Fifth Regional Meeting of Managers of National Programs for the Elimination of Trachoma as a Public Health Problem in the Americas

Lima, August 1-3 2018

Report

PAHO

Pan American Health Organization

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CONTENTS

ACRONYMS

GTMP: Global Trachoma Mapping Project

MDA: Mass drug administration

NIDs: Neglected infectious diseases

PAHO: Pan American Health Organization

SAFE: Surgery, Antibiotic, Face cleanliness and Environmental improvement

STH: Soil-transmitted helminth infections

TF: Trachomatous inflammation, follicular

TS: Trachomatous scarring

TT: Trachomatous trichiasis

UNICEF: United Nations Children's Fund

USAID: United States Agency for International Development

WASH: Water, Sanitation and Hygiene

WHO: World Health Organization

GLOSSARY

Mass drug administration (MDA): In public health, this refers to an intervention in which drugs are periodically administered to the entire population at risk of suffering from a neglected infectious disease in a specific geographical area, regardless of whether or not an individual has the infection *(1)*.

Elimination of a disease as a public health problem: This term is used when disease control goals are achieved in a way that leads to reduced transmission and burden of a disease. As soon as these goals are achieved, a specific disease or disability may no longer be considered a problem of public health importance or zero incidence of a specific disease may even be attained, leading to elimination of the disease *(2)*.

Neglected infectious diseases (NIDs): This refers to a group of diseases that are caused by parasites, viruses, and bacteria and for which comprehensive, intersectoral control and elimination activities have been recommended. These diseases are considered "neglected" since their occurrence and persistence are associated with communities' socioeconomic conditions, including poverty and lack of access to or insufficient basic services.

SAFE (Surgery, Antibiotics, Facial cleanliness and Environmental improvement) strategy: This strategy is recommended by WHO for the elimination of trachoma as a public health problem. It represents a set of actions that includes surgery for people with trachomatous trichiasis, antibiotic treatment for populations living in trachoma endemic areas, and facial hygiene and environmental improvement to reduce disease transmission *(3)*.

Water, Sanitation and Hygiene strategy: This strategy, which is recommended by WHO and UNICEF, provides a framework to guide integrated actions to improve the supply of drinking water, sanitation and hygienee *(4)*.

Soil-transmitted helminth infections (STH): These are parasitosis acquired through contact with contaminated soil. This document refers specifically to helminth infections caused by hookworms *(Necator americanus* and *Ancylostoma duodenale)*, *Ascaris lumbricoides*, and *Trichuris trichiura (5)*.

SUMMARY

The Fifth Regional Meeting of Managers of National Programs for the Elimination of Trachoma as a Public Health Problem in the Americas brought together collaborators, strategic partners, and representatives of the countries that are implementing activities for trachoma control and elimination in the Region: Brazil, Colombia, Guatemala, Mexico, Paraguay, Peru, and Venezuela. Paraguay and the Bolivarian Republic of Venezuela are documenting the epidemiological situation of trachoma by carrying out rapid assessments in areas with communities living in vulnerable conditions or which share borders with active foci of the disease in zones along the border with Brazil and Colombia. Guatemala finalized its impact assessment survey following mass drug administration in its known foci. Colombia continues its efforts to strengthen the components of the SAFE (Surgery, Antibiotic, Face cleanliness and Environmental improvement) strategy. Brazil is reevaluating its epidemiological situation in priority areas. Peru recently identified an active trachoma focus in the north of the country. Finally, Mexico is in the surveillance phase following elimination of the disease.

This meeting addressed topics including global, regional and country-specific advances toward elimination of the disease. There was special emphasis on the challenge of incorporating trachoma into countries' political and development agendas, since the disease usually occurs in areas where social determinants converge, intensifying gaps in care and inequity in health. Participants underscored the need for integrated efforts using intersectoral interventions, joining together the efforts of the ministries of health with those of other ministries, and transborder efforts to define and carry out joint actions to continue to move forward as a Region in the process of eliminating the disease.

New tools and technological instruments designed to support and improve trachoma diagnosis and treatment were also presented. Governments and the Pan American Health Organization (PAHO) reaffirmed their commitment to working with strategic partners, taking advantage of their technical and financial contributions.

The main conclusions and recommendations of the meeting were:

Conclusions

1. Brazil is reevaluating the epidemiological situation of trachoma based on World Health Organization (WHO) recommendations, by conducting population-based surveys in priority areas. Furthermore, Brazil has begun to make adjustments to the information system for recording and monitoring trachomatous trichiasis (TT) cases, and to standardize TT corrective surgery procedures.
2. Guatemala completed the impact assessment in known trachoma districts and carried out surgery on some identified TT cases. Additionally, Guatemala developed a road map to obtain information on the occurrence of trachoma in other areas of the country.
3. Peru identified a district in the department of Loreto where trachoma is a public health problem. The country will carry out its first campaign of surgery for TT cases in 2018 and mass drug administration (MDA) in 2019.
4. Venezuela initiated trachoma rapid assessments in communities on the border with Colombia and Brazil, as well as in communities in the Yanomami indigenous area. The country has identified some cases of active trachoma in children and TT in adults.
5. Paraguay initiated trachoma rapid assessments in priority indigenous communities. Assessments will also be carried out in other areas that have populations living in conditions of vulnerability. As of July 2018, no trachoma cases had been identified.
6. For all countries, it is a challenge to have standardized examiners for trachoma diagnosis to carry out trachoma surveys and rapid assessments.
7. For all countries, the identification of TT cases, the availability of surgery that follows WHO recommendations, and the postsurgical monitoring of people who received TT surgery all continue to be a challenge.
8. Countries have moved forward with activities to improve facial hygiene and environmental conditions, mainly through activities at schools. However, the coordinated implementation of these activities within the framework of the WASH (Water, Sanitation and Hygiene) strategy continues to be a challenge.
9. Mexico is revising its strategies to sustain integrated trachoma surveillance actions in the disease post-elimination phase. These strategies were proposed in the country's dossier for WHO validation of trachoma elimination.

Recommendations

All countries are urged to:

1. Promote synergies to integrate trachoma-related actions into platforms for blindness prevention, strategies for the control and elimination of neglected infectious diseases (NIDs), and intersectoral initiatives to address social determinants. These actions include strengthening the leadership and capacity of ministries of health to sustain trachoma-related actions.
2. Carry out advocacy actions at the national and local levels to position the elimination of trachoma on public health agendas, making use of each country's information, mobilizing and motivating community participation, and incentivizing the financial and technical support of governments, partners and donors.
3. Strengthen information systems to generate evidence that demonstrates progress toward the goals of trachoma elimination, including standardization of the registry of TT cases and surgeries.
4. Promote the use of serology as a tool for strengthening epidemiological surveillance that is integrated for trachoma and other communicable diseases according to each country's needs.
5. Publish results of surveys and advances in interventions in all countries that are carrying out actions to eliminate trachoma, including countries that are implementing rapid assessments.
6. Train primary health care personnel in the identification of TT cases using the standardized methodology for TT surveys and identify integration opportunities to carry out active TT case-finding (e.g., mass drug administration for NIDs).
7. Strengthen the capacity for quality TT surgeries, including advocacy with local ophthalmology and ocular plastic surgery societies, utilization of WHO standardized procedures, and standardized training of surgeons in the use of tools such as experimental surgery models.

PAHO/WHO is urged to:

1. Support the development of a proposal on the approach to trachoma and other ocular pathologies with blinding potential for populations in remote areas (e.g. Amazon Initiative).
2. Work with partners and allies on the validation and use of new technologies for training on trachoma diagnosis and the performance of quality TT surgery, to increase capacity in the Region.
3. Maintain technical cooperation actions to countries, including countries that are implementing trachoma rapid assessments, to define mapping actions and potential integrated interventions.
4. Make available the training manual on the implementation of TT surveys for countries that are carrying out active TT case-finding, as a tool to strengthen their capacity.
5. Maintain advocacy with Ministries of Health and other partners and allies, to finance and implement the Plan of Action to Accelerate Efforts toward the Elimination of Trachoma in the Americas 2018-2022.

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1. PROGRESS TOWARD THE ELIMINATION OF TRACHOMA AS A PUBLIC HEALTH PROBLEM

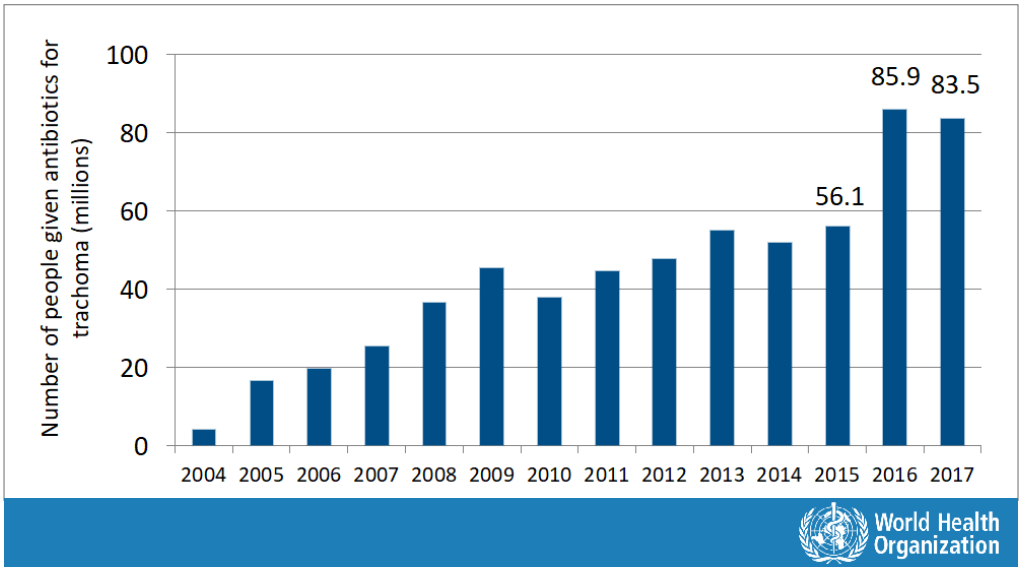
1.1. Progress at the global and regional levels

Validation of the elimination of trachoma as a public health problem in seven countries (Cambodia, Ghana, Mexico, Morocco, Nepal, Oman, and the Lao People's Democratic Republic) demonstrates global and regional progress in the fight against trachoma. Countries' use of surveys to monitor the elimination of trachoma has provided up-to-date information from population-based surveys, from actions carried out in the post-elimination phase, and from the implementation of activities under the SAFE (Surgery, Antibiotics, Facial cleanliness and Environmental improvement) strategy. The 2017 global progress report on the elimination of trachoma was published in the WHO Weekly Epidemiological Record in June 2018 *(6)*.

In 2017, an estimated 165 million people around the world were living in districts where trachoma was a public health problem (prevalence of trachomatous inflammation - follicular or TF ≥ 5% in children ages 1 to 9 years) and required the implementation of actions such as antibiotic treatment and improved facial hygiene and environmental conditions. During 2017, 83.5 million people worldwide received antibiotics for the treatment of trachoma (Figure 1). In the Region of the Americas, of the 144 districts that required antibiotic treatment because they had a TF prevalence ≥ 5%, 16% of these districts had treatment coverage ≥ 80%.

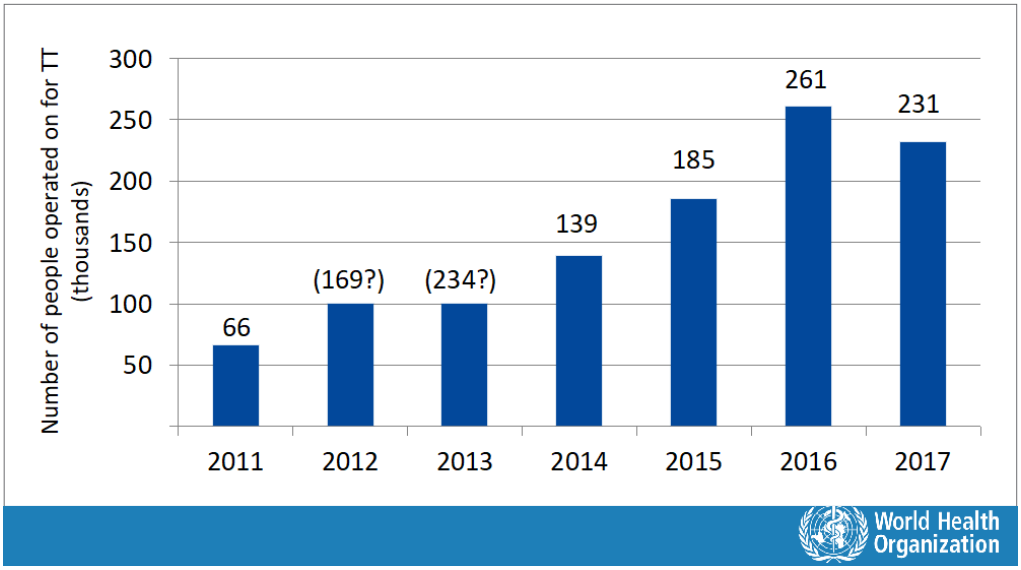
Worldwide, the number of people with TT that required surgery decreased by 11% between 2016 and 2017, from 260,759 to 231,447 people, respectively (Figure 2). Of the 33 countries that reported TT surgeries in 2017, 26 reported data disaggregated by sex, which corresponded to 96% of the people who received TT surgery. According to the data available, 67% of those who received surgery were women.

Figure 1. Number of people worldwide (in millions) who received antibiotic treatment for trachoma, 2004-2017. .



Source: Figure presented at the meeting by Dr. Anthony Solomon, WHO advisor on trachoma.

Figure 2. Number of people worldwide (in thousands) who received surgery for trachomatous trichiasis (TT), 2011-2017.



Source: Figure presented at the meeting by Dr. Anthony Solomon, WHO advisor on trachoma.

Factors that have contributed to progress toward the elimination of trachoma at the global level include: 1) the use of innovative tools such as experimental surgery models when training TT surgeons, to improve surgery results; 2) collaboration with the WASH strategy to maximize the efficiency of interventions to reduce transmission of the infection; and 3) the generation of evidence through the monitoring of trachoma programs using tools such as serology for trachoma surveillance.

In October 2016, the PAHO/WHO Directing Council approved the Plan of Action for the Elimination of Neglected Infectious Diseases and Post-Elimination Actions 2016-2022 (7). In this Plan, Member States renewed their commitment to the goal of elimination of trachoma as a public health problem for the Region. The principal achievements in the Region between 2016 and 2017 were as follows:

- Mexico received WHO validation of trachoma elimination.
- Guatemala conducted an impact assessment survey in districts with trachoma and proposed a road map for compiling evidence that will allow the country to document elimination nationwide.
- Colombia moved forward in the identification of districts with trachoma in the Amazon area and the Orinoquía region. It also maintained actions that are part of the SAFE strategy, including integrated campaigns to carry out surgery for TT and other ocular health problems.
- Brazil initiated actions to strengthen trachoma elimination, prioritizing the following actions: review of and adjustments to the information system to improve the registration and monitoring of indicators that would demonstrate trachoma elimination; active TT case-finding and implementation of TT surgery, including intensified actions in areas with indigenous populations; and the implementation of population-based surveys to reevaluate the epidemiological situation of trachoma in priority areas of the country between 2018 and 2019.
- Peru documented the occurrence of trachoma as a public health problem for the first time in the country. It was in the department of Loreto, a district located on the border with Brazil and Colombia.
- Paraguay and Venezuela, which share borders with countries that have districts with trachoma, carried out rapid assessments in communities with conditions of vulnerability and will implement interventions based on the assessment results.
- The use of the Tropical Data platform, which supports the planning, implementation and data analysis of population-based trachoma surveys, expanded to Brazil, Guatemala and Peru.

1.2. Specific progress and challenges by country in the Region of the Americas

1.2.1. Countries where trachoma is a public health problem

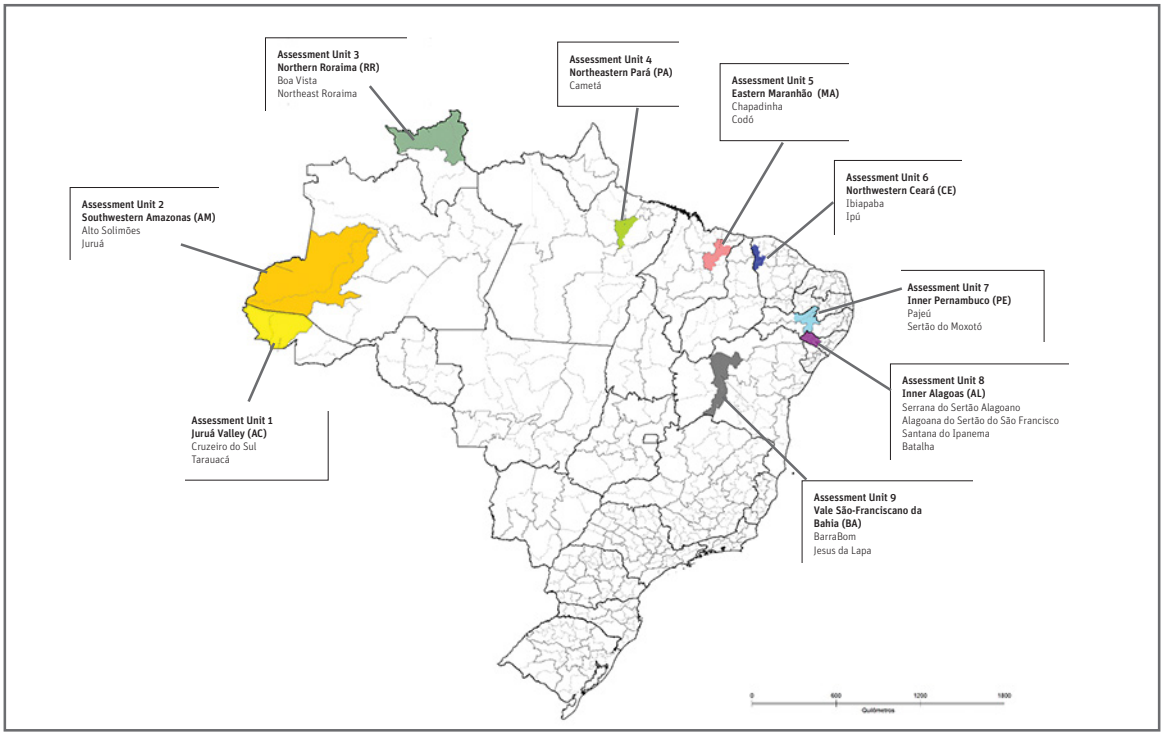
Brazil

According to 2017 data reported by the country to WHO, there are 4.9 million people living in districts where trachoma is considered to be endemic. Of a total of 119 endemic districts (municipalities, according to the classification in Brazil), 72 have TF prevalence rates between ≥ 5.0% and < 10.0%, 42 have prevalence rates between ≥ 10.0% and < 30%, and five have prevalence rates of 30% or higher.

Following WHO recommendations, and with the commitment to improve the quality of information on trachoma, Brazil will carry out population-based surveys to evaluate progress toward elimination. To this end, Brazil developed a protocol following PAHO/WHO recommendations and trained and standardized trachoma examiners and recorders with the support of the Ministry of Health and Social Protection of Colombia, PAHO/WHO, and the Tropical Data Initiative.

Population surveys will be implemented in two groups of districts (Figure 3): 1) districts with conditions such as history of trachoma and districts with populations living in rural areas who experience poverty and have deficient access to water; and 2) districts with indigenous populations. In 2018, the surveys will be carried out in the first group of districts and in 2019, in the second group of districts.

Figure 3. Evaluation units selected for the trachoma population-based surveys, Brazil 2018.



Source: Figure presented at the meeting by Carmelita Ribeiro Filha, Ministry of Health of Brazil.

The Ministry of Health has maintained the implementation of SAFE strategy actions. Some of the advances between 2016 and 2017 and plans for 2018 are as follows:

- Review and adjustment of the information system and monitoring of TT cases and TT surgeries.
- Reinforcement of active TT case-finding, especially in areas in the Amazon with indigenous populations.
- Advocacy with ophthalmologists and oculoplastic surgeons to better position trachoma elimination in the country and improve the quality of TT surgeries.
- Continuation of integrated national campaigns for leprosy, soil-transmitted helminth infections, trachoma, and schistosomiasis at schools in prioritized municipalities. In 2018, the country will evaluate the campaigns to make decisions about their impact and sustainability.
- Continued promotion and improvement of facial and personal hygiene, within the framework of the integrated campaigns.
- Implementation of actions to improve access to water and sanitation, led by the sectors responsible at the national and subnational levels.

The Ministry of Health of Brazil recognizes that its main challenge is the availability of reliable information to demonstrate the epidemiological situation of trachoma in the country. Although the surveys that the country will implement between 2018 and 2019 will be essential for adjusting the data, Brazil faces important challenges in the information component for monitoring TT cases and TT surgeries and for post-surgical monitoring.

Guatemala

In 2011, Guatemala identified two districts in Sololá with TF prevalence rates between ≥ 5.0% and < 10%, Xejuyup and Guineales. Based on those results, the country implemented a round of mass administration of azithromycin in these two districts in 2014. By integrating actions with the "Zero hunger" pact, the country achieved antibiotic administration coverage over 90%.

Following PAHO/WHO recommendations, Guatemala trained and standardized trachoma recorders and examiners in 2016 using the Tropical Data Initiative's methodology, with the collaboration of the Ministry of Health and Social Protection of Colombia and PAHO/WHO. In 2017, Guatemala conducted an impact assessment survey in districts with trachoma and found a TF prevalence of less than 5.0% in Xejuyup and Guineales. With these results, and based on trachoma surveillance recommendations (8), the districts will enter a post-treatment surveillance phase for two years. During these two years, interventions to improve facial hygiene and environmental conditions will continue, as will active TT case-finding to offer surgery.

To achieve the elimination of trachoma as a public health problem, the Ministry of Public Health and Social Welfare (MSPAS) designed a road map. Advances in the SAFE strategy between 2016 and 2017 include:

- Inclusion of trachoma in the National Standards of Eye Health, with support from the National Eye Health Commission.
- Training of MSPAS staff on TT diagnosis, strengthening their capacity for active case-finding.

- Organization of a surgery campaign to treat TT cases, with the presence of an oculoplastic surgeon trained in the bilamellar tarsal rotation technique.
- Implementation of integrated actions for the promotion of hygiene and basic sanitation at schools with the Ministry of Education.

MSPAS recognizes the need to sustain and strengthen the actions laid out in the road map in order to sustain the elimination process. In 2019, the Ministry plans to carry out the National Survey of Priority Infectious Diseases with children ages 6 to 14 in public schools in Guatemala. The survey will include serological laboratory tests that use multiplex-bead assay technology, in which serology for trachoma surveillance will be included. The country recognizes the challenge of improving the management of the convening and implementation of TT surgery campaigns in order to increase the participation of people diagnosed with TT. Another challenge is to carry out surveillance in populations outside of known endemic areas in order to document the absence of trachoma in the entire country and support a future validation process.

Peru

In 2017, Peru documented the occurrence of trachoma as a public health problem in an evaluation unit formed by the provinces of Putumayo, Mariscal Ramón Castilla and Requena, all located in the department of Loreto on the border with Brazil and Colombia (Figure 4). The evaluation found a TF prevalence between ≥ 5.0% and < 10% in children ages 1 to 9 and a TT prevalence of 0.13% in adults ≥ 15 years of age.

Figure 4. Map of the provinces of the evaluation unit where the trachoma prevalence survey was carried out in the department of Loreto, Peru, 2017.

Source: Figure presented at the meeting by Dr. Harvy Alberto Honorio, responsible for the Eye Health and Blindness Prevention Health Strategy, Ministry of Health of Peru.

Based on these findings, the Ministry of Health of Peru (MINSA), in collaboration with the Regional Health Directorate (DIRESA) of Loreto and PAHO/WHO, has moved forward with the following actions and has the following plans:

- Organization of a surgery campaign for TT cases detected during the prevalence survey, with the participation of the ophthalmological service from the Hospital de Apoyo in the city of Iquitos, to be held in August 2018.
- Request of a donation of azithromycin from WHO to carry out MDA for approximately 100,000 people in the three provinces evaluated in the survey. The MDA will be carried out in 2019.
- Inclusion of tetracycline ophthalmic ointment and azithromycin in the National Unified List of Essential Medicines (PNUME).
- To strengthen components F and E of the SAFE strategy: design of educational material with the slogan "I see you well," focused on healthy hygiene practices and eye health care for schoolchildren ages 3 to 11, by MINSA.

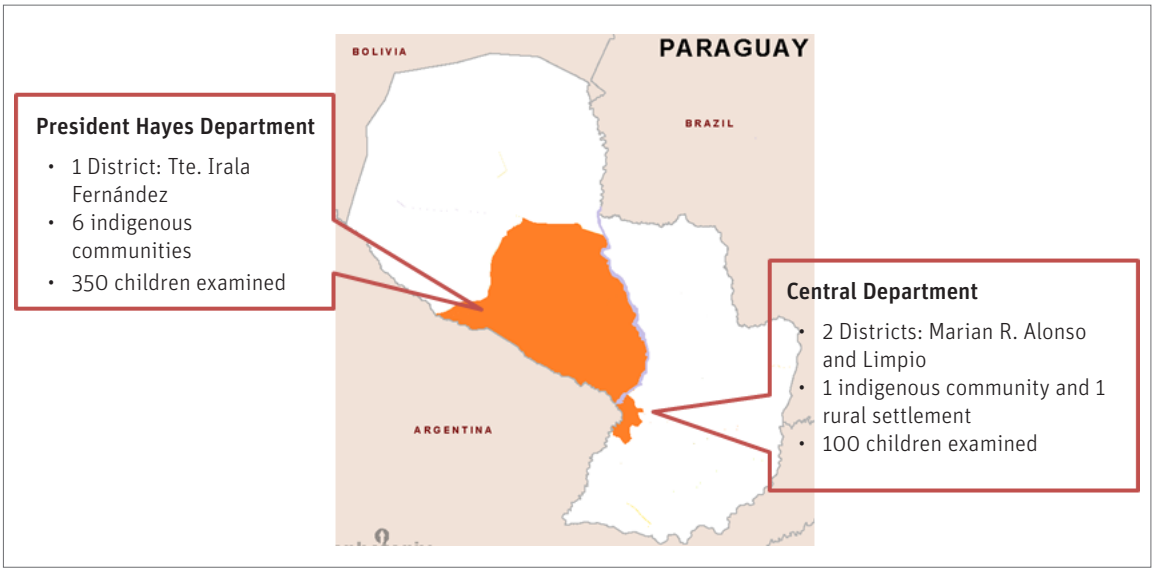
The Ministry of Health recognizes challenges, especially related to: 1) management and activity planning, such as MDA; 2) the need to generate evidence in other areas with vulnerable communities, through the implementation of rapid trachoma surveys; 3) cultural adaptation of instructional materials; and 4) implementation of advocacy activities with regional governments to improve access to water and basic services for the most remote populations.

1.2.2. Countries not known as endemic for trachoma

Paraguay

In 2018, Paraguay initiated trachoma rapid assessments in priority communities in remote rural areas to evaluate the presence of trachoma as a public health problem. Paraguay collaborated with the Visual Health Program, PAHO/WHO, and local governments.

Figure 5. Departments in Paraguay where trachoma rapid assessments had been implemented as of July 2018.

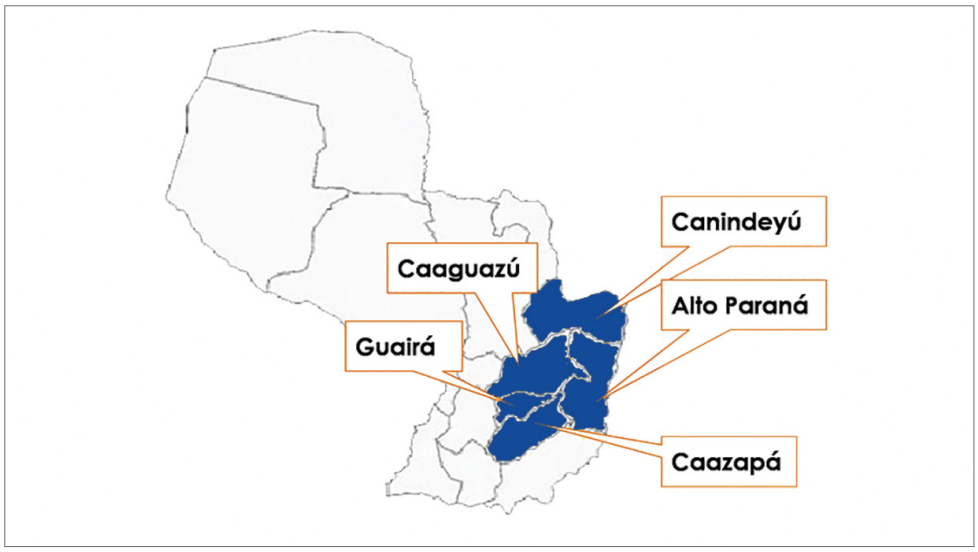


Source: Figure presented at the meeting by Ana Segovia López, delegate of the Ministry of Public Health and Social Welfare of Paraguay.

The Ministry of Public Health and Social Welfare (MSPBS) developed a plan for rapid assessments that identified departments where there were communities living in conditions of vulnerability. As of July 2018, the assessments had covered 450 children ages 1 to 9 living in indigenous communities in the Central and President Hayes departments in the region of the Chaco (Figure 5). Among all of the children examined, 38% were under 5 years of age, 50% were female, and 12% had signs of "dirty face" (nasal secretion and/or ocular secretion). Among the children examined, 44% lived in houses without access to potable water, 32% in houses with a dirt floor, and 15% in houses without electrical service. As of the end of July 2018, no cases of TF had been identified in the communities evaluated.

Before the end of 2018, MSPBS will evaluate communities in five additional departments in which there are indigenous communities and rural settlements that share inequities and social determinants with the departments that were already visited (Figure 6). In 2019, the Ministry plans to evaluate communities in seven additional departments.

Figure 6. Departments of Paraguay where trachoma rapid assessments will be carried out before the end of 2018.



Source: Figure presented at the meeting by Ana Segovia López, delegate of the Ministry of Public Health and Social Welfare of Paraguay.

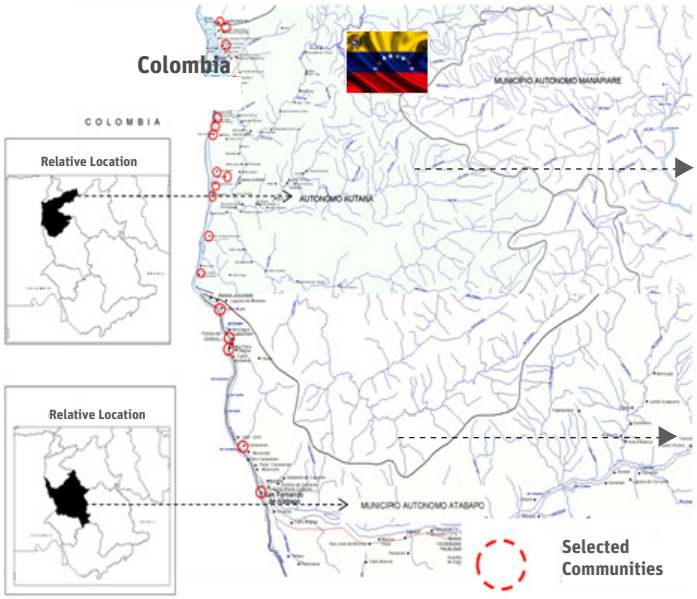
The MSPBS recognizes that its most important challenge is the lack of a budget to implement these activities, since trachoma is not identified as a priority in its work plan. Thus, it is necessary to establish partnerships to integrate trachoma-related activities with activities for other NIDs such as leprosy and soil-transmitted helminth infections. In addition, only a small number of people are trained and certified in trachoma diagnosis.

Venezuela

In 2016, it was recommended that the Bolivarian Republic of Venezuela should implement rapid trachoma assessments in communities in areas bordering Colombia and Brazil, since there are communities that are living in conditions of vulnerability and with great mobility along the border. In 2017, the health team of the Venezuelan National Program for Onchocerciasis Elimination in the Southern Foci reported suspected cases of trachoma in indigenous communities on the border with Brazil. For this reason, the Ministry of People's Power for Health and the Regional Health Directorate of Amazonas state proposed the need to evaluate these priority areas.

In April 2018, following PAHO/WHO recommendations and with the collaboration of the Ministry of Health and Social Protection of Colombia, trachoma examiners were trained and standardized. This allowed the Amazon Center for the Research and Control of Tropical Diseases (CAICET), in collaboration with PAHO/WHO, to design the plan for trachoma rapid assessments in indigenous communities in Amazonas state. The plan proposed the evaluation of priority communities in rural areas of the municipalities of Autana, Atabapo, and Alto Orinoco, in the area along the border with Colombia and Brazil (Figure 7).

Figure 7. Communities in the municipalities of Autana and Atabapo selected for trachoma rapid assessments, Amazonas state, Bolivarian Republic of Venezuela, 2018.



Number	Communities	Age Groups		Total Population
		1 a 4 years old	5 a 9 years old	
1	Isal del Carmen de Ratón	126	97	1.021
2	Guacharaca	37	28	194
3	Sqan Pedro del Orinoco	31	27	195
4	San VIcente	18	16	113
5	Kapuana	14	9	84
6	Munduapo	78	52	145
7	Caño de Grulla de Orinoco	105	87	596
8	Caño Pasa	19	11	86
9	Puerto Samariapo	40	32	254
10	Caño Seje	4	0	21
11	Makua	9	9	75
12	Santa Teresita	33	10	83
13	Santa Rosa del Orinoco	17	10	83
14	Campo Florido	36	31	247
15	Puente Samariago	30	21	163
16	Morganito	11	9	54
Total		**608**	**470**	**2474**

Number	Communities	Grupos de edad		Total Population
		1 a 4 years old	5 a 9 years old	
1	San Fernando de Atabapo	491	489	4.2
2	Caraven	22	16	141
3	Caño Fibra	9	14	76
4	Caño Piojo	13	9	75
5	Caño Mure	69	42	316
Total		**604**	**570**	**612**

Characteristics	Autana Municipality	Atabapo Municipality
Area	12,112 Km²	25,062 Km²
Population 2018	10,813 habitants	11,386 habitantes
Limits	North: Atures municipality, East: Manapiare municipality, South: Atabapo municipality and West: Republic of Colombia	North: Autana municipality, East: Manapiare municipality, South: Alto Orinoco municipality and West: Republic of Colombia

Source: Figure presented at the meeting by Dr. Yuri Andrea Lopez, Amazon Center for the Research and Control of Tropical Diseases (CAICET), Venezuela.

According to preliminary results, in San Fernando de Atabapo, capital of the municipality of Atabapo in Amazonas state, rapid assessments were implemented in four sectors. A total of 173 children ages 1 to 9 were evaluated; 2.3% had TF and 23.1% had signs of "dirty face." There were no cases of TT. In the municipality of Alto Orinoco in Amazonas state, trachoma rapid assessments were implemented in two communities (Orochi and Patausipo). In the community of Orochi, 23 children ages 1 to 9 were examined in the Sanöma/Yanomami indigenous communities. In this community, 13.4% had TF and there was one case of TT. In the community of Patausipo, 19 children ages 1 to 9 were examined and there were no cases of TF. All of the children examined in the two communities had signs of "dirty face."

The country hopes to carry out trachoma rapid assessments in river communities on the border with Colombia and to integrate activities with the Onchocerciasis Program in order to evaluate the indigenous communities of the Alto Orinoco, which are accessible only by air.

In order to strengthen the country's response capacity and its epidemiological surveillance system, trachoma surveillance was included in the Comprehensive Health Care (AIS) course provided to health workers in the regional public system of Amazonas state. The course is managed by the National Program for Onchocerciasis Elimination in the Southern Foci (PNEO-FS).

The country recognizes that the assessment results provide the information necessary to position trachoma on the country's public health agenda, since the high burden of diseases like malaria, onchocerciasis, and measles reduces the visibility of trachoma as a public health problem. One of the greatest challenges is intersectoral coordination to expand case-finding and gain access to the most remote communities, which have scattered populations and limited access to health services and are located primarily in border areas that are accessible only by river or air. In addition, the cultural patterns of indigenous communities, especially the Sanöma /Yanomami people, require a binational approach.

1.2.3. Countries in the post-elimination surveillance phase

Mexico

In April 2017, after meeting the indicators highlighted by PAHO/WHO, Mexico received validation of the elimination of trachoma as a public health problem. However, despite implementing continued promotion and prevention activities, the country has identified difficulties and challenges in the post-validation process.

After elimination, trachoma was excluded from the list of NIDs prioritized in the state of Chiapas, a change that led to the loss of financing for the Institutional Trachoma Program and to limitations in the continuity of the activities proposed in the application presented to PAHO/WHO. The country continues to face challenges in improving access to surgical and visual health services for patients diagnosed with TT and in monitoring people who reject the surgical procedure.

The National Center for Preventive Programs and Disease Control (CENAPRECE) recognizes that the country should: 1) review strategies to sustain integrated epidemiological surveillance actions during the post-validation stage; 2) guarantee job stability for people working in the trachoma brigades; 3) integrate the brigades' actions with the activities for other NIDs such as malaria, to provide continuity for trachoma care and monitoring; and 4) include serologic surveillance of trachoma as a complementary tool for activities during the post-validation stage.

Mexico is participating in the pilot project to use multiplex -bead assay technology in serological studies of several communicable diseases. In the pilot, serology for trachoma was included in municipalities in three states including Chiapas, the endemic area for trachoma. Although the survey was implemented in school-age children, it is expected that the serological information will contribute to the analysis of the immunological profiles of the formerly endemic area. Results will be analyzed before the end of 2018.

2

2. INNOVATIVE TOOLS FOR TRACHOMA ELIMINATION

2.1. Proposal for the identification of areas for trachoma mapping in the Region of the Americas

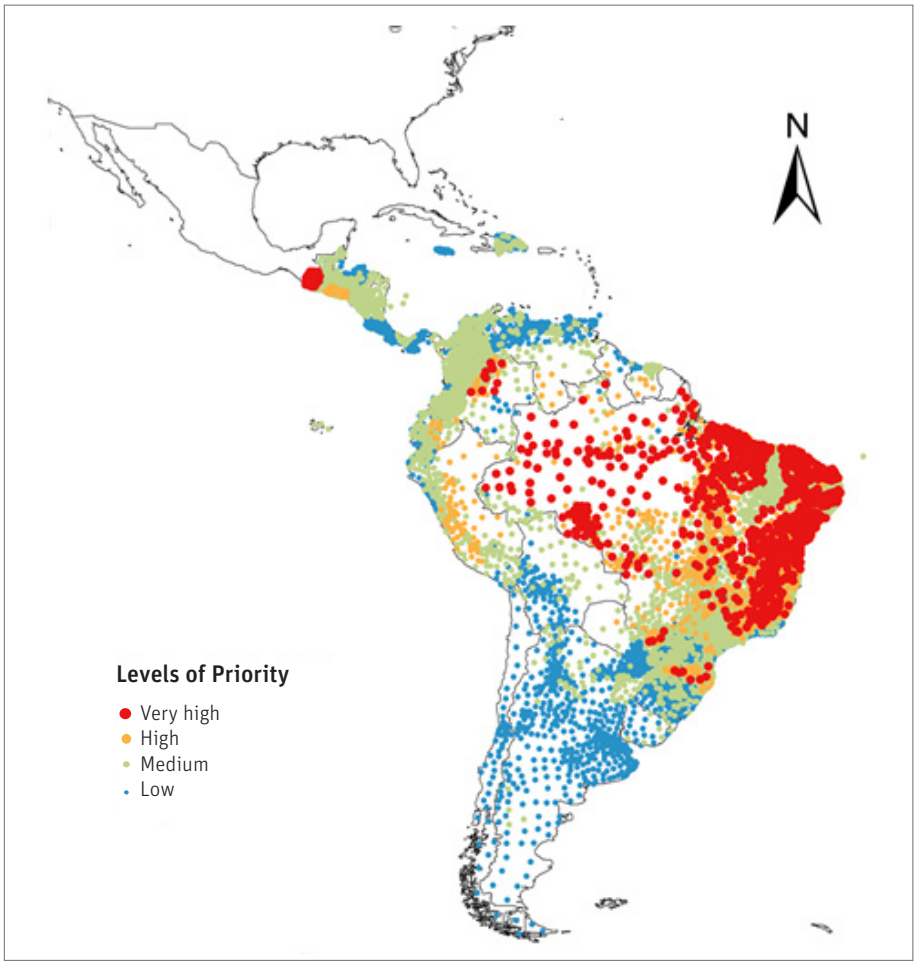
To achieve the goal of trachoma elimination in the Region of the Americas, it is necessary to understand the epidemiological situation in all of the Region's countries, not only those that have reported trachoma as a public health problem in recent decades. Given this goal, PAHO/WHO, in collaboration with The Dana Center for Preventive Ophthalmology at Johns Hopkins University, WHO Collaborating Center for the prevention of blindness and visual impairment, developed a proposal to identify geographic areas with populations living in conditions of vulnerability in 10,090 municipalities across 22 countries.

This proposal developed a municipality prioritization scale using an algorithm that combines three types of information. First, a trachoma vulnerability index was constructed, as a categorical variable (low, moderate, and high) calculated for each municipality based on the percentile distribution of three risk factors for the presence of trachoma: 1) proportion of households without access to safe water; 2) proportion of households without access to basic sanitation; and 3) proportion of people with a deficient level of education. Municipal-level information was obtained from population and housing censuses of the 22 countries included in the study. Second, a variable was created to represent whether the municipality borders areas with trachoma; this is a dichotomous variable (yes, no) determined by whether each municipality shares borders with municipalities known as being endemic for trachoma. The information for this variable was obtained from forms for monitoring trachoma elimination (reported by countries to PAHO/WHO) and construction of the variable relied on the PAHO/WHO Atlas of NIDs. Third, a variable was created based on historical reporting of trachoma; this is a dichotomous variable (yes, no) based on historical evidence of the occurrence of trachoma in countries without current evidence of the disease. This variable was constructed using information published between 1987 and 2015 as part of a literature review carried out by the Dana Center and PAHO/WHO (unpublished data). In this study, Caribbean countries were not included due to lack of data at the municipal level for the calculation of the vulnerability to trachoma index.

The proposal produced significant results for different groups of countries. In three countries where trachoma is recognized as a public health problem (Brazil, Colombia and Guatemala), 1,053 municipalities were identified as very high priority for documenting the occurrence of trachoma. In six countries that are not recognized as endemic for trachoma (Ecuador, El Salvador, Guyana, Paraguay, Suriname and

Venezuela), 183 municipalities were identified as very high priority for documenting the occurrence of trachoma. In addition, 677 municipalities in nine additional countries were identified as moderate priority for mapping (Argentina, Belize, Bolivia, Chile, Honduras, Nicaragua, Panama, the Dominican Republic and Uruguay) (Figure 8).

Figure 8. Municipalities in Latin American 22 countries where it is necessary to document the presence of trachoma.



Source: Figure presented at the meeting by Dr. Martha Saboyá, PAHO/WHO regional advisor on the epidemiology of neglected infectious diseases.

It is anticipated that this proposal will encourage countries to join efforts with research groups to continue developing innovative tools to accelerate trachoma mapping efforts, using tools such as serological surveillance, photographic images to close the gap in training examiners, and statistical modeling.

2.2. New technologies for grading trachoma with an image capture and processing system

Acquiring and maintaining sufficient competencies to conduct an eye examination and correctly assess the clinical signs of trachoma continues to be a worldwide challenge. Mapping and surveys are carried out every two to three years and there are few available sites for the training and standardization of examiners, who lose their skills over time. For this reason, Johns Hopkins University developed an image capture and processing system (ICAPS) as a tool for improving TF diagnostic capabilities (Figure 9).

Figure 9. Image capture and processing system (ICAPS) for trachoma diagnosis.

Source: Figure presented at the meeting by Dr. Sheila West, Dana Center for Preventive Ophthalmology, Wilmer Eye Institute, Johns Hopkins University School of Medicine.

ICAPS requires people who are trained in photography, eyelid eversion, cell phone use, and transmission of information to a virtual image reading center where an expert reviews and grades the signs using the WHO grading scale. The information from the images includes a bar code to match the images with the corresponding survey.

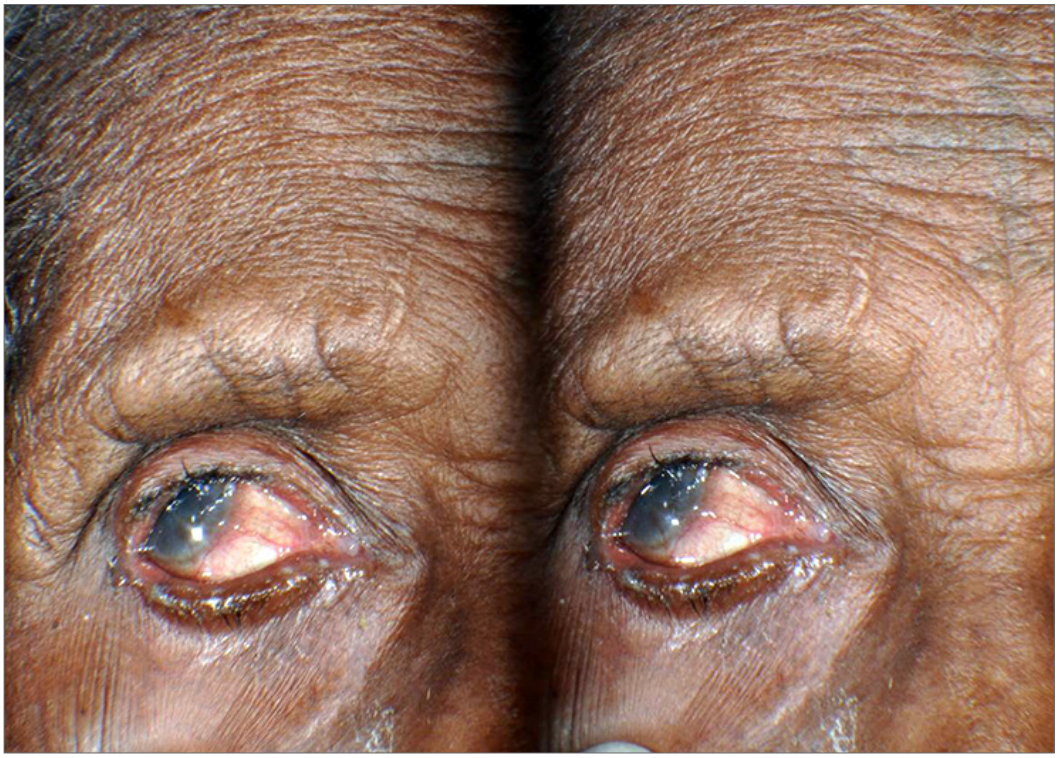
This innovative proposal would reduce the challenge of training TF examiners. This proposal is still in the design phase and it should be validated between 2018 and 2019.

2.3. New technology for training trachoma graders in the recognition of trachomatous trichiasis

The result of active TT case-finding is part of the evidence that demonstrates progress toward the goals of trachoma elimination. However, recognition of TT cases can be a challenge in places with low prevalence of trichiasis.

A very low-cost training module was developed to improve TT detection. This module combines the presentation of photographs in PowerPoint to observe 3D trichiasis images with the use of 3D glasses. The module has been incorporated into the Tropical Data Initiative training manual for TT-only surveys (Figure 10).

Figure 10. Photography for the use of 3D glasses to detect TT, from the Tropical Data Initiative training manual.



Source: Figure taken from the set of images in the Tropical Data Initiative Training manual for TT detection.

The Tropical Data Initiative offers support to countries interested in carrying out TT surveys using this technology.

2.4. Human Eyelid Analog Device for Surgical Training and Skills Reinforcement in Trachoma (HEAD START)

HEAD START, the Human Eyelid Analog Device for Surgical Training and skills Reinforcement in Trachoma, is a method recommended by WHO. The device is used to acquire and maintain the surgical abilities necessary for treating TT cases. With HEAD START, experimental surgery is used to train health personnel who perform TT corrective surgery. Training with this device lasts three hours and makes use of a mannequin with removable eyelids. The method helps both surgeons in training and experienced surgeons to apply and evaluate their surgical technique for TT treatment, step by step (Figure 11) *(9)*.

Figure 11. Human Eyelid Analog Device for training in TT surgery.

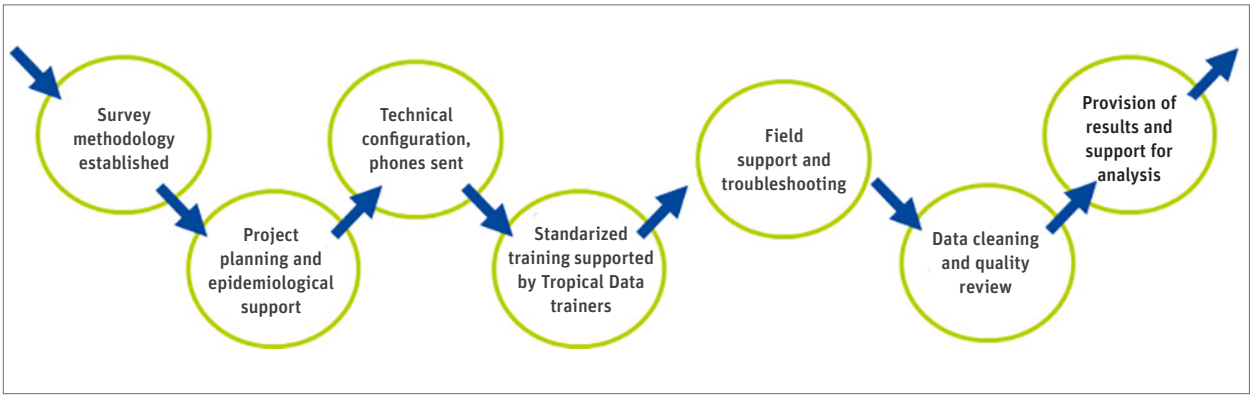
Source: Figure presented at the meeting by Dr. Shannath Merbs, professor of ophthalmology and oncology, Wilmer Eye Institute, Johns Hopkins University School of Medicine.

The device can be purchased by trachoma programs to promote its use in training surgeons who provide support in correcting TT.

2.5. Tropical Data Initiative: innovation in the development, implementation, and data analysis of trachoma surveys

The Tropical Data Initiative supports countries that plan to implement trachoma surveys (baseline, impact, surveillance, and TT surveys) in order for them do so in a standardized manner and in accordance with WHO recommendations. This initiative supports ministries of health in: development of survey protocols; training teams to implement survey procedures in the field; standardized, high-quality data collection; and analysis of survey results. The initiative provides training, technical support and data management support to national programs (Figure 12).

Figure 12. Tropical Data Initiative



Source: Figure presented at the meeting by Dr. Emma Harding-Esch, associate professor in the Department of Clinical Research, Faculty of Infectious and Tropical Diseases, London School of Tropical Medicine and Hygiene. Tropical Data Coordinator.

Between 2016 and July 2018, the Tropical Data Initiative supported 822 surveys in 29 countries and has expanded its services and integrated them with other NIDs, such as soil-transmitted helminth infections, schistosomiasis, and lymphatic filariasis.

The initiative uses mobile platforms to capture data from the survey forms. This use of technology facilitates the real-time monitoring of both field operations and the collected data, improves the quality of the collected data, accelerates data cleaning and consolidation, and allows timelier production of survey results.

Only ministries of health have access to data and, together with Tropical Data professionals and technical personnel, they clean, analyze, and produce the results. The nominal data are used exclusively by the ministries of health and the global data of district-level TF and TT prevalence rates are included in the Trachoma Atlas.

In July 2017, Peru conducted an integrated trachoma and soil-transmitted helminth infection survey in rural communities in the department of Loreto, with support from the Tropical Data Initiative. Data was collected from 1,221 children for trachoma and from 1,110 children for soil-transmitted helminth infection. The platform provided: 1) methodological support for the planning phase and the training of survey staff; 2) technical support during field activities and in the preparation and cleaning of databases; and

3) support for the management and analysis of results. The country recognizes that, despite the logistic complexities involved in training and operations, this technology helped to standardize and accelerate processes and led to rapid results.

2.6. Multiplex Initiative and serology for post-elimination surveillance of trachoma

In 2016, with PAHO/WHO support, the Multiplex Initiative for a multiplex bead assay test was introduced in the Region of the Americas. This test allows for the analysis of up to 100 antigens in a single dry blood sample from an individual. The test, based on the detection of IgG antibodies in an assay, facilitates integrated surveillance for multiple infectious diseases including trachoma. Serology is a surveillance tool that is both sensitive and specific for the evaluation of *Chlamydia trachomatis* transmission in communities, especially in sites with low prevalence of trachoma following MDA *(10)*.

The age-specific prevalence rates of the serological response to *Chlamydia trachomatis* antigens at the population level represent an approximate measure of transmission intensity and an early indicator of transmission re-emergence. The methodology that uses the multiplex bead test, which is being implemented in studies in Brazil, Mexico, and Paraguay, is potentially useful for post-treatment monitoring and evaluation, post-validation surveillance, screening as part of integrated surveys, and operational research.

Serological surveillance of trachoma integrated with other infectious diseases in the Region of the Americas will complement the tools used for the monitoring and evaluation of disease elimination targets.

2.7. Support tool for evaluating follicle size when grading trachomatous inflammation–follicular

To improve the reliability of survey data and support examiners in the recognition of TF, a "guide" sticker was designed. The sticker contains the number and size of follicles that represent TF, defined as the presence of five or more follicles of at least 0.5 mm in the tarsal conjunctiva.

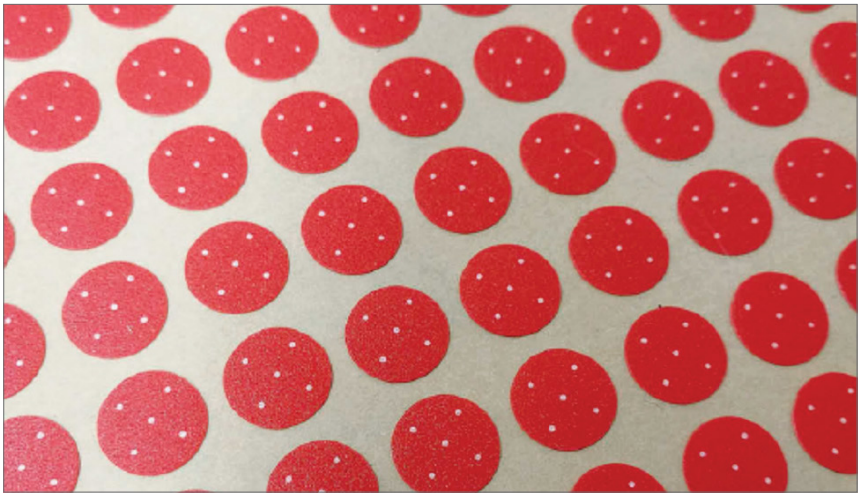
The sticker is a circle with five white dots that each have a diameter of 0.5 mm, located on a background color that resembles the color of the inflamed conjunctiva. This sticker can easily adhere to the surface of the thumbnail, is resistant to washing with alcohol gel or water and soap, and requires minimum care (Figures 13 and 14) *(11)*.

It is recommended that countries use the sticker to help TF examiners during surveys that are implemented throughout the cycle of the elimination program.

Figure 13. Examination technique for the identification and diagnosis of patients with TF using the follicle size "guide" sticker.

Source: Figure presented at the meeting by Dr. Anthony Solomon, WHO advisor on trachoma.
Published in: https://doi.org/10.1080/09286586.2018.1500616.

Figure 14. Guide stickers with follicles of size 0.5 mm.



Source: Figure presented at the meeting by Dr. Anthony Solomon, WHO advisor on trachoma.
Published in: https://doi.org/10.1080/09286586.2018.1500616.

2.8. Surveys for trachomatous trichiasis

With the goal of supporting countries in the compilation of evidence toward the elimination of trachoma as a public health problem, WHO has published guidelines for the implementation of TT surveys. These are population-based surveys designed to estimate an expected prevalence of TT of 0.2% in adults ≥ 15 years of age with a precision of ± 0.20%, using a design effect of 1.47.

There are four scenarios in which a TT survey should be carried out:

- If in the baseline survey, 1) TF prevalence in children ages 1 to 9 years is < 5% and 2) TT prevalence in adults is ≥ 0.2% after any intervention, re-estimation of TT prevalence is recommended.
- If in the surveillance survey, 1) estimated TF prevalence in children ages 1 to 9 years is < 5% and 2) TT prevalence in adults is ≥ 0.2% after any intervention, re-estimation of TT prevalence is recommended.
- If in a survey during any stage of the program, TT prevalence was estimated using a questionable methodological approach.
- If in the baseline survey, 1) estimated TF prevalence in children ages 1 to 9 years is ≥ 30% and 2) TT prevalence in adults is ≥ 0.2%, implementation of components A, F, and E of the SAFE strategy for at least 5 years is recommended prior to conducting an impact assessment survey to re-measure TF prevalence. During this time, the program can carry out a TT survey to evaluate advances and adjust component S, if required.

The diagnostic criteria used in the survey framework are: 1) at least one eyelash touching the globe in the upper or lower eyelid or evidence of recent epilation, associated with the presence of trachoma scarring in the same eye; or 2) the inability to revert the eyelid to examine the conjunctiva *(12)*.

3

3. SURGERY FOR PEOPLE WITH TRACHOMATOUS TRICHIASIS: EXPERIENCES IN THE REGION OF THE AMERICAS

3.1. Experience of Colombia during integrated surgery campaigns for trachomatous trichiasis and other visual impairment problems

In 2017, the Ministry of Health and Social Protection of Colombia––with support from PAHO/WHO and insurers, and with the leadership of the School of Ophthalmology of the Barraquer Institute of America––intervened in the urban area of Mitú, Vaupés, a known trachoma focus. The ministry carried out a surgical campaign that integrated trachoma actions with actions to prevent cataract-associated blindness, in order to increase and improve the community's access to visual health care services.

A group of health workers trained in the diagnosis of cataracts, pterygium, TT, and visual screening examined 248 people over age 50. They identified 83 individuals with visual acuity less than 20/200 in at least one eye due to cataracts and seven individuals with TT. Of the 83 people screened, 37 went to their ophthalmology assessment, nine rejected the procedure, nine had cataract surgery, and seven had trachoma surgery.

The integration of trachoma activities in the visual health platform offers an opportunity to prioritize care for marginalized indigenous populations and for populations in areas with limited human resources and without access to services. However, to improve participation, it is necessary to increase and improve visual health promotion and prevention information and activities that facilitate the delivery of services and communities' acceptance of these services.

3.2. Brazil's experience with surgery for trachomatous trichiasis in indigenous communities

In Brazil, the indigenous area in the north of the country poses a challenge for finding and identifying TT cases. The area is difficult to access and the communities have nomadic characteristics, moving freely across borders and making it difficult to locate and monitor the population.

In the Alto Río Negro region, between 2016 and 2017, technical personnel from the indigenous health care teams trained in the identification of TT cases examined 1,549 people over 15 years of age and found 43

suspected TT cases. Of these, 32 were confirmed and operated on by ophthalmologists. Of the surgical cases, 14 received follow-up at nine months post-surgery.

The Ministry of Health of Brazil recognizes that care for indigenous communities is a challenge since there are logistical difficulties and high turnover of health personnel. Careful intersectoral planning and logistical coordination, greater training to expand active case-finding, and increased work with local professionals to increase communities' participation and acceptance of surgery are all needed.

3.3. Experience of Guatemala with surgery for trachomatous trichiasis in indigenous communities

In 2017, the Ministry of Health of Guatemala, as part of the trachoma elimination program and with PAHO/WHO support, carried out a surgical campaign to treat diagnosed TT cases identified during the impact survey conducted in the two known trachoma districts.

Of the 11 patients identified, only two accepted the surgical procedure and were transferred to the country's capital for surgery at the Rodolfo Robles Valverde Hospital. An oculoplastic surgeon from Colombia was present during the surgeries.

Guatemala recognizes that it should improve its strategies for recruitment, awareness-raising, and monitoring of TT patients. It should provide information about the benefits of surgery in their native language and decentralize surgical care to promote greater acceptance of the surgery in indigenous communities.

4

4. PROPOSED REGIONAL PLAN TO ACCELERATE TRACHOMA ELIMINATION IN THE REGION OF THE AMERICAS

With the goal of eliminating trachoma as a public health problem in the Region of the Americas, a Plan of Action was designed for the 2018-2022 period. The Plan is based on the experience of the endemic countries and the challenges in documenting the possible occurrence of trachoma in non-endemic countries. The Plan seeks to accelerate trachoma documentation efforts in the Region as part of the process of documenting elimination in all countries, strengthening capacities for implementing the SAFE strategy, and establishing surveillance measures.

During the meeting, the Plan was reviewed and considered by the delegates of the participating countries. The main general observations were as follows:

- All countries agreed that the Plan meets the objectives and expectations.
- Proposal to strengthen advocacy activities at the regional, national, and sub-national levels to position trachoma on countries' public health agendas and help raise awareness among health care personnel.
- Proposal to include a specific objective to guarantee trachoma surveillance during the post-elimination phase.
- Proposal to strengthen training for primary care personnel with an integrated approach to NIDs, trachoma, and eye health.
- Proposal to include surgical training in the Region's standardization processes.
- Proposal to include clear, specific integration and innovation activities in the Plan.
- Proposal to disseminate clear criteria for the implementation of trachoma rapid assessments and for the suspension of case-finding.
- Proposal to continue using the Tropical Data Initiative tools in the Region and to evaluate their potential use in trachoma rapid assessments.
- Proposal for members to continue their research activities and strengthen the use of new tools.

- Proposal for PAHO/WHO to lead high-level regional meetings to integrate the technical component of NIDs with sectors such as water, sanitation, and hygiene and with other sectors that have responsibilities related to social determinants.

The Plan will be modified by the PAHO/WHO Regional Neglected Infectious Diseases (NIDs) program and shared with countries to receive their input. Once the Regional Plan is approved, PAHO/WHO will initiate advocacy processes with partners, allies, donors, and ministries of health to obtain financing and advance toward the proposed objectives.

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ANNEXES

LIST OF PARTICIPANTS

INTERNATIONAL ORGANIZATION DELEGATES AND PARTNERS:

Sheila West
Vice Chair for Research
El Maghraby Professor of Ophthalmology
Dana Center for Preventive Ophthalmology
Wilmer Eye Institute
Johns Hopkins School of Medicine
600 N Wolfe St
Baltimore, MD 21287, United States
Tel: +1 410.955.2606
Email: shwest@jhmi.edu

Beatriz Muñoz
Associate Professor Wilmer
Eye Institute
Johns Hopkins School of Medicine
600 N Wolfe St
Baltimore, MD 21287, United States
Email: bmunoz@jhmi.edu

Shannath Merbs
Professor of Ophthalmology and Oncology
Wilmer Eye Institute
Johns Hopkins University School of Medicine
600 N Wolfe St
Baltimore, MD 21287, United States
Tel: +1 410.955.1113
Email: smerbs@jhmi.edu

Emma Harding-Esch
Associate Professor
Chief Scientist, Tropical Data
London School of Hygiene & Tropical
Medicine Faculty of Infectious & Tropical
Diseases Clinical Research Department
Keppel Street
London WC1E 7HT, United Kingdom
Tel: +44 (0) 20.7612.7982
Email: emma.harding-esch@lshtm.ac.uk

Diana L. Martin
Research Microbiologist
Centers for Disease Control and Prevention
1600 Clifton Road NE
Bldg. 23, Room 10-163, MS D-65
Atlanta, GA 30329, United States
Tel: +1 404.718.4147
Email: hzx3@cdc.gov

Danny Haddad
Chief of Program Orbis International
520 8th Avenue, 12th Floor
New York, NY 10018, United States
Tel: +1 800.672.4787
Email: danny.haddad@orbis.org

Virginia Sarah
Immediate Past Chair – International
Coalition for Trachoma Control Global
Partnership Executive
The Fred Hollows Foundation
12-15 Crawford Mews, York Street
London W1H 1LX , United Kingdom
Cel: +44 (0) 7902974105
Email: vsarah@hollows.org

Genevieve LaCon
Senior Program Associate
International Trachoma Initiative
The Task Force for Global Health
330 West Ponce de Leon Avenue
Decatur, GA 30030, United States
Tel: +1 404.592.1421
Email: glacon@taskfroce.org

Girija Sankar
Assistant Director of Programs and
Communications International Trachoma Initiative
The Task Force for Global Health
330 West Ponce de Leon Avenue
Decatur, GA 30030, United States
Tel: +1 404.687.5632
Email: gsankar@taskforce.org

COUNTRY DELEGATES:

Carmelita Ribeiro Filha
Coordinación General de Lepra y Enfermedades en Eliminación Ministerio da Saúde de Brasil
Esplanada dos Ministérios Bloco G
Brasília-DF, Brasil
Tel: +55 3315.3686
Email: carmelita.filha@saude.gov.br

Gloria Marina Serrano Chávez
Profesional Normativo del Programa de Tracoma Ministerio de Salud Pública y Asistencia Social
5AV 11-40 Zona 11
Colonia El Progreso
Cuidad de Guatemala, Guatemala
Email: Marinas1412@yahoo.es

José de Jesus Ibarra López
Jefe de Departamento de Oncocercosis y Otras Enfermedades Transmitidas por Vector
Centro Nacional de Programas Preventivos y Control de Enfermedades
Secretaría de Salud de México
Av. Benjamín Franklin No. 132
Col. Escandón. Del. Miguel Hidalgo
México D.F.
Cel: +52 5537995564
Email: ibarrajosejesus@gmail.com

Ana Segovia López
Coordinadora de la Unidad Técnica
Ministerio de Salud Pública y Bienestar Social de Paraguay
Avenida Brasil esq. Fulgencio R. Moreno
Asunción, Paraguay
Tel: +595 021.234096
Cel: +595 0982223213
Email: anasegovialopez@gmail.com

Miguel Arturo Vacchetta, Medico Oftalmólogo
Programa Nacional de Salud Ocular
Ministerio de Salud Pública y Bienestar Social de Paraguay
Avenida Brasil esq. Fulgencio R. Moreno
Asunción, Paraguay
Tel: +595 021.234096
Cel: +595 0985615559
Email: arturovacchetta@gmail.com

Cristiam Armando Carey Ángeles
Director de Epidemiologia
CDC – Epidemiologia
DIRESA Loreto
Av. Abelardo Quiñonez KM 1.5 – Distrito Belén
Iquitos, Perú
Cel: +51 97.546.1519
Email: careyangeles@yahoo.es

José Manuel Salazar Zambrano
Jefe del Servicio de Oftalmología
Departamento de Cirugía, Hospital Iquitos
Cornejo Portugal S/N – Distrito Belén
Iquitos, Perú
Cel: +51 98.470.1914
Email: josemsz@yahoo.com

Marcia Inés Tuesta Gutiérrez
Gerente
IPRESS Caballo Cocha – Provincia Ramon Castilla
DIRESA Loreto
Progreso Nº 425 - Loreto - Ramon Castilla -Caballococha
Iquitos, Perú
Cel: +51 93.762.5201
Email: inestg_17@hotmail.com

Hitler Saavedra Casternoque
Gerente
IPRESS Requena - Provincia Requena
DIRESA Loreto
Malecón Grau Nº 100 - Loreto - Requena – Requena
Iquitos, Perú
Cel: +51 98.551.0706
Email: hitlercito10@hotmail.com

Carlos Calvo Veramendi
Gerente
IPRESS Estrecho – Provincia Putumayo
DIRESA Loreto
Caserío del Estrecho - Loreto - Maynas – Putumayo
Iquitos,Perú
Cel: +51 99.788.7859
Email: carloscalvo2303@gmail.com

Salvith Karen Meléndez
Coordinadora – ESRSOPC
Dirección de Atención Integral de Salud – DAIS
DIRESA Loreto
Av. Abelardo Quiñonez Km 1.5 – Distrito Belén
Iquitos, Perú
Cel: +51 99.789.7151
Email: kmelendez78@hotmail.com

Harvy Honorio Morales
Coordinador Nacional de la Estrategia Sanitaria de Salud Ocular y Prevención de la Ceguera
Dirección Ejecutiva de Prevención y Control de Enfermedades No Transmisibles, Raras y Huérfanas
Dirección General de Intervenciones Estratégicas en Salud Pública
Ministerio de Salud de Perú
Av. Salaverry 801
Jesus María
Lima, Perú
Cel: +51 99.018.3020
Email: hhonorio@minsa.gob.pe

Nilda Trejo Maguina
Equipo Técnico – Estrategia Sanitaria de Salud Ocular y Prevención de la Ceguera
Dirección Ejecutiva de Prevención y Control de Enfermedades No Transmisibles, Raras y Huérfanas
Dirección General de Intervenciones Estratégicas en Salud Pública
Ministerio de Salud de Perú
Av. Salaverry 801
Jesus Maria
Lima, Perú
Cel: +51 99.557.5296
Email: ntrejo@minsa.gob.pe

Hector Shimabuku Yza
Equipo Técnico – Estrategia Sanitaria Nacionl de Salud Ocular y Prevencion de la Ceguera
Dirección Ejecutiva de Prevención y Control de Enfermedades No Transmisibles, Raras y Huérfanas
Dirección General de Intervenciones Estratégicas en Salud Pública
Ministerio de Salud de Perú
Av. La Mar 1851, Dpto. 202
Lima, Perú
Cel: +51 99.539.3723
Email: hshimanbuku@minsa.gob.pe

Yuri Andrea López Médico – Malaria
S.A Centro Autónomo Investigación y Control de Enfermedades Tropicales
Av. Perimetral, Cerro Orinoco, Edf. SACAICET
Puerto Ayacucho, Amazonas, Venezuela
Tel: +58 0248.5210124
Cel: +58 04266389961
Email: Andreitalopezzz25@hotmail.com

PAHO/WHO REPRESENTATIVES:

Anthony Solomon
Medical Officer
Department of Control of Neglected Tropical Diseases
World Health Organization
Avenue Appia 20
1211 Geneva 27, Switzerland
Tel: +41 22.791.2823
Cel: +41 793.220.754
Email: solomona@who.int

Marcos Antonio Espinal
Director
Departamento de Enfermedades Transmisibles y Determinantes Ambientales de la Salud
OPS/OMS HQ-WDC
525 23rd St. NW
Washington, D.C. 20037, USA
Tel: +1 202.974.3850
Cel: +1 202.316.2795
Email: espinalm@paho.org

Martha Saboyá
Asesora, Epidemiologia de Enfermedades Infecciosas Desatendidas
Departamento de Enfermedades Transmisibles y Determinantes Ambientales de la Salud
OPS/OMS HQ-WDC
525 23rd St. NW
Washington, D.C. 20037, USA
Tel: +1 202.974.3875
Email saboyama2@paho.org

Sandra Liliana Talero
Consultora Internacional OPS-HQ
2413 Eastern Avenue, Apt. 505
Baltimore, MD 21224, USA
Cel: +1 410.340.5980
Email: stalero1@jhmi.edu

Isabelle Roger
Asesora, Enfermedades Infecciosas Desatendidas y Lepra
OPS/OMS Brasil
Sector de Embaixadas Norte, Lote 19
Brasília- DF 70800-400, Brasil
Tel: +55 (61) 32519546
Email: rogerisa@paho.org

Juan Carlos Silva
Asesor Regional para la Salud Visual
OPS/OMS
Calle 66 No. 11-50 Piso 6, Edificio Villorio
Bogotá, Colombia
Tel: +57 (1) 3144141 ext. 41146
Email: juasilva@paho.org

Romeo Montoya
Asesor, Enfermedades Transmisibles y Vigilancia de la Salud
OPS/OMS Guatemala
Edificio Etisa, Plazuela España 7a. Avenida 12-23
Guatemala City, Guatemala
Tel: (+502) 2329.4200 ext. 40471
Email: montoyah@paho.org

Maria Jesus Sanchez
Asesora en Enfermedades Transmisibles y Determinantes Ambientales de la Salud
OPS/OMS México
Montes Urales 440, Piso 2
Colonia Lomas de Chapultepec Del. Miguel Hidalgo 11000
México City, México
Tel: +52 55.59800852
Email: sanchezmar@paho.org

Mara Muñoz
Consultora Nacional, Enfermedades Infecciosas Desatendidas
OPS/OMS Paraguay
Edificio “Faro del Río”
Mcal. López 957 Esq. Estados Unidos
Asunción, Paraguay
Tel: +595 (21) 450.495
Email: munozmara@paho.org

Monica Guardo Martínez
Asesora para Enfermedades Transmisibles
OPS/OMS Perú
Los Pinos 251
Urb. Camacho
Lima,Perú
Tel: +51 1.319.5755
Cel: +51 99.376.9354
Email: guardom@paho.org

Edgardo Nepo Linares
Consultor Nacional en Enfermedades Transmisibles
OPS/OMS Perú
Los Pinos 251
Urb. Camacho
Lima, Perú
Tel: +511.319.5700
Cel: +51 99.660.0229
Email: nepoliedg@paho.org

Rafaela Alcalá Torrico
Apoyo Secretarial
OPS/OMS Perú
Los Pinos 251
Urb. Camacho
Lima, Perú
Cel: +51 93.344.1359
Email: rafaela8000@yahoo.com

Alvaro Whittembury Vlasica
Consultor Independiente
OPS/OMS Perú
Residencial Santa Cruz, Bloque K, Dpto 403
San Isidro
Lima, Perú
Tel: +51-1.621.8634
Cell: +51 94.519.8482
Email: alwhittvla@yahoo.com

Angel Manuel Alvarez Valdes
Asesor, Vigilancia Sanitaria, Prevención y Control de Enfermedades
OPS/OMS Venezuela
Avenida 6, Caracas 1060, entre 5ta y 6ta Avenida Transversal
Miranda, Venezuela
Tel: +58 212.206.5040
Email: alvarezan@paho.org

AGENDA

General objective: Analyze the current trachoma situation in the `Region of the Americas` and identify the strategies to accelerate the efforts to eliminate trachoma as a public health problem.

Specific objectives

1. Analyze and to discuss the progress toward the elimination of trachoma in the countries currently known as endemic and the progress in the countries in which one suspects that there is trachoma.
2. Present and analyze the innovative tools for the implementation of the actions for the trachoma elimination.
3. Discuss the strategies to integrate the interventions of trachoma in other platforms of health services.
4. Review and reach a consensus on a proposal for a regional plan to strengthen technical cooperation to face trachoma in the `Region of the Americas`.

Place of the Meeting: Hotel Sol de Oro, Calle San Martín 305, Miraflores, Lima, Peru.
http://soldeorohotel.com/

Participants:

- Responsible for the national programs of trachoma of the countries with known trachoma foci (Brazil, Colombia, Guatemala, Mexico and Peru).
- Responsible for the national programs or strategies of control and elimination of the neglected infectious diseases of some countries that share border with foci known of trachoma (Paraguay and Venezuela).
- Partners in the trachoma elimination as a public health problem in the Americas.
- Delegates of the Department of the Neglected Tropical Diseases of WHO, of the PAHO/WHO country offices of the invited countries, and of the Department of Communicable Diseases and Environmental Determinants of Health and of the Unit of Neglected, Tropical, and Vector-borne Diseases of Headquarters of PAHO/WHO.

Wednesday, August 1		
Time	**Topic**	**Speaker**
8:30 a.m. – 9:00 a.m.	Participants registration	
Opening session		
9:00 a.m. - 9:40 a.m.	Welcoming remarks Director, Departament of Communicabole Diseases and Environmental Deterninants of Health	Marcos Espinal, PAHO/WHO
	Welcoming remarks PAHO/WHO Representative in Peru	Raúl González, PAHO/WHO
	Welcoming remarks Delegate of Ministry of Health of Peru	Delegate, Ministry of Health of Peru
	Meeting objectives and Sessions of the meeting	Martha Saboyá, PAHO/WHO
Session 1. Global and regional progress towards elimination of trachoma		
9:40 a.m. – 10:00 a.m.	Global progress towards elimination of trachoma	Anthony Solomon, WHO
9:40 a.m. – 10:00 a.m.	Follow up on the recommendations of the Fourth Regional Meeting	Anthony Solomon, WHO
10:00 a.m. – 10:30 a.m.	Seguimiento a las recomendaciones de la cuarta reunión regional	Martha Saboyá, PAHO/WHO
10:30 a.m. – 10:40 a.m.	Questions	Plenary
10:40 a.m. – 11:00 a.m.	Break	
Progress and challenges towards elimination of trachoma in the Region of the Americas		
11:00 a.m. – 12:45 p.m.	Reports of delegates from ministries of health: **each country will have 20 minutes for presentation, followed by 15 minutes for questions**	
	• Brazil • Guatemala • Peru	Carmelita Ribeiro Filha, Ministry of Health of Brazil Gloria Serrano, Ministry of Health of Guatemala Harvey Honorio, Ministry of Health of Peru
12:45 p.m. – 2:00 p.m.	Break for lunch	
2:00 p.m. – 3:10 p.m.	• Paraguay • Venezuela	Miguel Antonio Vaccheta, Ministry of Health of Paraguay Yuri Andrea Lopez, Amazonas State (CAICET), Venezuela
3:10 p.m. – 3:30 p.m.	Remarks on the progress in the Region of the Americass	Plenary
3:30 p.m.- 4:00 p.m.	Break	
4:00 p.m. – 4:20 p.m.	Post-validation activities in Mexico – surveillance	Jose de Jesus Ibarra Lopez, CENAPRECE, Mexico
4:20 p.m. – 4:45 p.m.	Questions for Mexico and discussion about post-validation surveillance	Plenary
5:15 p.m. – 7:00 p.m.	Welcome cocktail	

Thursday, August 2		
Time	**Topic**	**Speaker**
Session 2. Innovation for trachoma		
8:30 a.m. – 10:30 a.m.	Each speaker will have 15 minutes for presentation, followed by 15 minutes for questions	
	• Proposal of areas for mapping of trachoma in the Region of the Americas • New technologies for grading trachoma – novel Image Capture and Processing System (ICAPS) • New technology for training graders to recognize TT - 3D photographs • HeadStart – training for TT surgery	Martha Saboya, PAHO/WHO Sheila West, Dana Center, Johns Hopkins Anthony Solomon, WHO Shannath Merbs, Wilmer Eye Institute, Johns Hopkins
10:30 a.m. – 11:00 a.m..	Break	
11:00 a.m. – 11:30 a.m.	Tropical Data – innovating in data collection for trachoma	Emma Harding-Esch, Tropical Data
11:30 a.m. – 11:45 a.m.	Questions	Plenary
11:45 a.m. – 12:05 p.m.	Experience of Peru using Tropical Data for an integrated survey (Trachoma and STH)	Cristiam Carey, DIRESA Loreto, Peru
12:05 p.m. – 12:30 p.m.	Opportunities to use new technologies for trachoma in the Region	Plenary
12:30 p.m. – 2:00 p.m.	Break for lunch	
2:00 p.m. – 2:20 p.m.	Multiplex Initiative and Serology for post-validation surveillance of trachoma	Diana Martin, CDC
2:20 p.m. – 2:35 p.m.	Questions	Plenary
Session 3. Integration of trachoma actions into other health platforms		
2:35 p.m. – 2:50 p.m.	Integrated surgery campaigns in Colombia: TT plus other visual health impairment problems	Juan Carlos Silva, PAHO/WHO
2:50 p.m. – 3:10 p.m.	Surgery of TT cases in indigenous communities of Brazil – Challenges and lessons learnt	Carmelita Ribeiro Filha, Ministry of Health of Brazil
3:10 p.m. – 3:30 p.m.	Surgery of TT cases in indigenous communities of Guatemala – Challenges and lessons learn	Gloria Serrano, Ministry of Health of Guatemala
3:30 p.m. – 4:15 p.m.	Opportunities to integrate trachoma into visual health initiatives in the Region	Plenary
4:15 p.m. – 4:30 p.m.	Break	
Sesión 4. Herramientas actualizadas para tracoma – OMS		
4:30 p.m. – 4:50 p.m.	Surveys of TT only Adjusted guidelines for trachoma surveys – TF prevalence	Anthony Solomon, WHO
4:50 p.m. – 5:10 p.m.	Questions	Plenary

Friday, August 3		
Time	**Topic**	**Speaker**
Session 5. Strengthening capacities for trachoma in the Region of the Americas		
8:30 a.m. – 9:00 a.m.	Regional plan to accelerate efforts towards elimination of trachoma in the Region of the Americas - Proposal	Martha Saboyá, PAHO/WHO
9:00 a.m. – 10:15 a.m.	Review and feedback on the proposed plan – Working groups: Group 1: Mexico and Guatemala Group 2: Brazil and Peru Group 3: Paraguay and Venezuela	Working groups
10:15 a.m. – 10:30 a.m.	Break	
10:30 a.m.-11:30 a.m.	Continue working groups	
11:30 a.m. – 12:30 p.m.	Plenary on the regional plan proposed	Plenary
12:30 p.m. – 2:00 p.m.	Break for lunch	
2:00 p.m. – 3:00 p.m.	Revision of the main conclusions and recommendations of the meeting	Martha Saboyá, PAHO/WHO
3:00 p.m. – 3:30 p.m.	Closing session	

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