaluation of the project measures the overall impact of the projects against objectives; identifies best practice that can be applied in the next programme phase in Ethiopia and elsewhere; and provides data and recommendations. In each country the same protocol was used in conducting the trachoma prevalence surveys as the baseline study.

More than 1 million eye examinations were conducted, more than 500 000 people treated, and 4 725 trichiasis operations undertaken. The objective of reducing active trachoma by 50% has been exceeded in all three countries presented; the burden of unmet surgical need has been reduced in each country; and sustainability achieved through the approach used (evaluated through discussion with collaborating partners and review of plans for the future). The programmes have also worked to increase knowledge of trachoma through school-based education programmes using drama clubs extensively; promoted improved hygiene behaviours, with latrines, dams, rainwater harvesting and water points built; and increased the number of trichiasis operations conducted in local communities.

Lessons learnt from Ethiopia include the powerful impact of the community drama groups on large audiences; use of the existing structure of schools drew many people into the project, using local forms of transport for materials. Some water points worked better than others, the difference being made by the presence of a water committee to adjudicate on responsibilities and water use. These committees should be established before starting water implementation. Careful initial selection of trainee surgeons and agreements reached with the local health authority can reduce loss of personnel. Integration into the local administration ensured that the programme activities supported the local development objectives. This was also a key finding in both Tanzania, and Viet Nam where use of the existing infrastructure enabled a large number of people to be reached at minimal cost. Similarly, efficient use of resources among World Vision, ITI, and the local distributor resulted in very cost-effective distribution of azithromycin ($0.15 per dose). Water provision required a major investment in materials and provision of specialist technical assistance, but was worthwhile. Rainwater harvesting was useful for domestic settings. In Viet Nam, a training-of-trainers system was very popular and reached large numbers of people. Health education is effective in schools as school-attendance figures are so high and the children then became good advocates for improved hygiene throughout the family, also advocating surgery for those with trichaisis.

Overall, the model of trachoma control delivery thorough existing infrastructures is fruitful and World Vision should consider expanding this type of trachoma control programme to a further 22 disease-endemic countries.

Discussion

Tetracycline: In Viet Nam tetracycline is locally produced at very low cost ($0.05) so that schoolteachers had the antibiotic readily available in classrooms for infected children, who could also take tubes home to the family. Azithromycin was not used in Viet Nam.

Sustainability: The study reviewed the potential for sustainability rather than assessing actual effect once the programme had finished. In the onchocerciasis programme, a process is ongoing to evaluate the success of the programme after APOC funding has finished. This might have a bearing on trachoma plans. The framework for evaluation of sustainability developed will also be of use as this is a difficult area to assess.

Ethiopia: the World Vision trachoma programme will continue with the additional support of the Carter Centre. Budget constraints have inhibited continued support of the trachoma programme in the other two countries.

Funding: It is a requirement of the Conrad N. Hilton Foundation that World Vision match the grants given. In 2005, two dollars were provided for each one dollar raised. There is a real challenge to compete against other disease priorities like HIV/AIDS. World Vision might consider committing a percentage of its funding to trachoma.

WAWI: The West African Water Initiative is committed primarily to working on elimination blinding trachoma. More than $45 million have been committed over 10 years to water and sanitation projects including the trachoma project and work by UNICEF.

6.7 Resource mobilization (Dr Jacob Kumaresan)

Some countries have made tremendous progress in the last three to four years such as Morocco, and Oman, however, countries such as Afghanistan are struggling. Much more needs to be done. Much experience has been gained and countries like Tanzania and Ghana are now ready to scale up activities to reach wider communities. This takes resources and planning, and five-year plans have been prepared to accommodate such increased size of operations. More national government resources are needed. Ministry of Health is a leader in this, coordinating the development of plans, being able to attract funds from the district level. There is an opportunity to leverage a global increased level of interest in support for Africa. There is a drive now to go beyond health, accessing the resources of the education and environment sectors, linking with the Millennium Development Goals. This will take much more effort by the ministries of health, by the blindness and trachoma prevention communities, to enable access to these funds in the social sector.

Local, nongovernmental sources of funding within the countries are a second important source of resources. In addition to the organizations that are working directly within the health field, are many whose work is related, but whose resources have not been tapped in the past, such as those working in education. Youth institutions are now becoming more active as HIV/AIDS programmes encourage more participation and support. Women's organizations, as well as religious organizations too are doing more in relation to health than in the past. International NGOs based locally as well as bilateral and multilateral organizations also need to be contacted and shown that trachoma control is a development issue in which investment should be made.

Regional banks like the Asian Development Bank or the African Union also need to be approached in a strategic manner to enlist their support.

Coordination must be maintained by the health experts, managed well so as to bring the public sources of funding together with private. Trachoma can play a leadership role in developing a public-private partnership. The next stage, of getting to elimination by 2020 will take an enhanced level of participation and coordination. Ministry of Health must take a leadership role in resource mobilization. Compared to the resources required for prevention and control of HIV/AIDS, trachoma control is an attractive prospect, especially as there is the prospect of system strengthening through primary eye care.

International organizations are there to support and provide advocacy, supporting proposal writing.

Discussion

Eye-care system: It is better to start an eye-care system within which trachoma will be the entry point. The diagnosis, treatment and management is simple, and capable of making a dramatic difference to the population. NGOs should be patient and allow the national coordinator to develop the national eye-care programme without emphasizing cataract over other trachoma. Trachoma control can achieve a big change in the community through making systematic changes and introducing primary eye care.

HEPIC: A number of countries that are grappling with trachoma are also highly indebted poor countries. As a result of organizations like Jubilee 2000 some debt is being forgiven. It is hoped that governments will use the money saved for improvement in social services including health care. Trachoma control must not be regarded as a vertical programme but as part of integrated community development programmes. The Regional Development Banks can be approached by national governments to advocate dealing with trachoma.

Use of mass media: The Alliance should consider whether there are certain issues that are best dealt with in a unified way, such as the use of cable TV for propagation of messages across borders for trachoma control, perhaps the stations should be approached for support.

Management: Many countries do not have managerial and planning capacities. Within the region or countries, perhaps exchange of expertise may be possible. An expert in social marketing is needed in the programme whose resources can be drawn upon to support proper marketing.

Partnership: Local-level advocacy coordination and partnership are all vital elements in the future of trachoma control.

Advocacy: The warning was raised that, once elimination is certified in countries, the government may simply cancel all funding for that programme as it is perceived not to need support any more. Advocacy for programme leaders is essential to make the position clear and ensure continued interest.

Role of the Alliance: The group of experts have a vital role to play in telling the world what is needed and where the funding is needed. It is important to show where the priorities are, for example which countries still need funding.

Need to expand the Alliance: It would be helpful to bring to the Alliance those who can talk about behavioural change, such as medical anthropologists, ethnologists and other social scientists. Sanitation engineers also might be able to give information on how to conduct programmes that improve the environment. Trachoma must be seen as a societal disease linked to poverty. Trachoma elimination is not about mopping up the last cases of trichiasis but a development issues. Alliance meetings must include those who can discuss how to alleviate poverty through sustainable development or the problem will simply reappear. Local NGOs and local development organizations are crucial to the effort. They need to find sponsors among the international development agencies. South-South cooperation has not been mentioned much but may be a way of dealing with the regional banks.

CONCLUSIONS AND RECOMMENDATIONS

1. Significant progress has been made by Alliance members since the 8th meeting held in 2004. The alliance members were pleased to see that many recommendations were actively followed up and implemented.
2. WHO has also made considerable progress in finalizing the tools for certification for elimination but is urged to identify the necessary resources needed to finalizing the certification tools by 2007.
3. The alliance members appreciated the revised format for data collection and presentations of the 9th Alliance meeting. Significant achievements and challenges for countries are of interest to share with other members and they may be highlighted in

the meeting. The selection of countries for presentation was on this basis. Member countries are requested to communicate with WHO more frequently. This will enable the WHO secretariat to identify interesting presentations for future meetings.

4. The alliance noted that in some endemic countries trachoma has not yet been identified as a public health problem. WHO is requested to liaise with them to initiate the process of assessment of trachoma, exhort all MOHs to make a plan and set the target date for elimination.

5. The members of the Alliance acknowledge China's achievements in TRA as well as those of Iran and Afghanistan, recognizing China's determination in setting 2010 as the goal for elimination of blinding trachoma. They also note China's & Afghanistan's request to WHO to provide support for expansion of such assessment in other provinces.

6. The data on disease epidemiology and implementation progress from countries with large populations are vital. Hence, the alliance noted the absence of representatives from such countries and requested WHO to follow up.

7. Programs are accelerating and a wide range of trachoma control activities are undertaken to reach national targets. All efforts should be made at national level under the leadership of the Ministry of Health to identify the potential resources within the country.

8. Trachoma being a problem linked to poverty, its inclusion within the national and regional developmental goals should be advocated to access required resources. Particular attention should be given to advocate larger support for trachoma control from other ministries such as finance, environment, education and water.

9. WHO should propose the inclusion of trachoma as one of the priority diseases of the TDR special program.

10. WHA resolution 51.11 calls member states to collaborate in the work of the WHO Global Alliance. Trachoma endemic Countries are urged to include trachoma elimination in the Vision2020 action plans to be reported to the WHA in 2006.

11. The alliance recommends WHO to work with the countries, ROs and WRs to secure inclusion of EBT in WHO country plans. The WHO ROs play an important role in supporting countries to eliminate blinding trachoma and, as required, in developing and implementing plans for elimination of blinding trachoma. In view of this, the presence of ROs representatives at the GET meeting would be desirable.

12. Achieving sustained changes in personal and community hygiene is a challenge for implementation of the SAFE strategy. Operational research to identify & overcome obstacles to behavioral change is needed urgently.

13. The alliance recognizes that there are other areas of operational research that need to be addressed and endorses the report on research priorities tabled at the meeting.

14. In view of MDG No 7 on provision of safe water and sanitation, the Alliance encourages coordination and engagement among all partners at national level (especially NGOs, govt ministries) involved in achievement of this goal to set priorities in trachoma endemic areas. The vital role of local NGOs in providing access and resources is recognized and countries are encouraged to take fuller advantage of the resources they offer.

TIME AND PLACE OF THE NEXT MEETING

The timing of the meeting has been agreed (at the Eighth meeting) to be fixed within the last two weeks of March, respecting in as far as possible the various international conferences and national festivals. The location of the meeting will be WHO headquarters, Geneva.

CLOSURE OF THE MEETING

The Chairman closed the meeting with acknowledgement of the contribution made by all who had attended the meeting, and thanks for the work that had made the sessions run efficiently.

ANNEX 1. AGENDA

World Health Organization

Prevention of Blindness and Deafness

NINTH MEETING OF THE WHO ALLIANCE FOR THE GLOBAL ELIMINATION OF TRACHOMA

Geneva, Switzerland (21-23 March 2005)
Room C, Main Building (Fifth floor)

AGENDA

Opening ceremony
Introduction of participants
Election of officers
Administrative announcements
Adoption of the agenda
New presentation format

Agenda Item 1: Country reports

- Australia, Ghana, Morocco, Oman, Pakistan, Tanzania
- Brazil, China, India, Nigeria

Agenda Item 2: NGO coalition report.

Agenda Item 3: Update on research projects (TSIW2005 report)

Agenda Item 4 : Newly attending organizations.

Agenda Item 5*:* Any other matter

Conclusions and recommendations

Date and place of next meeting

Closure of meeting

WHO/PBD briefing for National Coordinators on WHO-Member Countries technical cooperation/partnership

ANNEX 2. LIST OF PARTICIPANTS

World Health Organization

Prevention of Blindness and Deafness

NINTH MEETING OF THE WHO ALLIANCE FOR THE GLOBAL ELIMINATION OF TRACHOMA

Geneva, Switzerland (21-23 March 2005)
Room C, Main Building (Fifth floor)

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ANNEX 3. DATA

Table 1:PROGRESS IN ULTIMATE INTERVENTION GOALS AND ANNUAL INTERVENTION OBJECTIVES, GHANA

UIG **SAFE strategy component**	**2004** **AIO**	**Coverage for 2004**	**2005**	**2006**	**2007**
S 12 000	1200	AIO 79% UIG 7.9%	1500	3000	3000
A 2 600 000	329 900 (252 350)	AIO 88.7%	1 188 606	2 416 994	2 482 253
F >80% of children 1−9 years old with clean faces	>80%	(93.5%) 15 414/16 489	>80%	>80%	>80%
E Water Latrines	 250 1500	 405% 121%	 200 5000	 200 5000	 200 5000

Table 2: PROGRESS IN ULTIMATE INTEVENTION GOALS, MOROCCO

UIG **SAFE strategy**	**2004**	**Coverage for 2004**	**2005**	**2006**	**2007**
S	6088	>100%	6678	Incident cases	Incident cases
A	651 797	95%	136 830	136 830	136 830
F	149 802	84.35%	>85%	100%	100%
E	-Enlistment of local development associations -Cleanliness campaigns -Water source provision -Sanitation	Enlistment of local development associations -Cleanliness campaigns -Water source provision -Sanitation	As for 2004	As for 2004	As for 2004

Table 3: ULTIMATE INTERVENTION GOALS, OMAN

SAFE STRATEGY COMPONENT	
S	TT <1 TT case per 1000 population
A	TF< 5% in 1−9 year olds at community level. If TF *at district level* is < 10%, assessment at the community level in areas of known disease.
F	80% of children in the community with clean faces
E	Should be defined at the national level

Table 4: ULTIMATE INTERVENTION GOALS, ANNUAL INTERVENTION OBJECTIVES, BRAZIL

SAFE STRATEGY COMPONENT	UIG	AIO
	Total population in affected areas 48 061 732 Population < 10 years of age in affected areas 9 323 976	
S	TT in people > 14 years old 0.1% (rural areas in 16 states)	6361
A	TF/TI in children 1−9 years old 5.2%	484 847
F	48 061 732	
E	48 061 732	

Table 5: NIGERIA ULIMATE INTERVENTION GOALS, 2004 AND ANNUAL INTERVENTION GOALS 2005 FOR SURGERY

ULTIMATE INTERVENTION GOALS 2004 'S'

STATE	UIG 2004	AIO 2004	ACTUAL PERFORMANCE	AIO 2005
ADAMAWA	7 586	508	---	1580
BORNO	77 045	1545	500	3800
FCT	461	100	---	160
JIGAWA	10 527	1427	210	3200
KANO	1 033	160	---	300
KATSINA*	245 282	2082	---	5200
KEBBI	4884	600	827	1500
NASSARAWA	8040	540	---	2500
PLATEAU	7597	510	---	1680
SOKOTO	8707	550	1156	2900
TARABA	2073	250	54	703
ZAMFARA	8302	550	530	2702

Table 6: NIGERIA ULIMATE INTERVENTION GOALS, 2004 AND ANNUAL INTERVENTION GOALS 2005 FOR ANTIBIOTICS

ULTIMATE INTERVENTION GOALS 2004 'A'

STATE	UIG 2004	AIO 2004	AIO 2005
ADAMAWA	32 590	5000	10 500
BORNO	1 310 607	200 607	400 600
FCT	6838	1000	2000
JIGAWA	1 486 071	206 000	408 000
KANO	3 002 851	700 051	900 800
KATSINA	1 939 619	209 619	709 000
KEBBI	1 068 996	150 019	368 000
NASSARAWA	49 938	5900	10 038
PLATEAU	76 134	10 034	20 100
SOKOTO	1 238 770	170 770	320 000
TARABA	781 486	100 486	213 000
YOBE	723 358	100 358	213 000
ZAMFARA	1 057 818	150 018	350 800

Table 7: NIGERIA ULIMATE INTERVENTION GOALS, 2004 AND ANNUAL INTERVENTION GOALS 2005 FOR FACIAL CLEANLINESS AND ENVIRONMENT

ULTIMATE INTERVENTION GOALS 2004 (F&E)

STATE	**UIG 2004 (80% CLEAN FACES)**	**AIO 2004**	**AIO 2005**
ADAMAWA	869 073	150 000	210 073
BORNO	1 048 486	100 486	348 000
FCT	153 665	10 065	43 000
JIGAWA	1 118 857	120 000	330 857
KANO	2 402 281	400 281	802 000
KATSINA	1 551 695	200 098	501 600
KEBBI	855 197	130 197	205 000
NASSARAWA	499 384	60 084	198 000
PLATEAU	86 899	15 099	30 800
SOKOTO	991 016	180 010	300 006
TARABA	625 189	98 100	170 089
YOBE	578 686	60 086	150 600
ZAMFARA	846 254	130 054	260 200