WHO/PBD/GET 03.1

WORLD HEALTH ORGANIZATION

Report of the

2nd GLOBAL SCIENTIFIC MEETING ON TRACHOMA

Geneva, 25-27 August, 2003

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1. Introduction

Trachoma is a leading cause of preventable blindness in the world. In 1996 a Global Scientific meeting was convened by the World Health Organization (WHO) Programme for the Prevention of Blindness and Deafness in Geneva; objective of the meeting was to review the recent findings in trachoma control and identify approaches for achieving the final elimination of blindness as a consequence of the disease.

At the time of the meeting, active disease was estimated to affect 146 million people, trachomatous trichiasis 10.6 million people and 5.9 million people were estimated to be already severely visually impaired or blind as a direct consequence of the disease.

Since that meeting, the activities to eliminate trachoma as a cause of blindness have greatly increased in almost all endemic countries, and ongoing elimination activities have been boosted as recommended by the World Health Assembly resolution 51.11 (16/05/1998) thanks to increased political support and expanded international partnership.

With the increase of activities, the available data on disease epidemiology have also increased, although recent data for large countries (Brazil, China, Ethiopia and India) are still not available.

The broad use of azithromycin, a new therapeutic tool made available to a selected number of countries by Pfizer Inc. through a donation scheme developed and operated by the International Trachoma Initiative in collaboration with National Prevention of Blindness programmes and NGOs, has allowed an increased knowledge on the use of this drug in the context of the WHO-

recommended SAFE strategy. Several scientific studies have shed light on cost-effective antibiotic distribution strategies, and research is still ongoing.

Since the meeting of 1996 many new scientific developments and programme operation schemes have been reported: these findings constituted the rationale for calling a new global scientific meeting. The first Global Scientific consultation on trachoma set the technical framework for the work of the WHO Alliance for Elimination of Trachoma by 2020 (GET2020), this second meeting was organized to provide the partners of the WHO GET2020 alliance with technical tools to monitor progress toward the final goal as requested by Member States.

Since the creation of the GET 2020 Alliance annual meetings have been organized and progress reports on the implementation of activities by countries, NGDOs, collaborating centers and research institutions have shown the ongoing work.

National programmes are implementing the SAFE strategy at different speeds. Since the burden of trachoma was last estimated in 1997 a new assessment of the global situation of trachoma was needed to assess the work done and identify the work ahead. It was also necessary to delineate appropriate monitoring instruments capable of updating the global situation and recognizing unmet needs in order to ensure that the final goal set for the WHO Alliance by the World Health Assembly resolution 51.11 in 1998 will be met.

The Programme for the Prevention of Blindness and Deafness of the World Health Organization set the following specific purposes for the second Global Scientific Meeting on Trachoma held in Geneva on August 25-27, 2003:

- To re-assess the global and regional burden of trachoma using available data;
- To review the list of endemic countries using available evidence and information;
- To define the Ultimate Intervention Goals and develop the methodology to identify them in the endemic countries.

Opening of the meeting

The meeting was opened by Dr Serge Resnikoff, coordinator of the WHO Programme for the Prevention of Blindness and Deafness, who reviewed the scope and purpose of the meeting and set the institutional framework for the work of the participants. He emphasized that a new assessment of the global burden of trachoma had to be regarded as a priority for WHO, given that the resolution of the World Health Assembly 51.11 had set a timeframe for the elimination of blinding trachoma. Without appropriate mechanisms in place the countries would not be able to assess if the level of elimination activities that they are implementing will ensure meeting the set deadline

Election of officers

After introduction of the participants, Dr Sheila West was elected Chairperson.
The list of participants is in Annex 3.

Adoption of the agenda

The draft agenda was adopted with no amendment (Annex 2).

In order to achieve the specific objectives set for the meeting in the limited time available the participants agreed to split into two working groups with the following relevant tasks:

Working Group 1:

To review the list of endemic countries and estimate the regional and global burden of active trachoma and trachomatous trichiasis.

Working Group 2:

To define the Ultimate Intervention Goals, and develop the methodology to identify them in the endemic countries.

Prof Hugh Taylor was nominated chairman of Group 1 and Dr Allen Foster was nominated chairman of Working Group 2.

2. GLOBAL AND REGIONAL BURDEN OF TRACHOMA

The most recent estimate of the burden of trachoma was carried out in 1997: it was estimated that 146 million people were suffering from active trachoma infection, 10 million people had trachomatous trichiasis and 5.9 million people were visually impaired by trachoma.

In the last 7 years more data have became available on trachoma epidemiology as many countries have conducted national or regional surveys in collaboration with international NGOs and research institutions in order to obtain good quality data.

It must be noted that today data from large countries like Brazil, China, Ethiopia and India are still not available. Once these data become available they could significantly change the global estimate.

Different surveys did not always use the same protocol: age groups are different in the various surveys and data on trachomatous trichiasis often provide information only for women over 14 years. For this reason the group developed the model of the disease prevalences reported in Table 1. The correction factors shown were derived in order to extrapolate prevalence rates to all ages from the data for the various age groups: they take into account three different levels of endemicity of the active disease and the estimated risk of contagion appropriate to the level.

Table 1: Model to estimate trachoma epidemiology to all ages from available data

Correction Factors used to estimate prevalence of Active trachoma for all ages	**Correction Factors used to extrapolate TT to all ages from available data**
to estimate prevalence for all ages when prevalence was available for children <10 ,y.o. to estimate prevalence for all ages	**Correction factors used to estimate TT prevalence for all ages**
If prevalence was 10-19% Correction Factor used was **1.1**	If TT prevalence was available for adults >30 Correction Factor used was **1.05**
If prevalence was 20-29% Correction Factor used was **1.2**	If TT prevalence was available for adults >40 Correction Factor used was **1.1**
If prevalence was >30% Correction Factor used was **1.3**	If TT prevalence was available for population >14 no Correction Factor was used

Upon examination of the existing data and information on the epidemiology of the disease the group was able to review the list of countries endemic for blinding trachoma. Several countries that were included in the original list were excluded either because there was no evidence of blinding trachoma or because blinding trachoma is no more a public health problem. The list of endemic countries is reported in Table 2.

Table 2: List of endemic countries

Afghanistan, Algeria ***, Australia, Benin****, Botswana, Brazil, Burkina Faso , C.A. R., Cambodia, Cameroon, Chad, China, Cote d'Ivoire, Djibouti, Egypt, Eritrea, Ethiopia, Fiji, Gambia, Ghana, Guatemala, Guinea, Guinea-Bissau, India, Iraq, Iran, Kenya, Kiribati, Lao PDR, Libya, Malawi, Mali, Mauritania, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Oman, Pakistan ,Papua New Guinea, Somalia, Senegal, Solomon Islands, Sudan, Tanzania, Togo, Uganda, Vanuatu, Vietnam, Yemen, Zambia, Zimbabwe.

While analyzing the available data in order to estimate the regional and global burden of trachoma, the group faced the difficulty of insufficient or no data for many countries reported as endemic for blinding trachoma.

For countries with no data, estimates were made using available data from similar countries, applying the relevant prevalence to the rural population only. If the country used as reference country had prevalence data at province-level, similar regions were identified in the country without data (e.g northern or southern regions, neighboring regions, etc.): this allowed for more correct estimates. The estimates tried also to take into account the knowledge available to the group of the status of development of the primary health and eye care system, the information made available from Ministries of Health Representatives at the meeting of the GET 2020 Alliance and the information from key informants. Estimates of the global and regional burden of trachoma are reported in Table 3.

Table 3: Regional and Global burden of Trachoma

WHO REGION	Population Estimates Year 2000 UN Demographic Services	Population living in specifically designated endemic areas	TF/TI cases all ages (% of total)	TT cases all ages (% of total)
AFR	485,784,687	236,202,330	24,559,043 (29)	2,297,247 (30.2)
EMR	420,731,490	175,383,205	9,788,816 (11.5)	1,715,007 (22.5)
SEAR	1,079,726,212	745,002,385	20,791,760 (24.5)	336,517 (4.4)
WPR	1,404,434,386	688,897,001	28,601,516 (33.7)	3,236,310 (42.5)
AMR	181,789,829	268,689	1,066,467 (1.3)	26,952 (0.4)
Total	3,572,466,604	1,516,716,809	**84,807,602**	**7,612,034**

2.1 Global estimates

At global level it was estimated that there are today some **84 million people** with active trachoma; **7.6 million people** with trachomatous trichiasis.

2.2 Regional estimates

Estimates were grouped by WHO regions. The Western Pacific region bears the highest burden of active trachoma and trichiasis, followed by the African region and the South–East Asian regions. It must be noted that estimates for China (WPR), Ethiopia (AFR) and India (SEAR) influenced greatly this order; unfortunately data from these countries are scarce, and further refinement of the available information could greatly change the current estimates.

Since regional estimates are aggregated from national data, it is necessary that the assumptions made to estimate national data, when not available and derived from neighboring countries or region, are now reviewed by the MOH of endemic countries to either confirm such estimates or suggest alternatives.

The group felt that it would be necessary to have the relevant national prevention of blindness teams or committees collecting available evidence or planning surveys to get more precise information about the epidemiology of the disease in China, Ethiopia and India; all together these 3 countries could account for over 50 million cases of active trachoma, making these countries a first priority for intervention in order to meet the goal set for 2020.

3. ULTIMATE INTERVENTION GOALS

Group 1 worked to define the concept of **Ultimate Intervention Goals (UIG)** for Trachoma and developing the methodology for identifying them for endemic countries. To begin its work, the group made reference to the Onchocerciasis model used in the African Programme for Onchocerciasis Control (APOC) that was presented to the group

The group felt that, as done by APOC, annual objectives were to be set for Trachoma control programs in order to monitor progress towards the final goal. as done in the APOC program
While the APOC strategy is exclusively based on the medical treatment with ivermectin through community directed distribution the elimination of blinding trachoma is based on the *SAFE* strategy, which includes medical treatment as well as behavioral changes and environmental sanitation interventions. It was so felt that the term "Intervention" had to be preferred to "Treatment" this last being reserved usually to medical intervention only.

The group also faced a major difficulty in defining a methodology for identifying the target corresponding to the Environmental component of the SAFE strategy. This goal relates mainly to socioeconomic development which goes far beyond the scope of the trachoma control programmes. The E component actually depends on education, environmental sustainability and poverty alleviation. All these aspects are included in the Millennium Declaration and its corresponding Millennium Development Goals.

For these reasons the group decided, for the "E" component of the SAFE strategy to use the MDG framework for measuring progresses made in that field.

3.1: Ultimate Intervention Goals, Annual Intervention Objectives and relevant indicators

Definitions

1. **Ultimate Intervention Goal**
   The ultimate intervention goal indicates the **final targets** to be achieved for each intervention to eliminate blinding trachoma.
   It is a **dynamic figure** based on the current estimates of disease burden.

2. **District**
   In this paper a district is defined as the normal administrative unit for **health care management.**

3. **Community**
   In this paper a community is considered the **minimum group of individuals** for which **mass** trachoma control can be implemented;
   e.g. a defined group of households, one village, or a group of neighbouring villages.

Assessment to determine UIG for "S"

1. In all calculations of TT, (i.e. number of cases with TT and the number of operations performed), **state persons** not eyes.

2. Accepting that a **TT of 1% or above in the 15 year and above population is a public health problem** then there are at least 10 cases /1000 population over 15years equivalent to at least 5 cases /1,000 total (all ages) population.

3. Accepting that **the UIG is an 80% reduction from the minimum public health problem,** then the UIG for TT equals less than 1 TT case/ 1,000 total population by 2020. (This will approximately correspond to not more than one incident case of trachomatous corneal opacity (CO) / 10, 000 total population per year.)

4. **To achieve the UIG, a program should reduce the number of TT cases from the current number to less than 1 TT case/ 1,000 total population.**

5. Programs should calculate the number of cases which require TT surgery and translate their UIG into **feasible annual targets**.

Assumptions

1. At least 50% of population are 15 years and above
2. Female : Male ratio of TT will vary from 1:1 to 5:1 in different communities
3. UIG is to reach a level which is an 80% reduction from the minimum public health problem.

Outline Strategy for "S" to achieve UIG

1. Initial assessment through active case finding or a population based survey.
2. Estimate the total number of cases requiring TT surgery. (see appendix 1)
3. Calculate the UIG for TT. (see appendix 1)
4. Set annual treatment objectives for TT surgery based on need, current availability of services and feasibility of increasing services. (see appendix 1)
5. Train and equip personnel to undertake TT surgery.
6. Develop strategy for health promotion and active case finding.
7. Establish management information system for TT cases including:
   - Record TT surgeries by persons and eyes
   - Record vision and corneal status (CO/ no CO)
   - Record any past history of TT surgery
   - Develop monitoring mechanism for outcome and reporting recurrence rate.

Assessment to determine UIG for "AFE"

1. At district level - conduct initial assessment for TF
   If TF is 10% or more in children 1 – 9 years old:
   - **conduct mass treatment with antibiotic throughout the district.**

   If TF is <10% in children 1 – 9 years old:
   - conduct assessment at the community level in areas of known disease.

2. At community level - conduct initial assessment for TF

   If TF is 10% or more in children 1 – 9 years old:
   - **conduct mass treatment with antibiotic in only the affected communities.**

   If TF is <10% in children 1 – 9 years old:
   - Mass "A" is not a priority but family-based or individual treatment may be considered

Outline Strategy for "AF" to achieve UIG

Having assessed a district or community and decided to implement "AFE":

1. Initially conduct **mass treatment** with antibiotic, preferably azithromycin, for a **minimum of three years** and **not stopping until TF in 1-9 year old children is <5%.**

2. Aim for a **coverage at the community level of at least of 80%** of the eligible population. (For calculations the eligible population can be considered equal to the total population of communities with TF 10% or more, though in practice infants aged under 6 months are not treated.)

3. Conduct **hygiene promotion and environmental improvement to achieve 80% of children in the community with clean faces**.

4. **After 3 years resurvey** population for TF and clean faces in 1-9 year old children and decide whether "A" is still indicated. Subsequently resurvey every 1-3 years as indicated.

5. The activities which constitute the "F and E" components will vary from country to country and should be defined at the national level.

Process Indicators

Assessment Indicators

1. **"S" Assessment Indicator**
   Proportion of districts in which trachoma trichiasis status is known, and a decision of whether "S" is required has been made.

2. **"AFE" Assessment Indicator**
   Proportion of districts in which trachoma active disease status is known, and a decision of whether "AFE" is required has been made.

Activity Indicators for Surgery

1. **Geographic programme coverage for "S"**
   The proportion of known districts indicated for inclusion in an "S" programme in which active TT case finding and referral is being done.

2. **Surgical coverage**
   Number of persons operated divided by the number of known TT cases (including operated cases) as a percentage. (This is a prevalence figure.)

Activity Indicators for "A and F"

1. **Geographic programme coverage for "A and F"**
   The proportion of known communities indicated for inclusion in the "AFE" programme that are actually receiving at least the "A and F" components in that year.

2. **Antibiotic coverage**
   Number of persons treated with antibiotic each year divided by the eligible population as a percentage.

3. **Good community coverage**
   The proportion of communities treated with antibiotic, which are achieving at least 80% coverage in a year.

Diagrammatic Representation of Process Indicators for "A and F"

Assessment coverage (B+C+D+E divided by all).

Proportion of districts in which trachoma disease status is known.

Geographic programme coverage (D+E divided by C+D+E).

Proportion of known communities indicated for inclusion in the program in which trachoma control activities have been done in a year.

Good community coverage (E divided by D+E).

Proportion of communities treated achieving at least 80% coverage in a year.

Example country

<table>
<tr><td colspan="3">Districts not yet Assessed (A)</td></tr>
<tr><td rowspan="2">Districts Assessed
but with no blinding trachoma (B)</td><td colspan="2">Districts with blinding trachoma but no "AFE" programme (C)</td></tr>
<tr><td>Districts with "A and F" programme achieving <80% coverage (D)</td><td>Districts with "A and F" programme achieving 80%+ coverage (E)</td></tr>
</table>

Summary Table

Criteria for Initiating a Trachoma Control Program.	**Denominator is initially District and later Community.**	Guidelines for when Trachoma as a Blinding disease is being controlled. (UIG)
TF 10% of more.	1 -9 year old population	**TF less than 5%.**
TT 1% or more.	15 year and over population	**TT less than 0.2%.**
Trachoma is a blinding disease	**Total population**	**Less than 1 new case of corneal opacity due to trachoma / 10,000 pop**

Calculation of UIG for TT surgery

1 Define population at risk
e.g. the district has 100,000 people

2 Measure / estimate prevalence of TT in 15 year and over population
e.g. TT in 15 year and above in the district is estimated at 2%

3 Calculate 15 year and over population from total population
e.g. half of the pop. are 15 and over, therefore 50/100 x 100,000 = 50,000

4 Calculate number of TT cases in population
e.g. 2/100 x 50,000 = 1000 TT cases

5 Calculate the UIG for this population
e.g. less than 1 case per 1000 total pop = 1/1000 x 100,000 = 100 cases

6 Calculate the minimum number of cases to be operated to achieve UIG
e.g. 1000 - 100 = 900

7 Set realistic annual treatment objectives based on number of TT surgeries to be performed and duration of programme.
e.g. 900 cases over, say 3 years in this example = 300 cases per year,
the annual treatment objectives in this district programme may be:

250 in year 1
300 in year 2
350 in year 3.

4. Next steps

The group also discussed briefly the needed next steps for filling the gaps identified by the group. In this respect the following issues were mentioned:

- Finalisation of global and regional figures (active cases, TT, UIGs): the time for the working group was very short and did not allowed to conclude the calculations needed to summarize the country specific estimates at regional and global level: the WHO secretariat was requested to finalise this work.

- Country specific estimates (active cases and TT) need to be cleared by Member Sates authorities before they can be used to update the Global Burden of Diseases. The WHO secretariat proposed to do this at the next WHO GET2020 Alliance meeting in late March 2004, as most of the endemic countries will be present.

- Define national UIGs: using the estimates made to calculate the global burden of trachoma (active and trichiasis) a preliminary estimate of UIGs for "S" and "A" was made. The WHO Alliance will be used to ask country representatives to validate these estimates with more accurate data, when available.

- Large burden countries like Brazil, China, India and Ethiopia need to assess the burden of trachoma through collection of data available at province level, surveys and rapid assessments. WHO secretariat was requested to follow-up on these issues.

- While criteria for elimination have been defined, a standardized procedures and guidelines for these activities are not available. It was recommended to start the work to develop these in partnership with interested parties.

- Implementation of monitoring at national, district and community level, particularly in those countries most advanced in the elimination activities, using the developed indicators was recommended.

Dr Serge Resnikoff, coordinator of the WHO Programme for prevention of Blindness and Deafness expressed his thanks to participants for the hard work achieved in a limited time and declared the meeting closed.

Annex 1 – GSM Scope and Purpose

WORLD HEALTH ORGANIZATION
Prevention of Blindness & Deafness

SECOND GLOBAL SCIENTIFIC MEETING ON TRACHOMA

Geneva, Switzerland (25-27 August 2003)

SCOPE AND PURPOSE

The Global Scientific consultation held in 1997 set the technical framework for the work of the WHO Alliance for Elimination of Trachoma by 2020.

The annual meetings of the WHO Alliance have seen the progress reports on the implementation of activities by countries, NGDOs, collaborating centers and research institutions. While countries and programmes are implementing the SAFE strategy at different speeds, it is now evident that a new assessment of the situation is needed, to define the work done and the work ahead, in order to meet the goal set for the WHO Alliance by the World Health Assembly resolution 51.11 in 1998.

It is also necessary to identify a mechanism and a methodology to define regional and country specific objectives for the elimination activities in order to define the roadmap for the final elimination goal. This complies with the recommendations made at the 7th annual meeting of the WHO Global Alliance for Elimination of Trachoma (GET2020). The definition of the ultimate intervention goals for each country will allow measuring the progress towards the final goal reported by the countries and their partners. This will permit monitoring the implementation of activities toward the final goal set by the 51st WHA for the Global WHO Alliance.

The specific objectives of this meeting are:

- To re-define the global and regional burden of trachoma using available data;
- To review the list of endemic countries using available evidence and information;
- To define the concept of Ultimate Intervention Goals, and the methodology to identify them for endemic countries.

Annex 2 – GSM Draft Agenda

WORLD HEALTH ORGANIZATION
Prevention of Blindness & Deafness

SECOND GLOBAL SCIENTIFIC MEETING ON TRACHOMA

Geneva, Switzerland (25-27 August 2003)

DRAFT AGENDA

1. **Global burden of trachoma: update**
   - 1.1. **Global burden**
   - 1.2. **Regional burden**

2. **Ultimate Intervention Goals (region/country)**
   - 2.1. **Definition**
   - 2.2. **Methodology**

Annex 3- List of participants

WORLD HEALTH ORGANIZATION
Prevention of Blindness & Deafness

II GLOBAL SCIENTIFIC MEETING ON TRACHOMA

Geneva, Switzerland (25-27 August 2003, RoomM.605)

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