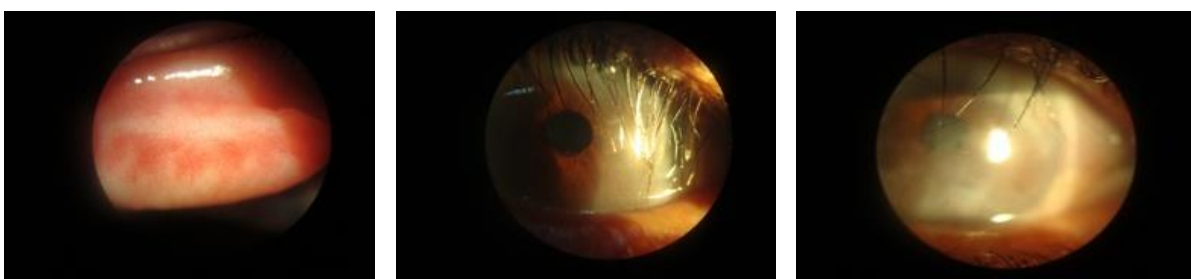
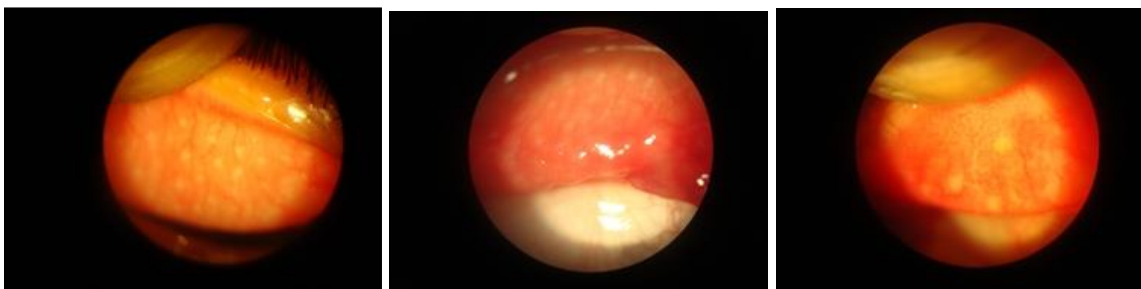




# TRACHOMA RAPID ASSESSMENT NICOBAR, 2010



***RAPID ASSESSMENT OF  
TRACHOMA IN CAR NICOBAR,  
INDIA***

**A REPORT**

**National Program for Control of Blindness in India,  
Directorate General of Health Services,  
Ministry of Health & Family Welfare,  
Government of India, New Delhi**

**Coordinated by:  
Community Ophthalmology Department,  
Dr. R.P. Centre for Ophthalmic Sciences,  
AIIMS, New Delhi**

**Supported by:  
National Programme for Control of Blindness  
Ministry of Health and Family Welfare,  
Nirman Bhawan, New Delhi**

**Apr-May 2010**

# **RAPID ASSESSMENT OF TRACHOMA IN NICOBAR**

## **A REPORT**

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**DHS, Port Blair, Andaman & Nicobar, India**

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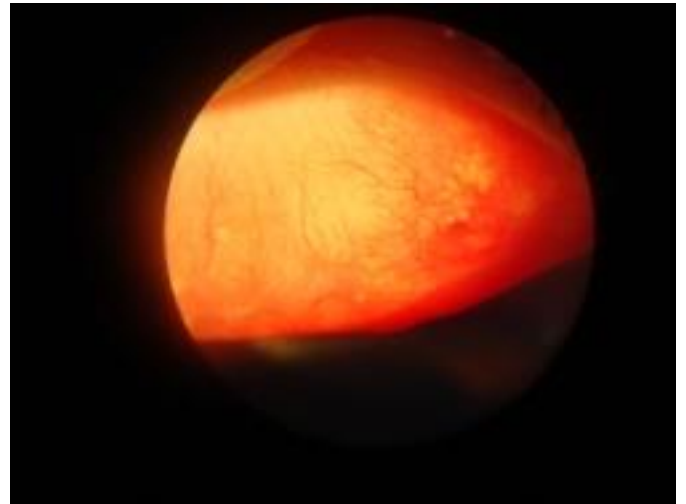
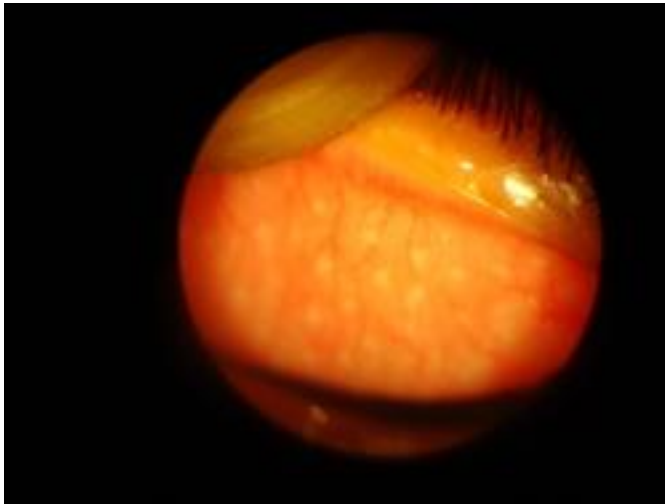
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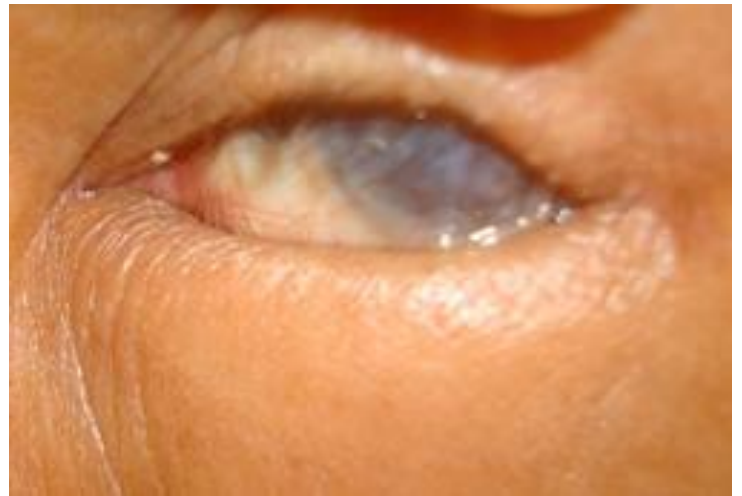
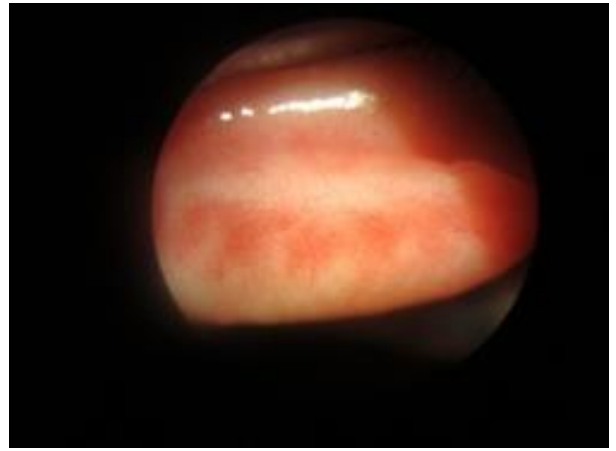
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4. Mr. Pramod, DPM, Nicobar District
5. All Village Captains

## **RAPID ASSESSMENT OF TRACHOMA IN NICOBAR**

### **PICTOGRAPHIC PRESENTATION**



**Various stages of trachoma seen in inhabitants of Car Nicobar**



### **Trachomatous trichiasis and its complications**



**Team members with Dr. Rathore**

**Team members with Captains, ANMs & ASHA workers**





**Meeting with the Chief Captain of Car Nicobar**



**Dr. Anita Shah, Dr Praveen Vashist, Dr. Noopur Gupta with  
District Commissioner, T. Srikant**



**Dr. Rathore checking survey forms**



**Health education**

**Dr. Vashist delivering a lecture on epidemiology of trachoma**





**Examination of child  
during survey**



**Examination of an adult  
with trachomatous  
corneal blindness**



**Examination of children  
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sleeping**



**Subcentre in Nicobar**



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**Nicobari hut before Tsunami**



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## Background

The WHO estimates that 1.3 million people worldwide are blind due to trachoma and 7.6 million of them have trichiasis, the potentially blinding stage of the disease. Trachoma, a chronic keratoconjunctivitis, is caused by repeated episodes of infection with the bacterium *Chlamydia trachomatis* (serotypes A,B,Ba and C), transmitted from the eyes of a patient to another by flies, fingers or fomites . It is the world's leading cause of preventable blindness and occurs where people live in overcrowded conditions with limited access to water and health care. Implementation of active trachoma control activities is prioritized in communities where the prevalence of active trachoma in children aged 1-9 years is 10% or higher or where the prevalence of trichiasis in people over 15 is 1% or higher.

The evolution of the disease typically presents two stages that are separated by several years, or often decades:

- **Inflammatory (active) trachoma** diagnosed most often in children. In many settings, girls tend to have more frequent and severe active disease than boys.
- **Cicatricial (scarring) trachoma** usually found in adults with ultimate development of trichiasis. This is often found 3-4 times more commonly in women as compared with men.



**A Nicobari lady with scarring trachoma and corneal opacity: Females are commonly affected**

Consequently, when assessing trachoma at the community level, it is important to consider both the inflammatory disease in children, and the potentially blinding complications (i.e., trichiasis) in adults.

India is committed to the goal of Right to Sight and is venturing to eliminate avoidable blindness in the country. Trachoma is one of the priority conditions identified for immediate action in the context of Vision2020 in India. Blindness due to trachoma is irreversible once it has occurred, but it can be prevented.

In Nicobar, the magnitude and prevalence of active trachoma and trachomatous trichiasis (TT) is unknown. As reported by the district administration no survey of blindness has been ever conducted in this island, Nicobar being a restricted tribal area. The aim of this rapid assessment was to determine the pattern of active trachoma in children aged 1 to 9 years of Car Nicobar as this is the key index for determining whether an area needs intervention or not.

### **Global Burden:**

Trachoma is the leading infectious cause of blindness worldwide. According to WHO, trachoma is endemic in over 50 countries and is generally confined to poor populations in developing nations of Africa, the Middle East, Asia, Latin America, Pacific Islands, and remote Aboriginal communities. It is responsible, at present, for more than 3% of the world's blindness but the number keeps changing due to the effect of socio-economic development and current control programmes for this disease. It often strikes the most vulnerable members of communities--women and children.

A global initiative to eliminate trachoma as a blinding disease, entitled GET 2020 (Global Elimination of Trachoma), was launched under WHO leadership in 1997. Through this initiative control activities are instituted through primary health care approaches that follow the evidence-based "SAFE" strategy. This consists of lid surgery

(S), antibiotics to treat the community pool of infection (A), facial cleanliness (F); and environmental changes (E). VISION 2020 national plans that address trachoma are in consonance with the GET2020 "SAFE" strategy and recommendations.

### **National Scenario:**

Trachoma is endemic in several Asian countries, but there is a lack of updated information from some highly populated countries, such as India and China. Fresh estimates from these countries will help in determining the load of trachoma globally as these two countries are the most populous countries in the world. The severity of trachoma and thus the degree of its blinding potential varies from community to community. In 2006, rapid assessment of trachoma was conducted in 6 previously hyper-endemic states of India. A total of 101 villages spread across 10 districts were included in the Rapid Assessment. It was observed that all the states showed active cases of trachoma ranging from less than 1% in Gujarat to 15% in Uttaranchal. The load of TT was very low in all the districts.

In January 2010, Dr. Rachel Jose, Additional Director General, Government of India and Country Head for National Blindness Control Programme, visited the Car Nicobar Island and the team of health care specialists observed that many patients in the local hospital were blind due to trachoma. Dr. Jose also examined around 50 people in Kinyuka village in Car Nicobar and screened out 35 cases with different stages of trachoma. Hence it was decided that a rapid assessment of trachoma should be conducted at the earliest with technical support from Dr. R.P. Centre for Ophthalmic Sciences, AIIMS, New Delhi, Apex institute of eye care in India. This is essential to provide evidence to assess the trachoma status in this tribal population.



### **Dr. R. Jose visited Car Nicobar in Jan 2010**

There is, therefore, a need to identify (with a fair degree of confidence) those communities (like the aboriginal tribes of Car Nicobar) ‘in greatest need’ which should benefit from interventions (treatment and prevention) on a priority basis. This assessment determines the presence or absence of trachoma as a public health problem and the nature of the interventions to be carried out in Nicobar to eliminate the problem of blinding trachoma.

### **Rapid Assessment**

In order to use scarce resources in a cost-effective and appropriate manner, and identify and reach the communities most in need of intervention, it is necessary to determine where most severe blinding trachoma is found. RA methodology is one of the operational research issues (along with surveillance, antibiotic distribution and community-based surgery) which have been agreed upon for further development by the WHO Alliance for the Global Elimination of Trachoma by the Year 2020 (GET 2020). RA therefore represents the first step in the process of identifying communities for planning trachoma interventions.

## **Justification of the study**

According to WHO, there is a lack of information about trachoma from all parts of India where the disease had been hyper-endemic and a public health problem. The national survey on trachoma conducted in 2006, revealed that trachoma had ceased to be a public health problem, though active transmission still occurred in the areas covered. But this survey was focused on 6 previously endemic states and did not cover the entire country. Focus was placed on Car Nicobar Island in Jan 2010, when an alarming number of trachoma cases were reported from this region in the era when we are striving to eliminate trachoma by 2020.

Moreover, availability of ophthalmic services is extremely limited in Car Nicobar. There is only one ophthalmologist in Car Nicobar. Given the lack of control measures, it is most likely an important, but hidden public health problem. This survey will help to establish the pattern of the problem in this tribal population. The findings of this trachoma rapid assessment will help guide program and healthcare providers in India to identify and prioritize interventions in the communities using the SAFE strategy, This study will also provide clinical, and research capacity building in all spheres in Car Nicobar.

There is no available evidence on trachoma in Nicobar district of India. Due to the lack of scientifically valid data on trachoma in this district, where increased number of active trachoma cases and corneal blindness due to trachoma was observed as reported by the State Programme Officer of Andaman Nicobar Island during her preliminary visits and confirmed by the team of specialist from National Programme of Control of Blindness in January 2010. It was proposed to conduct a Rapid Assessment to identify whether trachoma is really a problem of public health significance in this tribal population.

### **Rapid Assessment in Car Nicobar:**

The rapid assessment was conducted in 10 villages in Car Nicobar island, Union territory of Andaman & Nicobar Island, India. Car Nicobar island (**Pu** in the local language) is the northernmost island of Nicobar, which in turn are the southern part of the Indian union territory of the Andaman and Nicobar Islands. The island was ravaged by the 2004 tsunami. In area it is of 127 km<sup>2</sup>. There are 15 villages, namely, 1) Ha-nyôch (**Mus**) 2)Töt-chak (Kinmai), 3)Tö-kuö-nö Sē-ti (**Small Lapathy**) 4)Tö-ki-röng Sē-ti (**Big Lapathy**) 5)Höng-chu (**Tapoiming**) 6)Pum-pai (**Chukchucha**) 7)Sa-rā-ki (**Kinyuka**) 8)Tim-lö (**Tamalu**) 9)Kè-è-rô (**Perka**) 10) U-rèk-ka (**Malacca**) 11)Sa-pë-ha (**Kakana**) 12)Öt-ra-höön (**Kimius**) 13)Ha-ran (**Arong**) 14)Öt-ka-sip (**Sawai**) 15)Rit-töp (**Titop**), {the names in brackets are modern names as the local names Nicobarese are difficult for outsiders to pronounce}.

### **Objectives:**

The objectives of the Rapid Assessment were:

1. To assess whether active trachoma is of public health significance in Nicobar, India.
2. To determine the load of blinding trachoma among adults and the need for surgical services for trachomatous trichiasis.
3. To identify people's perception of trachoma and blinding trachoma
4. To suggest recommendations for policy formulation on control of trachoma in Nicobar, India.

**Figure 1: Rapid Assessment Was Conducted in Car Nicobar Island, Nicobar district**



### **Background Information on Study Area:**

Situated in the South-east of the Bay of Bengal between 6 degree – 10 degree N latitude and between 92 degree- 94 degree E longitude. There are 22 large and small islands, only twelve have inhabitants. The most northerly island of the group is Car Nicobar, which is 143 miles from Port Blair.

Nicobar district forms the southern most part of the country. And has two tehsils of Car Nicobar and Nancowrie covering 1841 square kilometers. All the islands have been declared as tribal reserve area under Andaman and Nicobar (Protection of

[illegible]

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Nicobarese is generic name of all indigenous people inhabiting in Nicobar group of islands. They are off shoots of mongoloid race. With increasing interaction with outsiders, most of the inhabitants understand Hindi.

**Sociologically**, they are not completely heterogenous people and share many cultural and social traits. One of them is the Tu-het, the extended household, a very important social unit among the Nicobarese, which controls the socio-economic activities of its members. The Tu-hets were typically large “Machan” houses made of wood with wooden or bamboo flooring. The roof and walls were of the Nypa leaves or thatch grass. The craftsmanship of the houses was exquisite with round or rectangular designs. The kitchen was either with the Machan house or separate structure. The material of the thatch is symbolic of the status of the occupants. The traditional houses are built on stilts of about 6 feet high. Such a design helps people to keep them livestock under it or to use it for storage. Most of the houses are held as joint property by the clan. There is no division of the house into rooms and the houses are never fenced. People adopted protestant faith of Christianity during Japanese occupation of these islands during IInd World War and a minority profess Islam.



**Concept of “Tuhet”**

**Politically**, one headman (captain) who is democratically elected heads every village. Noticeably, this election is an internal affair of the community. It is conducted without any government involvement. All such village headmen constitute tribal council headed by the Chief Captain, one for each island.

**Economically**, these islands are biomass based plantation economics.



**Coconut plantations in Car Nicobar**

## Methodology

The WHO guidelines for Rapid Assessment were basically used for the Rapid Assessment. All clinical protocols were exactly the same as recommended by WHO. In order to reflect the situation in India, some modifications were felt necessary to the standard prescribed methodology. The survey was conducted in 10 villages and the population of cluster selected for Rapid Assessment was between 500-1000.

## Study Teams

Two independent study teams were constituted to expedite the process that was able to cover 2-3 villages per day. Each study team was constituted of the following core personnel:

|                                    |     |
|------------------------------------|-----|
| Study Coordinator                  | One |
| Health Educator/ Field Supervisors | One |
| Epidemiologist                     | One |
| Ophthalmologist                    | One |
| Optometrist                        | One |
| ASHA/ANM                           | Two |



**Study team**

**Training of team members:**

Both teams were trained over a five day period at the Bishop John Hospital, Car Nicobar by the trainers from Community Ophthalmology Department, Dr. Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New Delhi (WHO Collaborative Centre for Prevention of Blindness). The training provided the background information and rationale for the Rapid Assessment. The training schedule included lecture demonstration, grading of the trachoma slide set by the ophthalmologists and optometrists, role play on how to interview key informants, orientation to the different formats for data collection, filling up the tally sheets and clinical examination. Agreement of the graders with the WHO slide set was conducted and agreement analysis was done and the Kappa values were shared with the graders. The agreement was 96.7 % among the ophthalmologists.

**Training of team members****Pilot cluster:**

The pilot was conducted in Kimious village of Car Nicobar with a population of 406 and 88 households according to the 2010 National Population registry. The whole village was included in the survey.

In Kimious, all 43 children  $\leq 9$  years of age were examined. The number of children with TF was 18 and none had TI. The percentage of children with active infection was 41% and 27.9% children (12) had unclean faces. 7 patients in Kimious showed the presence of Trichomatous trichiasis. 5 patients had no corneal opacity, one case had evidence of corneal opacity and one case had recurrent trichiasis in spite of entropion surgery. There was no suspected case of trachoma in the village apart from the confirmed cases. The percentage of TT in the village was 1.72%.

### **Study Duration:**

The data collection was completed in one week. The total time taken for analysis and report compilation took 4 weeks. A Review Workshop was held after preliminary analysis and all outputs shared with the participating teams and representatives of the National Program for Control of Blindness. Feedback and additional information that was required was provided by the teams and this was incorporated in the final report.

### **Data Analysis:**

All data was collated and entered under the technical supervision and guidance of the Community Ophthalmology Department at Dr. R.P. Centre for Ophthalmic Sciences. Data was analysed in Excel spreadsheets and analysis was done using Strata 10.0.

### **Identification of 10 villages in the study area**

The identification of the ten villages was made using socio-developmental indicators and the list was prepared by district authorities including the District Blindness Program Manager and the chief captain. Ten villages were identified for the rapid assessment through participatory approach.

For identifying the appropriate cluster in the village so as to yield a minimum population size of 500 per segmented cluster, key informants were interviewed and the poorest segment of the village was identified for the RA. The district administration in the district were informed in advance of the team visit and were also asked to provide local logistic support including the services of the health centre staff for identification of the villages and for helping in the rapport building exercise.

### **Community participation:**

The health education officers and local ASHA & PHN workers built rapport with the village captain and subsequently identified the potential key informants. These included Village Captains, school teachers, anganwadi workers, health centre staff etc. A knowledgeable person who could provide information on the socio economic stratification in the village and the population distribution in the village were targeted as the key informants. The village leaders and the potential key informants were contacted and explained the purpose of the visit.

A focus group discussion was also conducted in the Community Hall of each village at the commencement of the survey in that village, usually to obtain community perception on trachoma and the common local names which they used to refer to trachoma. Individuals whom the key informants or the participants of focus group discussions could identify as suspected trichiasis were recorded so that they could be contacted and examined for confirmation. To facilitate this process, standard pictures and hand drawings of trichiasis and descriptions of the same were shared with the participants of focus group discussions through health education officers. The list of questions prepared by the WHO was used during the discussions. Information on village facilities was also collected during the course of the interviews.



### **Ophthalmologist assessing trachomatous trichiasis cases following Focussed Group Discussion in the Community Hall**

#### **Socio-environmental Conditions and Health Facilities**

The survey team with the epidemiologist inspected the general condition of the village, living conditions and outlay of households recording the estimated number of households, likely population, water facilities, environmental sanitation and local facilities like market, drug store etc. The visit also enabled them to identify the poorest segment of the village through discussion with the village captains. All such information was recorded in appropriate forms. Around 25-30 households per village were examined for environmental factors. The presence of animal pens/ latrine etc. was observed for their presence whether within the house boundaries or just outside the house. In villages with scattered houses, the distance criteria of 20 metres as recommended by WHO was followed.

In recording the distance to a facility like PHC/trichiasis facility, it was decided that distance to all facilities within the village would be recorded in walking time while for all facilities outside the village it would be recorded in time taken by public transport. For identifying a market, respondents were queried about the distance to shops selling groceries, vegetables and other items for daily living. Similarly for a pharmacy,

respondents were queried about facility where common medicines for fever, malaria, cough and cold etc. were sold.

#### Examination of children for active infection

Fifty children aged 1-9 years were examined from the identified houses. Tally sheets were used to ensure that equal number of children below, and, above the age of 5 years were examined. All children were examined by the ophthalmologist and the findings noted according to WHO standard classification grades. All examinations were conducted at home. The clinicians graded each eye separately and recorded observations in the WHO Rapid Assessment simplified grading format.

#### Active Infection (TF/TI) in children aged 1-9 years:

- No evidence of active trachoma
- < 10% children aged 1-10 yrs have active trachoma
- $\geq 10\%$  have active trachoma

Observation of facial hygiene was done on all the children examined for active trachoma.

#### Unclean faces were defined as:

- Presence of discharge from the eyes / nose
- Crusting of discharge around the eye or nose.
- Presence of flies on the discharge around eye / nose.

#### Assessment of trichiasis

A list of individuals provided by the key informants as ‘suspected trichiasis’ were examined at home using the standard recommended WHO protocol. In addition, all people above 15 year of age present at home at the time of examination for active infection were also examined for trichiasis. The presence of a single eye lash rubbing against the eye was identified as trichiasis. The extent of the problem in terms of trichiasis was analysed using the cut offs recommended by WHO.

Trichiasis load in the community:

- No trichiasis case
- < 1% have TT
- $\geq 1$  % have TT

**Quality Assurance:**

Independent trainers from R. P. Centre, health specialists from the two key hospitals and visit of ADG, MoH, GOI from New Delhi to assess various aspects of the survey ensured effective monitoring and high level of quality maintenance. An independent, unbiased testing process was assured. The trachoma survey conformed to the standard WHO guidelines and maintained precision throughout the survey.

## Results

The island of Car Nicobar comprises of 15 villages with a total population of 17,967. A total of 10 villages spread across Car Nicobar, district of Nicobar, Andaman & Nicobar Island, India were included in the Rapid Assessment. The total population of these villages was 11334 (mean population / village: 1133.4) while the population of the segment of the village where the RA was done was 7277 (mean population / examined segment: 727.7).

### Status of Trachoma in Car Nicobar

The different villages covered in the districts are shown in Table1

Table 1: List of villages covered in Car Nicobar

| S.No. | Villages      | Total population of village | Population of examined segment |
|-------|---------------|-----------------------------|--------------------------------|
| 1.    | KINYUKA       | 1167                        | 603                            |
| 2.    | CHUKCHUCHA    | 1225                        | 580                            |
| 3.    | ARONG         | 1200                        | 600                            |
| 4.    | TAMALOO       | 1569                        | 700                            |
| 5.    | KAKANA        | 896                         | 896                            |
| 6.    | BIG LAPATHY   | 1158                        | 700                            |
| 7.    | TAPOIMING     | 925                         | 925                            |
| 8.    | SMALL LAPATHY | 940                         | 940                            |
| 9.    | MUS           | 1619                        | 700                            |
| 10.   | KINMAI        | 633                         | 633                            |
|       | Total         | 11334                       | 7277                           |

Table 2: Details of Study Population Covered for Rapid Assessment

| Village       | Population Cluster | 1 TO <5 YEARS | 5 TO <10 YEARS | TOTAL | MALE >15 YEARS | FEMALE>15 YEARS | TOTAL |
|---------------|--------------------|---------------|----------------|-------|----------------|-----------------|-------|
| KINYUKA       | 603                | 27            | 25             | 52    | 50             | 66              | 116   |
| CHUKCHUCHA    | 580                | 29            | 25             | 54    | 38             | 63              | 101   |
| ARONG         | 600                | 28            | 22             | 50    | 38             | 58              | 96    |
| TAMALOO       | 700                | 31            | 21             | 52    | 46             | 60              | 106   |
| KAKANA        | 896                | 30            | 23             | 53    | 30             | 55              | 85    |
| BIG LAPATHY   | 700                | 28            | 22             | 50    | 34             | 57              | 91    |
| TAPOIMING     | 925                | 32            | 20             | 52    | 30             | 47              | 77    |
| SMALL LAPATHY | 940                | 31            | 21             | 52    | 21             | 42              | 63    |
| MUS           | 700                | 19            | 29             | 48    | 50             | 83              | 133   |
| KINMAI        | 633                | 23            | 30             | 53    | 50             | 52              | 102   |
|               | 7277               | 278           | 238            | 516   | 387            | 583             | 970   |

Out of a total population of 7277 covered under RA, 516 children were examined for assessing signs of active infection due to trachoma (Table 2). The number of children examined per village ranged from 48-54, average being 52. The ratio of 1-5 years to 5-9 years children was 1:1.2. The total number of adults examined for evidence of trichiasis and corneal opacity due to trachoma was 970. Males contributed to nearly 40 % of the study population.

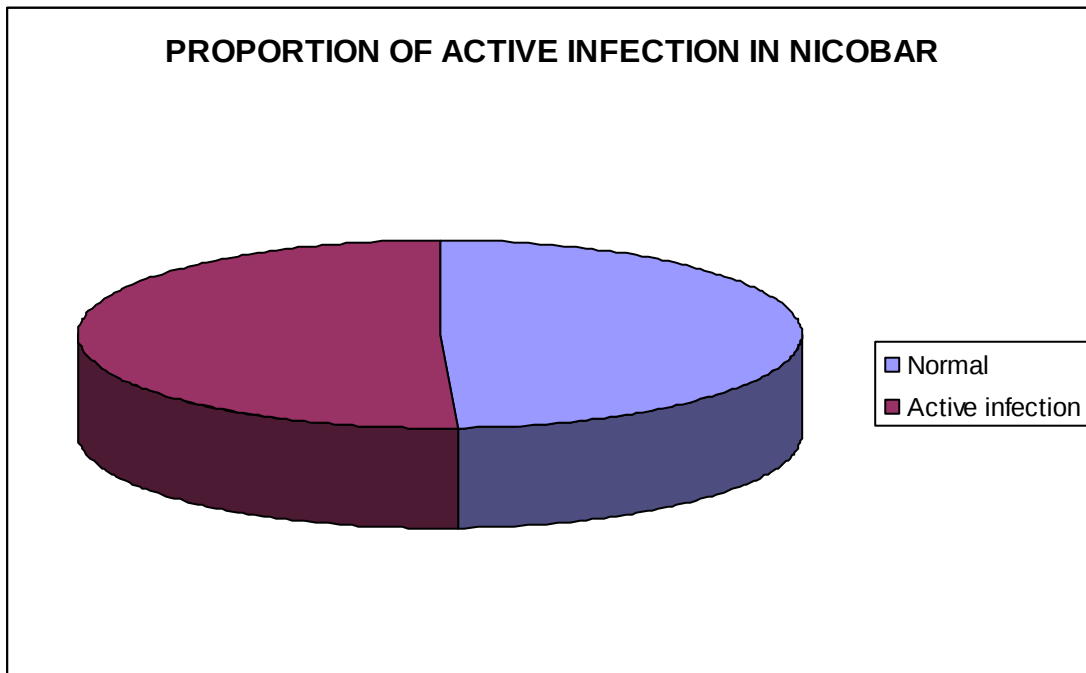
### ***Active Infection in Car Nicobar***

Ten villages were covered in Car Nicobar. All 10 villages showed active infection ranging from 37.5 - 73.0%. 50.8% of the children examined had active disease in this island. 251 children (48.6%) had evidence of follicular stage of trachoma (TF) and 11 children (2.1 %) had evidence of inflammatory stage of trachoma (TI). A total of 77 children had unclean faces, the number ranging from 1-30 in the various villages.

**Table 3: Distribution of Active Infection in Car Nicobar**

| <b>Villages</b> | <b>No. children examined</b> | <b>No. with TF</b> | <b>No. with TI</b> | <b>No. with TF/TI</b> | <b>% children with TF/TI</b> | <b>No. with unclean face</b> | <b>% Unclean faces</b> |
|-----------------|------------------------------|--------------------|--------------------|-----------------------|------------------------------|------------------------------|------------------------|
| KINYUKA         | 52                           | 35                 | 3                  | 38                    | 73                           | 8                            | 15.3                   |
| CHUKCHUCHA      | 54                           | 24                 | 0                  | 24                    | 44.45                        | 3                            | 5.56                   |
| ARONG           | 50                           | 22                 | 1                  | 23                    | 46                           | 8                            | 16                     |
| TAMALOO         | 52                           | 23                 | 0                  | 23                    | 44.23                        | 4                            | 7.69                   |
| KAKANA          | 53                           | 22                 | 2                  | 24                    | 45.28                        | 3                            | 5.66                   |
| BIG LAPATHY     | 50                           | 28                 | 1                  | 29                    | 58                           | 6                            | 12                     |
| TAPOIMING       | 52                           | 26                 | 1                  | 27                    | 51.92                        | 8                            | 15.39                  |
| SMALL LAPATHY   | 52                           | 31                 | 0                  | 31                    | 59.6                         | 1                            | 1.9                    |
| MUS             | 48                           | 17                 | 1                  | 18                    | 37.5                         | 6                            | 12.5                   |
| KINMAI          | 53                           | 23                 | 2                  | 25                    | 47.17                        | 30                           | 56.6                   |
| TOTAL           | 516                          | 251                | 11                 | 262                   | 50.8                         | 77                           | 14.9                   |

**Figure 1: Active Infection in NICOBAR**



#### **Trichiasis load in Car Nicobar**

All 10 villages in Car Nicobar showed the presence of TT. It appears that the trachoma is highly prevalent in Nicobar and should be considered as a ‘high priority’ village based on the clinical presentations.

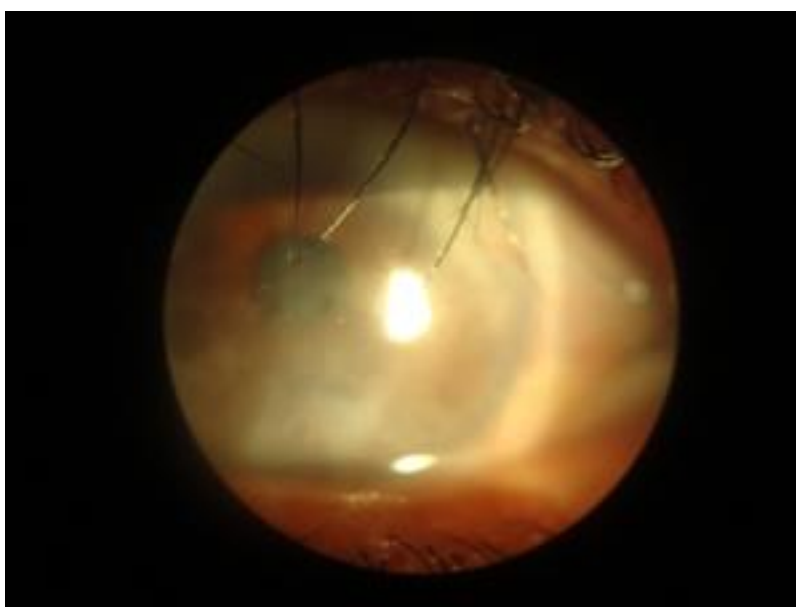
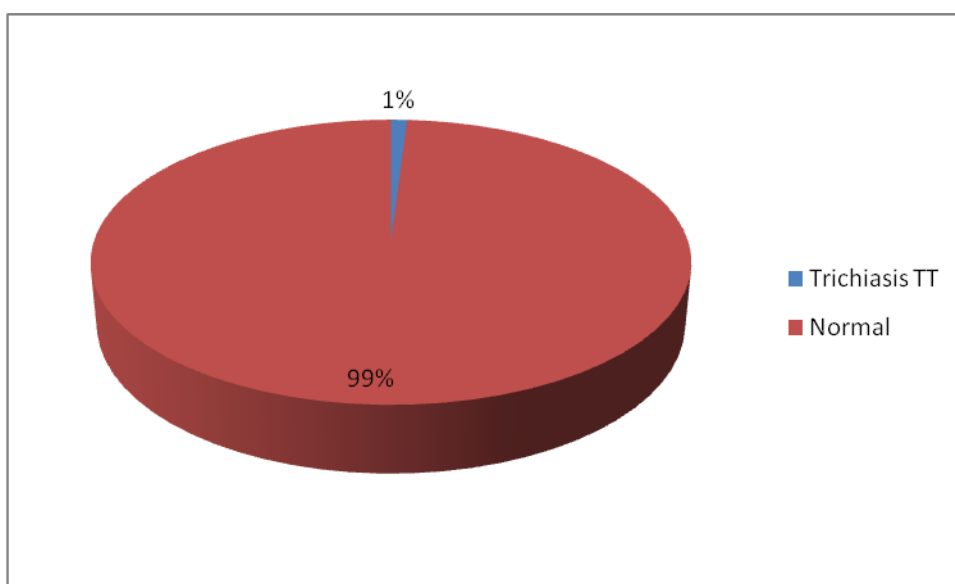
**Table 4: List of TT cases in villages in Nicobar**

| Villages      | Cluster Population | TT Cases  | TT Without CO | TT With CO | Recurrent Cases TT(No CO) | Recurrent Cases TT +CO | TT load in Community |
|---------------|--------------------|-----------|---------------|------------|---------------------------|------------------------|----------------------|
| KINYUKA       | 603                | 11        | 5             | 6          | 0                         | 0                      | 1.82                 |
| CHUKCHUCHA    | 580                | 6         | 5             | 1          | 0                         | 0                      | 1.04                 |
| ARONG         | 600                | 1         | 1             |            | 0                         | 0                      | 0.16                 |
| TAMALOO       | 700                | 15        | 7             | 4          | 0                         | 4                      | 2.14                 |
| KAKANA        | 896                | 5         | 5             |            | 0                         | 0                      | 0.55                 |
| BIG LAPATHY   | 700                | 7         | 3             | 4          | 0                         | 0                      | 1.0                  |
| TAPOIMING     | 925                | 11        | 4             | 6          | 0                         | 1                      | 1.19                 |
| SMALL LAPATHY | 940                | 2         | 0             | 1          | 1                         | 0                      | 0.21                 |
| MUS           | 700                | 11        | 11            | 0          | 0                         | 0                      | 1.57                 |
| KINMAI        | 633                | 4         | 4             | 0          | 0                         | 0                      | 0.63                 |
| <b>Total</b>  | <b>7277</b>        | <b>73</b> | <b>45</b>     | <b>22</b>  | <b>1</b>                  | <b>5</b>               | <b>1</b>             |

CO= Corneal opacity

73 cases of trichiasis were found by clinical examination in a population cluster of 7277 in 10 villages, amounting to a trichiasis load of 1%. Corneal opacity was present in 30 % of TT cases, implying more severe cases with corneal blindness. There were a total of 6 recurrent cases out of 73 cases of trichiasis examined. 7 suspected cases of trichiasis were not available for examination by the ophthalmologist. The proportion of cases with severe entropion amounted to 15% of the cases.

**Figure 2: Load of TT in Nicobar**



**Slit lamp photograph of a patient with trichiasis and corneal opacity**

## Environmental Indicators

Arong and Kinmai were the relatively disadvantaged village in Nicobar district as people in some households had to walk more than 30 minutes to reach a source of water. Majority of the households in Nicobar (96.4%) had an animal pen within the household premises or at the base of the Nicobari hut/dwelling. Functional latrine was available in maximum number of the house premises (98.2%). It therefore appeared that the environmental sanitation not satisfactory due to the co-habitation of people with animals like pigs, hens, goats, dogs, cats etc. in Nicobar.



### Animals in close vicinity to human dwellings

Table 5: Distribution of houses by environmental status

| Village       | Household assessed | Water Source More Than Half An Hour Walk | Presence of Solid Waste or Animal Pens | Absence Of Functional Latrine |
|---------------|--------------------|------------------------------------------|----------------------------------------|-------------------------------|
| KINYUKA       | 30                 | 0                                        | 28                                     | 1                             |
| CHUKCHUCHA    | 23                 | 0                                        | 22                                     | 0                             |
| ARONG         | 26                 | 3                                        | 25                                     | 0                             |
| TAMALOO       | 30                 | 0                                        | 30                                     | 2                             |
| KAKANA        | 29                 | 1                                        | 29                                     | 0                             |
| BIG LAPATHY   | 29                 | 0                                        | 29                                     | 0                             |
| TAPOIMING     | 24                 | 0                                        | 24                                     | 0                             |
| SMALL LAPATHY | 30                 | 0                                        | 27                                     | 0                             |
| MUS           | 25                 | 0                                        | 25                                     | 1                             |
| KINMAI        | 30                 | 3                                        | 27                                     | 1                             |
| <b>Total</b>  | <b>276</b>         | <b>7</b>                                 | <b>266</b>                             | <b>5</b>                      |
| %             |                    | 2.5                                      | 96.4                                   | 1.8                           |

### Access to facilities

Car Nicobar does not have good access to a trichiasis facility and the access to primary health care and village pharmacy (Subcentre) was better. Primary schools were within easy walking distance, except in Small Lapathy village but market facilities was of more than 30 minutes of walking distance in 4 villages.

| Villages      | PRIMARY<br>HEALTH CARE<br>CENTRE | TRICHIASIS<br>SURGERY<br>FACILITY | VILLAGE<br>PHARMACY<br>(DRUGSTORE) | MARKET | SCHOOL |
|---------------|----------------------------------|-----------------------------------|------------------------------------|--------|--------|
| KINYUKA       | 1                                | 3                                 | 1                                  | 1      | 1      |
| CHUKCHUCHA    | 1                                | 3                                 | 1                                  | 1      | 1      |
| ARONG         | 1                                | 3                                 | 1                                  | 2      | 1      |
| TAMALOO       | 1                                | 3                                 | 1                                  | 2      | 1      |
| KAKANA        | 1                                | 3                                 | 1                                  | 3      | 1      |
| BIG LAPATHY   | 1                                | 3                                 | 1                                  | 1      | 1      |
| TAPOIMING     | 1                                | 3                                 | 1                                  | 1      | 1      |
| SMALL LAPATHY | 1                                | 3                                 | 1                                  | 3      | 2      |
| MUS           | 1                                | 3                                 | 1                                  | 1      | 1      |
| KINMAI        | 1                                | 3                                 | 1                                  | 1      | 1      |

**Table 6: Reported/ Observed Access to Different Facilities in Nicobar**

**Distance to Facility <30min=1; 30min-2hr=2; >2hr=3**



**Water supply available near the households**

## **RECOMMENDATIONS**

### **1. Rationale of population based prevalence survey after the Rapid assessment of trachoma:**

Population based prevalence surveys are considered the gold standard for estimating the prevalence of active trachoma and trachomatous trichiasis within a community. The WHO has published guidelines advising how such a survey can be carried out in order to obtain a good random sample and provide accurate data. However, such large scale community-based studies are expensive, time consuming and may utilize resources that could be better spent on intervention programmes.

Trachoma Rapid Assessment (TRA) methodology developed by the WHO attempts to quickly, cheaply, and efficiently obtain the information needed to identify and prioritize areas for trachoma intervention. It uses a two-phase sampling technique to optimally bias the sample to the “worst places” within those communities most likely to have trachoma. It is generally recommended to undergo prevalence survey after the Rapid assessment as they are the mainstay of targeting and monitoring trachoma intervention.

The survey at Car Nicobar was conducted in accordance with the WHO guidelines for Rapid Assessment of Trachoma. Till date, there is no available information about the status of trachoma in this underserved, tribal region of the country. It was noted that the hygiene status, living standard and socio-environmental factors were similar in most of the surveyed clusters and within the clusters with not much variation. This is due to provision of similar housing, water and sanitation facilities to all the inhabitants of Car Nicobar after the heavy loss and devastation due to Tsunami in this region. The sample

population covered in 10 clusters for the assessment of trachoma represents almost 40% of total population of Car Nicobar Island (7277 out of 17967). Therefore, considering the large proportion of the total population covered for the rapid assessment and homogeneity in environmental and socioeconomic factors after the Tsunami, approximate prevalence of TT and trachoma deduced from the TRA can be applied to all 15 villages. Trachoma Rapid Assessment (TRA) in Car Nicobar shows a very high active trachoma infection rate (TF/TI) of 50.8 % among children in 1-9 year age group ranging from 37.5 % to 73% in different clusters. The percentage of trichiasis examined in subjects over 15 years of age was 7.5% ranging from 1% to 14.3% in different clusters. All the subjects were examined by trained ophthalmologists. Considering the high magnitude of active trachoma infection in children and trichiasis among adults, it is suggested that this area may be considered as hyperendemic. SAFE strategy measures should be started immediately on the results of Rapid Assessment survey without going for a prevalence survey. Prevalence studies may be done later, as feasible.

## **2. Provision of surgical services for trichiasis:**

The results of the survey demonstrated an enormous trichiasis load in this region of the country. Provision of timely intervention and surgery at the earliest, is warranted to prevent development of corneal blindness. Therefore immediate attention should be given for arranging surgical facilities for the patients with TT, regardless of the number or position of lashes touching the eye. At present, good quality surgical facilities are not available in the Car Nicobar Island. It is recommended that trachoma surgical camps may be organized in the Island with the help of experienced trachoma surgeons from other parts of the country. The experienced surgeons should also train the local ophthalmologists and paramedical staff for trachoma surgery to ensure sustainability of

the surgical facilities and follow up services in future. The district surgeon should be supervised by the experienced ophthalmologist for ensuring good quality surgery.

### **3. Case Finding:**

It is necessary to train the local Health workers – ANMs and ASHA workers in effective case finding to identify persons with TT. The identified patients should be encouraged to undergo trachoma surgery by liaising with the ophthalmologist in the hospital or camps. The people who have already undergone successful surgery are the best motivators for the other patients.

### **4. Mass Azithromycin treatment:**

The high rate of active trachoma infection in children (50.8 % in 1-9 age groups) is a good evidence to label this area as hyperendemic area for trachoma and it is recommended to provide mass Azithromycin treatment to all the residents of Car Nicobar Island annually for next three years. WHO recommends Azithromycin treatment as a single oral dose of 20 mg/kg either in the form of tablets or oral suspension.

Recent studies demonstrate that the Azithromycin eye drops are equally effective if given twice daily for three days. The operational difficulty in azithromycin eye drop is the temperature maintenance at 2-8 degree Celsius. After this treatment for three years, repeated surveys should be carried out to decide continuation of mass azithromycin treatment.

It is suggested to commence the first treatment round with a small scale trial in one village to test the systems for storage, transport, stock control, training of treatment personnel and estimating staff requirement. State Programme officer and National programme personnel should closely supervise the pilot round.

For the entire population of Car Nicobar Island, azithromycin treatment should be arranged for approx 18000 people every year. The Village Captains, ANM and ASHA workers in each village can effectively provide treatment in their respective villages under the guidance of District Programme Manager and local Ophthalmologist and Optometrist. In each village the treatment team should aim to achieve at least 80% of coverage. (The detailed guidelines for Mass treatment of azithromycin may be provided later)

#### **5. Need for Health promotion:**

Prevention of trachoma infection and promotion of health standards should be taken on a priority basis. The people of Car Nicobar should be educated about trachoma and how it is spread, encouraging acceptance for surgery and antibiotic treatment, encouraging facial cleanliness and promoting clean environment. The most appropriate channel for health promotion is community meetings in the villages where group discussions with the villagers can be used to convey information about trachoma and its control. The ANMs and ASHA workers may be given training to discuss small topics like causes of spread of trachoma, trachoma surgery, antibiotic treatment, facial cleanliness and environmental changes in the community meetings. School teachers can promote the lessons of improving personal hygiene for trachoma control. There is need for promoting inter-personal communication for discussing sensitive issues such as explaining need for behavioral changes, preference for nuclear families, keeping pet animals away from the households and encouraging acceptance for surgery or treatment. The mass media like TV and radio may be used for conveying discrete messages like dates of mass treatment or camp dates for trachoma surgery. It is suggested that a variety of material like posters

or hoardings conveying simple messages for prevention of trachoma may be displayed in commonly visited areas like Hospitals, sub-centres, schools, churches etc.

#### **6. Improving water and Sanitation:**

A fair amount lot of work has been done by the district administration in the post Tsunami period. The PWD have provided the people of Car Nicobar with new improved households to more than 4000 families promoting nuclear family norms. Most of the households have access to functional latrines (98.2% in the surveyed households) and availability of potable water near their households. There is a need to develop water drainage system and adequate waste disposal facility in all the villages. In the absence of adequate drainage facilities, the unclean water collection around the household may lead to serious health hazards mainly during the rainy seasons. There is no proper garbage disposal facility available anywhere in the island, which is an important health concern. The major risk factor of trachoma spread in this community could be the co-habitation of people with animals like pigs, hens, goats, dogs, cats etc. Pets were observed in close vicinity of most of the households. The district administration should use effective health promotion tools for educating people to keep pet animals away from the households.

#### **7. Training of manpower:**

There is need to develop trained people in all areas and spheres of health delivery system for effective control of trachoma. Ophthalmologists should be trained in surgical techniques for trachoma; ophthalmic assistants should be trained in identification of trichiasis cases and simple therapeutic measures including epilation of trichiatic cilia. The Public Health Nurse should be trained intensively so that they can further train the ANMs and ASHA workers for training of community volunteers. The training should include

information about trachoma, trachoma control and methods of transmitting this information to people living in villages. The training should be standardized and supervised by programme managers.

### **List of abbreviations and acronyms**

ANM: Auxiliary Nurse Midwife  
ASHA: Accredited Social Health Activist  
CO: Corneal Opacity  
IEC: Information-Education-Communication  
GET : Global Elimination of Trachoma  
ITI: International Trachoma Initiative  
MOH: Ministry of Health  
NPR: national Population survey  
P H.C: Primary Health Center  
PHN: Public Health Nurse  
PWD: Public Welfare Department  
TF: Trachoma Inflammation-Follicular  
TI: Trachomatous Inflammation-Intense  
TS : Trachomatous Scarring  
TT: Trachomatous Trichiasis  
TRA: Trachoma Rapid Assessment  
SAFE: Surgery for trichiasis, Antibiotics to treat C.trachomatis infection, and Facial cleanliness and Environmental improvement to reduce transmission of C. trachomatis from one person to another.  
RA: Rapid Assessment  
RAAB: Rapid Assessment of Avoidable Blindness  
VA: Visual Acuity  
WHO: World Health Organization