

REGIONAL MEETING TO BOOST EFFORTS
FOR THE CONTROL OF SOIL-TRANSMITTED
**HELMINTH
INFECTIONS**
(GEOHELMINTHIASIS)
IN THE AMERICAS

LIMA, 1–3 AUGUST 2016



**Pan American
Health
Organization**



**World Health
Organization**

REGIONAL OFFICE FOR THE **Americas**

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Regional Program for Neglected Infectious Diseases
Pan American Health Organization/World Health Organization

PAHO/WHO
Washington, D.C.

Regional Meeting to boost efforts for the control of soil-transmitted Helminth infections (geohelminthiasis) in the Americas. (Lima, 1-3 August 2016).

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ACRONYMS

ALB	Albendazole
DEC	Diethylcarbamazine
DQA	Data Quality Assessment
DQS	Data Quality Self-assessment
EPI	Expanded Program on Immunization
ETRAS	Regional Water and Sanitation Technical Team [of PAHO/WHO] (from Spanish, <i>Equipo Técnico Regional de Agua y Saneamiento</i>)
IEC	Information, Education, and Communication
LAC	Latin America and the Caribbean
MDA	Mass Drug Administration
M&E	Monitoring and Evaluation
MEB	Mebendazole
NGO	Nongovernmental Organization
NID	Neglected Infectious Disease
NTD	Neglected Tropical Disease
PC	Preventive Chemotherapy
RCM	Rapid Coverage Monitoring
SDGs	Sustainable Development Goals
STH	Soil-Transmitted Helminthiasis
TIPAC	Tool for Integrated Planning and Costing (software)
VWA	Vaccination Week in the Americas
WHO	World Health Organization
WASH	water, sanitation, and hygiene

SUMMARY

Neglected infectious diseases (NIDs) mainly affect populations facing certain social determinants including poverty, low educational levels, poor housing, and limited access to clean drinking water, basic sanitation, and health services.

Soil-transmitted helminthiasis (STH), or geohelminthiasis, is one of the most common neglected infectious diseases. Soil-transmitted helminths have a chronic impact on health and development, and the cause of infection is often undetected. While it is highly unusual for STH to cause direct mortality, infections nevertheless cause considerable morbidity, with effects that are difficult to quantify in view of the long duration of the infection (often over many years) and the presence of concurrent ailments and other factors, such as poverty and malnutrition.

In order to design and implement large-scale deworming programs, it is essential to precisely determine the scale of comorbidity linked to soil-transmitted helminthiasis and the burden of disease. In 2014, there were 102 endemic countries worldwide with populations at risk of infection, including approximately 600 million school-age children, of whom 270 million had received treatment (45% coverage); 266 million preschool-age children, of whom 170 million had received treatment (51% coverage); and 250 million women of childbearing age. These three groups are considered at high risk because they are at an important stage of physical and nutritional development. In the same year (2014), the populations in 25 countries of the Americas were at risk of STH, including around 47 million children aged 1 to 14 (33.7 million school-age and 13.3 million preschool-age).

Preventive chemotherapy (PC) is the main strategy to curb STH, and the global goal is to treat at least 75% of children at risk. During the last two years, substantial progress has been made to control the infection: in 2014, three regions achieved over 50% PC coverage; and in 2015, 100% of the endemic countries had developed action plans to control NIDs. Meanwhile, in the Region of the Americas, PC coverage of school-age children (45% in 2014) continues to expand, according to the PAHO document titled *Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean, 2010–2015: Analysis of Progress, Priorities, and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiases*. Among preschool-age children, 51% were treated with preventive chemotherapy in 2014, and it is estimated that the global PC coverage goal (75% by 2020) will be reached for both preschool-age and school-age children. The number of countries within the Americas that have implemented deworming campaigns has increased. By 2014, 13 countries had treated school-age children with PC, and 8 countries had done the same for preschool-age children. By 2015, 10 countries had access to antiparasitic drugs donated by PAHO/WHO.

The Region of the Americas has also made good progress in other areas, including: 1) strengthening the capacities of managers and technical staff responsible for control programs; 2) introducing new tools for controlling soil-transmitted helminth infections, including operational guidelines for integrated deworming activities, coverage-monitoring methodologies, tools for assessing costs and identifying financial imbalances in NID operational plans, a manual on good drug-management practices for use in mass

preventive chemotherapy campaigns, and a global water, sanitation, and hygiene (WASH) strategy; and 3) improved accuracy, quality, and timeliness of data collection and reporting in several countries.

Despite these advances, there are still some major barriers to improving the control of soil-transmitted helminth infections in the Americas. These barriers include: 1) only four countries achieved 75% deworming coverage of school-age children in 2014; 2) no donations of anthelmintic drugs were received for risk groups other than school-age children (i.e., preschool-age children, women of childbearing age, etc.); 3) limited coordination between governments and local nongovernmental organizations; 4) lack of political commitment to ensure the technical and financial sustainability of actions to control STH; and 5) limited number of strategic partners using the WASH strategy to help sustain the progress made in helminthiasis control and contribute to meeting the Sustainable Development Goals (SDGs).

Given this context, the PAHO/WHO Regional Program of Neglected Infectious Diseases (NIDs) held the Regional Meeting to Boost Efforts for the Control of Soil-Transmitted Helminth Infections in the Americas. The event took place in Lima from 1 to 3 August 2016.

This Regional Meeting was attended by delegates from the health ministries of 15 countries; advisors from PAHO/WHO regional NID programs, Comprehensive Family Immunization (IM), Integrated Child Health, and the PAHO Strategic Fund; a group from the Regional Water and Sanitation Technical Team (ETRAS); advisors from the PAHO/WHO Communicable Diseases and Health Analysis Department from some of the participating countries; a delegate from the WHO Department of Control of Neglected Tropical Diseases; and representatives of UNICEF, the Foundation Against Hunger (FH), Children Without Worms (CWW), INMED Partnerships for Children, INMED Andes, McGill University Montreal (Canada), Johnson & Johnson, the Healthy World Foundation, and Operation Blessing International.

The main conclusions of the Regional Meeting were that:

1. Progress is being made worldwide to provide PC for 75% of school-age children by 2020. In 2014, PC coverage in the Americas was 44% for preschool-age children and 51.3% for school-age children.
2. The capacities of the STH control programs have been strengthened in the countries of the Region that have carried out deworming (e.g., the Dominican Republic, Honduras, Mexico, and Nicaragua).
3. Control programs for soil-transmitted helminth infections have been established in several countries of the Region (e.g., Colombia, El Salvador, and Paraguay).
4. Deworming actions have been integrated into existing platforms such as the Healthy Schools Program (PES), the Expanded Program on Immunization (EPI), and other NID programs (lymphatic filariasis, trachoma, etc.).
5. The number of countries receiving donations of PC drugs for treating soil-transmitted helminth infections has increased (at present, 10 countries receive donations).
6. New tools are now available for supporting STH control programs (e.g., the manual on integration with other platforms, coverage-monitoring tools, and the Tool for Integrated Planning and Costing (TIPAC)).
7. Information, education, and communication (IEC) materials have been developed as part of the communication and social mobilization strategies for controlling soil-transmitted helminth infections in several countries (e.g., Honduras, Paraguay).
8. Opportunities now exist for developing interinstitutional dialogue to strengthen advocacy and develop STH control measures in some countries (e.g., national committees, national steering groups, and municipal working groups).

9. Various countries have made progress in carrying out data surveys on parasitological indicators and risk factors linked to soil-transmitted helminth infections. The indicators have been useful for guiding the implementation of PC interventions. In some countries the surveys have been done simultaneously with those on other diseases, such as malaria, trachoma, and schistosomiasis.
10. The goal for eliminating STH as a public health problem is to have less than 1% of the infections being moderate or severe.
11. Countries have national plans to improve the regulation and implementation of WASH strategies by the relevant bodies. However, the NID control and elimination programs have no common goals and targets.
12. The significant benefits of drug donations for controlling and eliminating NIDs in the Americas and elsewhere around the world are fully recognized. However, persistent drug-management problems at the national level make it difficult to trace them.
13. The *Manual of Good Practices for Refilling, Repackaging, Distribution, and Dispensing of Drugs in Mass Treatment Campaigns of Neglected Infectious Diseases in the Region of the Americas* is a useful tool for responding to the concerns and situations faced by program developers. Country representatives, as well as partners and allies who attended the Regional Meeting, are urged to send their comments and suggestions on the manual to the PAHO/WHO NID regional program by 1 September 2016 at the latest.
14. The STH control programs of the Region of the Americas still have gaps in the implementation of monitoring and evaluation (M&E) activities due to the countries prioritizing preventive chemotherapy coverage over M&E. The countries are now at different stages of developing appropriate mechanisms to cover these gaps.
15. The toolbox for monitoring coverage of integrated public health interventions, including helminthiasis vaccination and deworming, is useful for tracking the life cycle of the STH control programs. The toolbox contains standardized methodologies for management data analysis, deworming coverage monitoring, and preventive chemotherapy data quality assessment (DQA).

The participants at the Regional Meeting also made the following recommendations:

1. Expand deworming to the different age groups at risk of soil-transmitted helminth infection in the countries of the Region (preschool-age and school-age children and women of childbearing age). PAHO/WHO support is needed to ensure the availability of drug donations to assist the programs to expand coverage among these population groups.
2. Lobby at the national and subnational level in all the countries for intersectoral actions to address the social determinants of health associated with soil-transmitted helminth infections (e.g., water, sanitation, hygiene, etc.). These actions include identifying common work goals among STH control practitioners and those responsible for water, sanitation, and hygiene activities.
3. Mount an advocacy campaign to persuade local authorities (mayors) to adapt, plan, implement, and monitor STH control and elimination measures tailored to local cultural, ethnic, social, and economic conditions, and to promote comprehensive initiatives to address the social determinants of health.
4. Identify opportunities for joint interventions by WASH and NID programs for designing and developing well-focused, integrated projects in high-risk areas in countries (e.g., to work up joint projects in schools in areas with a high risk of STH). This approach includes defining proxy indicators for monitoring integrated WASH and NID actions. PAHO/WHO technical support is needed for planning, developing, and monitoring such actions as can be pursued under the purview of the WHO global strategy on water, sanitation, and hygiene (WASH) for accelerating progress on neglected tropical diseases 2015-2020.
5. Strengthen the mechanisms for managing PC drugs for soil-transmitted helminth infections. This involves monitoring the quality of the drugs purchased in local markets or donated by different WHO

- organizations, and improving coordination between health ministries and regulators in countries.
6. Those responsible for STH control programs are encouraged to avoid as much as possible the refilling or repackaging of PC drugs originally labeled as multidose. In order to achieve this, national and subnational programs must plan intelligently and use great care when considering the benefits and risks of repackaging drugs.
 7. Program managers are advised to follow the recommendations in the *Manual of Good Practices for Refilling, Repackaging, Distribution, and Dispensing of Drugs in Mass Treatment Campaigns of Neglected Infectious Diseases in the Region of the Americas*, which was provided by PAHO/WHO at the Regional Meeting in the form of a working document. Official publication of this manual is scheduled for 2017. PAHO/WHO will include a training and technical assistance plan to guide use of the manual in the countries of the Region.
 8. The countries are encouraged to redouble their efforts to plan and apply for drug donations in good time, using the appropriate package of forms. Planning should take place at least six to eight months before the next date scheduled for deworming exercises.
 9. In all countries, strengthen the information system to produce timely, good-quality information, in order to facilitate decisions based on the best available evidence for the control of soil-transmitted helminth infections. Data collection instruments should be developed that are straightforward and easy to use for producing good-quality information. Countries are urged to obtain deworming data by sex and by age group.
 10. Strengthen the capacities of the national STH control programs to enable managers to prepare a comprehensive and critical analysis of epidemiological data, interventions that have already been deployed, and countries' current socioeconomic conditions, prior to deciding on any changes or adjustments that could affect the STH programs. As a basis for the analysis, the programs will use the algorithm recommended by the WHO for modulating the interventions at the end of the program's life cycle (five to six years of intervention with PC epidemiological coverages equal to or more than 75% in each deworming round).
 11. Strengthen, in all the countries, the planning and deployment of monitoring and evaluation actions on deworming coverage to determine whether the population groups in need of preventive therapy are being reached, and to take the necessary corrective actions in each local context. It is recommended that countries use the toolbox for monitoring coverage of integrated public health interventions.¹ PAHO/WHO will provide the necessary technical cooperation after the each country's requirements have been identified.

The Pan American Health Organization/World Health Organization (PAHO/WHO) is grateful to the United States Agency for International Development (USAID) and the Canadian Government's Global Affairs Department for their support in organizing this Regional Meeting.

World Health Organization. Helminth control in school-age children. A guide for managers of control programmes. Geneva: 2011. Second edition. WHO; 2011. 72p.

INTRODUCTION

In the countries of Latin America and the Caribbean (LAC), at least 180 million people live below the poverty line. These poor, disadvantaged populations are widely affected by neglected infectious diseases (NIDs) and other poverty-related infectious diseases. This group of diseases continues to seriously impact not only families and whole communities but also the socioeconomic development of LAC countries. Among these NIDs are soil-transmitted helminth infection and schistosomiasis.

The Pan American Health Organization/World Health Organization (PAHO/WHO), through the Regional Program for Neglected Infectious Diseases, held the Regional Meeting to Boost Efforts for the Control of Soil-Transmitted Helminth Infections in the Americas, in Lima, Peru, from 1 to 3 August 2016.

This Regional Meeting provided an opportunity for dialogue and consensus among the various ministries of health, experts, and partners of the endemic countries under consideration, with a focus on coordinating efforts to meet the control targets for the Americas. The event led to a number of key recommendations for moving ahead with the different components of the STH control programs in the Americas, and it opened further discussion on the integration with the WHO global strategy on water, sanitation, and hygiene for accelerating progress on neglected tropical diseases 2015-2020 as a tool for sustaining the progress achieved to date in the Region of the Americas.

OPENING CEREMONY

The Regional Meeting to Boost Efforts for the Control of Control Soil-Transmitted Helminth Infections in the Americas was inaugurated by:

David Addiss, Executive Director of Children Without Worms (CWW).

Luis Gerardo Castellanos, Chief of the Communicable Diseases and Health Analysis Department - Neglected, Tropical and Vector Borne Diseases Unit, (CHA/VT/NID), Pan American Health Organization.

Raúl González Montero, Representative, Pan American Health Organization/World Health Organization, PAHO/WHO, Peru.

1. GLOBAL, REGIONAL, AND NATIONAL PROGRESS MADE BY PROGRAMS FOR THE CONTROL OF SOIL-TRANSMITTED HELMINTH INFECTIONS

1.1 GLOBAL CONTEXT OF DEWORMING EFFORTS TO CONTROL SOIL-TRANSMITTED HELMINTH INFECTIONS AND PROSPECTS FOR THEIR ELIMINATION

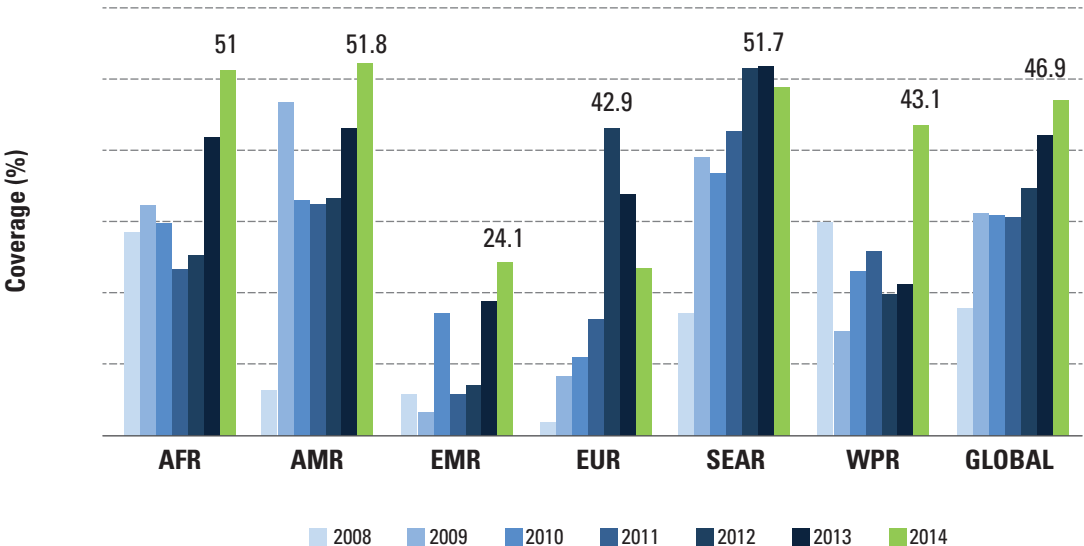
Dr. Amadou Garbá, Department of Control of Neglected Tropical Diseases, WHO

- There are 102 endemic countries worldwide with populations at risk of infection by STH. In 2014, these populations included approximately:
 - 600 million school-age children, of which 270 million received treatment (45% coverage).
 - 266 million children of preschool age, of whom 170 million received treatment (51% coverage).
 - 250 million women of childbearing age.

These three groups are considered at high risk because of their stage of important physical development and high nutrient demand.

- Major progress has been made to control STH (Figure 1):
 - In 2014, PC coverage for dealing with STH exceeded 50% in three regions
 - In 2015, 100% of the endemic countries have developed action plans for controlling NIDs.

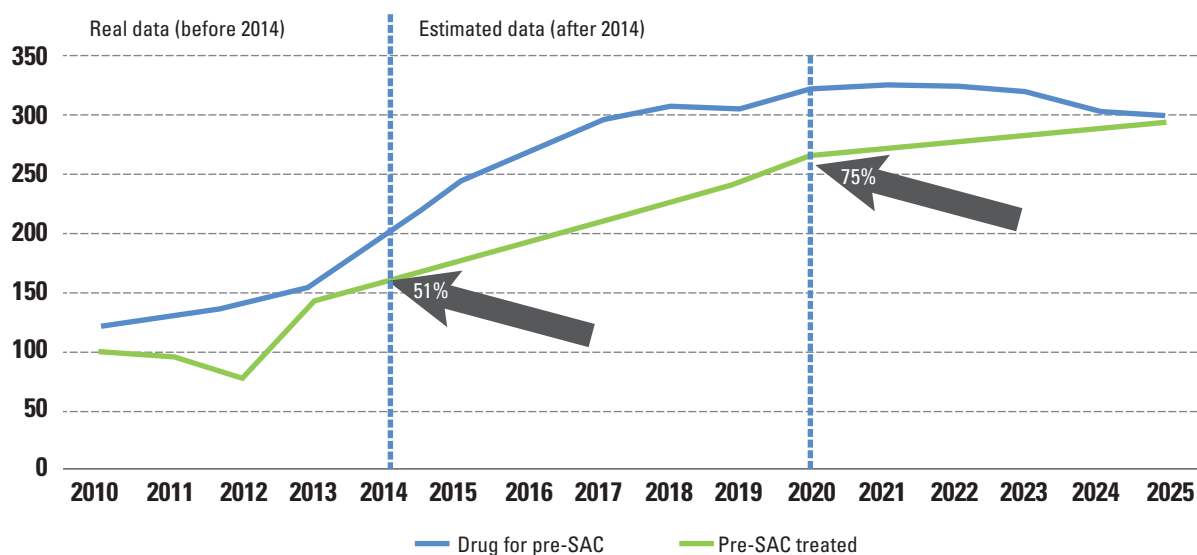
FIGURE 1. Regional and global evolution of preventive chemotherapy coverage for soil-transmitted helminth infections, 2008-2014



AFR: Africa; AMR: America, EMR: Eastern Mediterranean; EUR: Europe; SEAR; Southeast Asia, WPR: Western Pacific.
 Source: Figure presented during the Regional Meeting by Dr. Amadou Garbá, WHO NID Department (NID/WHO database)

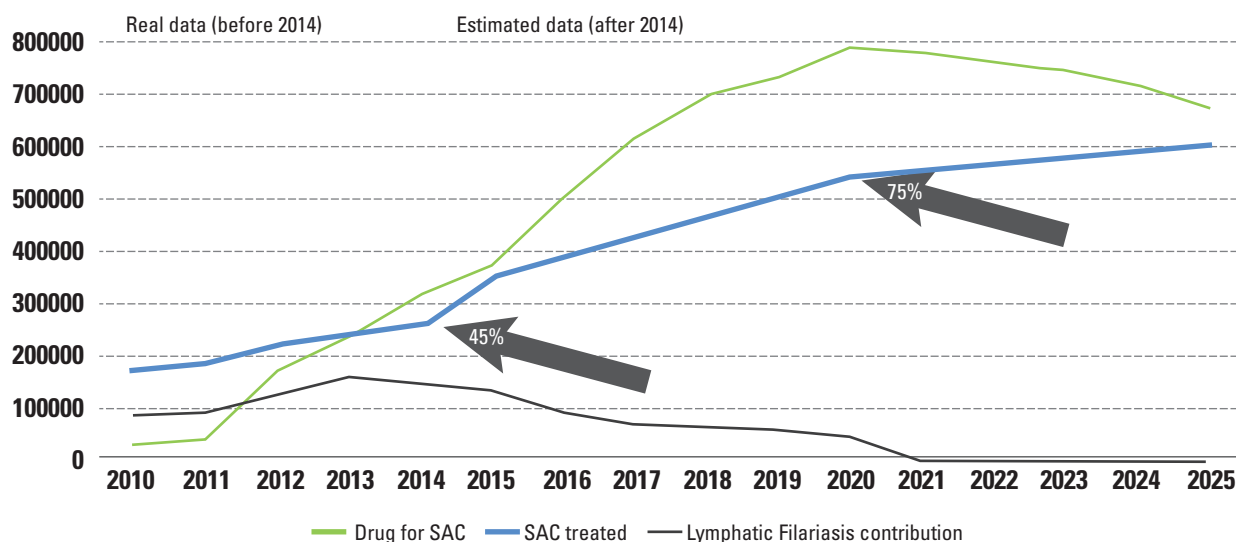
- Significant changes have taken place in the number of STH-endemic countries:
 - Several countries no longer need STH preventive chemotherapy:
 - 2012: Republic of Moldova, Romania, and Turkey.
 - 2013: Argentina, Chile, Grenada, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Uruguay.
 - 2014: Former Yugoslavian Republic of Macedonia, Mauritius, Montenegro, Serbia, and Tunisia.
- Of the 102 endemic countries, 84 (82%) have plans of action or control policies for dealing with STH.
- The majority of the countries have reported, for the first time, their coverage and drug requirements within the 15 August deadline. WHO has therefore been able to record the 2014 data before finalizing data for 2015.
- Coverage for preschool-age children is increasing, as envisaged in the STH strategic plan (2011).
- Overall PC coverage of preschool-age children in 2014 was 51%. A 50% coverage level was achieved one year ahead of schedule. These figures suggest that the coverage goal of 75% could be reached in 2020 (Figure 2).

FIGURE 2. Global preventive chemotherapy coverage of preschool-age children (pre-SAC) for soil-transmitted helminth infections, 2014



Source: Figure presented during the Regional Meeting by Dr. Amadou Garbá, WHO NID Department, NID/WHO database

- In regards to school-age children and estimated demand for albendazole (ALB) and mebendazole (MEB) treatment, overall PC coverage was 45% in 2014 and is increasing in line with the amount predicted in the document titled *Control and Elimination of Five Neglected Diseases in Latin America and the Caribbean, 2010–2015: Analysis of Progress, Priorities, and Lines of Action for Lymphatic filariasis, Schistosomiasis, Onchocerciasis, Trachoma and Soil-transmitted helminthiasis*. It is hoped that 50% coverage will be reached in 2015, and it is thought that the 75% coverage goal will be achieved in 2020 (Figure 3).
- According to provisional data, the intervention in schools in India boosted coverage in 2014 (see Arrow 1 in Figure 3).

FIGURE 3. Global preventive chemotherapy coverage of school-age children (SAC), 2014

Source: Figure presented during the Regional Meeting by Dr. Amadou Garbá, WHO NID Department, NID/WHO database

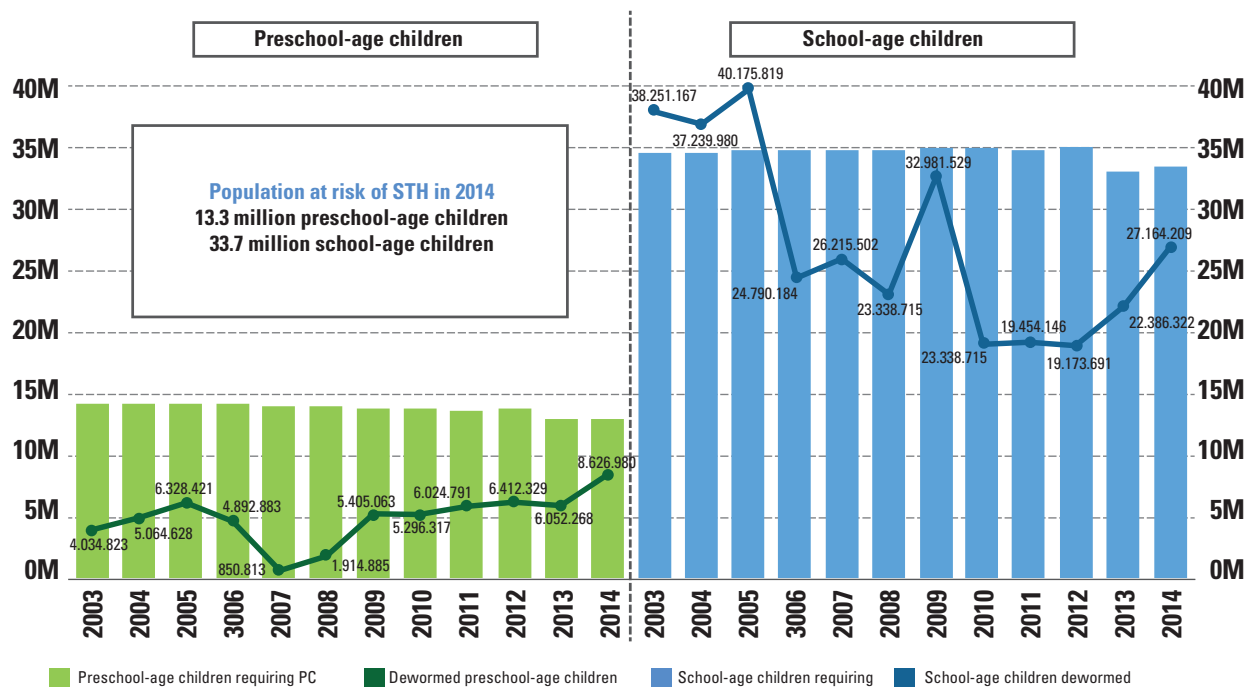
- An estimated 47 million people in the Americas need PC for STH, including 13.3 million preschool-age children and 33.7 million school-age children.
- The elimination of STH is probably not possible in areas of significant environmental contamination with human stools, given the high contamination capacity of STH and the prolonged survival of STH eggs in the environment. Periodic treatment with anthelmintic drugs in such areas can maintain the number of parasites at levels that do not cause morbidity.
- STH can be eliminated in areas where sanitation standards have improved to such an extent that environmental contamination by STH is very effectively reduced. In these areas, periodic application of anthelmintics accelerates the STH elimination process.

1.2 PROGRESS IN THE CONTROL OF SOIL-TRANSMITTED HELMINTH INFECTIONS IN THE AMERICAS

Dr. Santiago Nicholls, Regional Advisor, Neglected Infectious Diseases Program, CHA/VT/NID, PAHO/WHO

- Recommendations have been presented by participants to boost efforts for controlling soil-transmitted helminth infections in the Region of the Americas by working together towards a similar objective to that set in 2013 (for 2014).
- Progress made in implementation and PC coverage for STH in 2014:
 - 25 countries of the Region of the Americas had around 47 million children aged between 1 and 14 at risk from soil-transmitted helminth infection, including 13.3 million of preschool-age and 33.7 million of school-age (Figure 4).

FIGURE 4. The Americas: Population at risk of soil-transmitted helminth infection, and population treated, 2003-2014



Source: Figure presented during the Regional Meeting by Dr. Santiago Nicholls, Regional Advisor, Neglected Infectious Diseases, VT/NID/CHA, NID/WHO database

- Mexico and Nicaragua have a long history of deworming programs for preschool-age and school-age children. These programs have been implemented through comprehensive nationwide child health campaigns during the Vaccination Week in the Americas (VWA). Both countries present optimal national coverage and both have conducted infection prevalence and intensity surveys. Nicaragua receives donations of MEB while Mexico acquires ALB in its local market. Only Nicaragua conducts rapid coverage monitoring (RCM). Neither country has implemented sentinel surveillance or drug efficacy monitoring.
- The Dominican Republic and Haiti have foci of lymphatic filariasis and treat preschool-age and school-age children. Haiti combines STH treatment with that for filariasis. Both countries have succeeded in increasing anti-STH coverage for preschool-age children through their integration in recent years with the VWA. The Dominican Republic and Haiti receive donations of ALB, and acquire drugs for preschool-age children from other sources. In both countries, national coverage of the program is optimal and both have conducted infection prevalence and intensity surveys, but RCM, sentinel surveillance, and monitoring of drug efficacy have not still been implemented.
- Brazil and Colombia have recently introduced programs aimed at school-age children. Brazil combines its deworming program with the ones for trachoma, schistosomiasis, and leprosy. Colombia combines its deworming program with the one for trachoma. In both countries national coverage has not reached 75%, but efforts are being made to improve performance in this respect. Both countries receive donations of ALB. Colombia has carried out a survey of prevalence and intensity of infection. RCM, sentinel surveillance, and drug efficacy monitoring have not yet been implemented in either country.

- El Salvador and Honduras have recently strengthened their programs. While Honduras focuses on preschool-age and school-age children, El Salvador concentrates its efforts on school-age children alone. National and program coverage has not reached 75% in either country, but efforts are being made to remedy this. Both countries receive donations of ALB and donations for preschool-age children from other sources. Both have done surveys of prevalence and intensity of infection. Honduras is implementing RCM and sentinel surveillance, while El Salvador has conducted a RCM pilot study. Drug efficacy monitoring is still pending in both countries.
 - Programs have also been recently reinforced in Guatemala and Paraguay. Paraguay conducted its first PC round in 2013. While Guatemala is focusing on preschool-age and school-age children, Paraguay focuses only on school-age children. Coverage in Guatemala has not reached 75%, and no deworming was done in 2015. Both countries receive donations of ALB for school-age children. Paraguay has conducted a survey of prevalence and intensity of infection. RCM, sentinel surveillance, and drug efficacy monitoring have not yet been implemented in either country.
 - Guyana and Venezuela present different pictures. Guyana has foci of lymphatic filariasis, and provides PC for STH combined with lymphatic filariasis, but coverage is irregular. Guyana also receives donations of ALB and Diethylcarbamazine (DEC). RCM, sentinel surveillance, and drug efficacy monitoring have not been implemented to date. Meanwhile, Venezuela has improved its reporting of PC for STH to PAHO/WHO. Coverage over the last two years has been optimal (drugs procured locally). Venezuela also conducts regular STH prevalence and intensity surveillance, but there is no RCM or drug efficacy surveillance to date.
 - As for progress in coordinating with WASH activities, some countries of the Americas have integrated deworming plans that include some activities that address WASH health determinants and actions (e.g., Honduras and El Salvador have installed water filters in schools and have conducted IEC campaigns on good hygiene practices). Six countries of the Region have national deworming plans or programs, and six others have drafted comprehensive NID plans or strategies that include STH.
- Efforts to control soil-transmitted helminth infections in the Americas have achieved the following:
 - Strengthened capacities of control programs, with training for management and technical personnel and the introduction of new STH control tools, including:
 - Operational guidelines for implementing integrated deworming activities.
 - Methodologies for monitoring coverage.
 - The Tool for Integrated Planning and Costing (TIPAC), for identifying funding gaps of the NID operational plans.
 - Manual on good drug management practices for mass PC campaigns (at the drafting stage).
 - The WHO publication titled *Water, Sanitation and Hygiene for accelerating progress on Neglected Tropical Diseases: a Global Strategy 2015-2020*.
 - Increased number of countries that implement deworming campaigns:
 - 13 countries administer PC to school-age children.
 - 8 countries administer PC to preschool-age children (5 of them as part of VWA).
 - Increased number of countries with access to antiparasitic drugs donated by PAHO/WHO (10 countries received donations in 2015).
 - The accuracy, quality, and timeliness of data collection and reporting has improved:
 - In 2014, 12 countries reported their deworming coverage (Brazil, Colombia, the Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, and Venezuela).
 - In 2016, 9 countries updated their STH prevalence data based on national level epidemiological

- surveys (Colombia, the Dominican Republic, Ecuador, El Salvador, Haiti, Honduras, Mexico, Nicaragua, and Paraguay).
- The NID Atlas is an interactive georeferenced database with up-to-date epidemiological information that is available on the PAHO/WHO website.²
- Honduras and Nicaragua have initiated RCM, and El Salvador has carried out a pilot study.
- Honduras performs sentinel surveillance.
- The following issues have slowed progress towards improved control of soil-transmitted helminth infections in the Americas:
 - In 2014, only four countries achieved 75% deworming coverage of school-age children.
 - There are no donations of anthelmintics for risk groups other than for school-age children (e.g., none for preschool-age children, women of childbearing age, etc.).
 - There is weak coordination between governments and local NGOs.
 - It is difficult to maintain political buy-in to ensure the technical and financial sustainability of actions undertaken.
 - There are no strategic partnerships to use the WASH strategy to ensure sustainability of the progress made so far to control STH, or to contribute to meeting the Sustainable Development Goals (SDGs).

1.3 EXPERIENCES IN THE CONTROL OF SOIL-TRANSMITTED HELMINTH INFECTIONS

The experience of Peru

Dr. Theresa W. Gyorkos, Director, Clinical Epidemiology Division, McGill University Health Center, WHO Collaborating Center for Research and Training in Parasite Epidemiology and Control

- Various studies on the control of soil-transmitted helminth infections in Peru have been conducted, including one titled Impacto de la Educación en Salud sobre las Infecciones por HTS en Escolares de la Amazonía Peruana [Impact of Health Education on STH in Schoolchildren in the Peruvian Amazon Region]. The research was based on WHO recommendations to implement deworming programs in schools with a hygiene education component. The study found that the implementation of a health and hygiene intervention against STH reinfection four months after deworming was effective not only in increasing knowledge about, but also reducing infection by *Ascaris lumbricoides*. The study concluded that the benefits of school deworming programs appeared to increase when an educational health and hygiene intervention was incorporated in school curricula.
- A further study on growth retardation and helminth infection in preschool-age children living in poor communities in the low jungle region of Peru described the increased prevalence of any STH among infants aged between 7 and 14 months.
- A third study concerned the effect of deworming on 1-year-old infants living in an STH-endemic area of Peru. This study showed that STH prevalence was 14.5% at 12 months, 28.5% at 18 months, and 42.6% at 24 months. Moreover, there was evidence of a high prevalence of mild-intensity *Ascaris lumbricoides*, with the intensity increasing from mild to moderate at 24 months.
- A further experience in Peru was the introduction of a sentinel surveillance system together with a Government of Peru deworming program in the Amazon province of Loreto. This involved 330,000 children aged between 3 to 17 years at 3,925 schools, with three to four annual deworming cycles conducted over a two-year period. This intervention, organized jointly by the ministries of health and education,

Available at http://www.paho.org/hq/images/ATLAS_CD/NID_Subnational/atlas.html.

aimed to reduce the intensity of infection, prevent the consequences of high-intensity infections, and gradually reduce environmental infection, prevalence, and reinfection. The Government-led program also included a deworming plan, a joint health/education directive, and a manual for teachers. A total of 1,386,000 500-mg single-dose MEB tablets were distributed. A number of setbacks hindered the achievement of planned coverage rates, including inter alia the difficult geography of the area, interruptions in the work, political setbacks, the lack of reporting on the launching of the program, and a widespread lack of interest in the subject as a whole. Nevertheless, after two years of implementation, the prevalence of infection by any STH among school-age children was reduced from 82.4% to 55.8%, and the prevalence of moderate to serious infection by *Ascaris lumbricoides* in the same category of children was reduced from 40% to 2.9%.

- With regard to regulations, the health technical norm of Peru's Ministry of Health covering comprehensive maternal health care (published in December 2013) stipulates that antiparasitic treatment for pregnant women living in endemic areas should begin at 35 weeks of gestation. This norm is consistent with WHO guidelines on the administration of prevention chemotherapy for pregnant women in high-risk groups (April 2016).

The experience of Colombia

a) **Dr. Diana Gómez, Advisor, Director of Promotion and Prevention, Ministry of Health and Social Protection, Colombia**

b) **Dr. Adriana Estrada, Assistant Director of Environmental Health, Ministry of Health and Social Protection, Colombia**

- Colombia's national policy is to increase access to drinking water and basic sanitation, with hopes that this policy framework will strengthen work on social determinants related to controlling soil-transmitted helminth infections.
- Housing conditions play a fundamental role in public health and people's quality of life. According to the multidimensional poverty index, 11.2% of homes in Colombia had no access to clean water in 2014, and 11.8% had inadequate sewage disposal (these respective values in rural areas were 26.8% and 40.2%). Of all homes in the country, 12.4% of them suffered from critical overcrowding, and the floors of 5.8% of them were made of inappropriate material. While circumstances varied from area to area, 28.5% of homes in Colombia as a whole suffered from at least one shortcoming in terms of living conditions.
- The National Drinking Water Program aims to ensure that 100% of the population has access to a suitable water supply. The Program will need, as a minimum, to consolidate national conservation strategies that prioritize drinking water supplies, seek to improve the organization and management of water resources, and address the disparities between urban and rural areas.
- Given the successful elimination of onchocerciasis, the present goal is to eliminate trachoma under the 10-Year Public Health Plan (PDSP) 2012-2021. This plan prioritizes blinding caused by trachoma, control of soil-transmitted helminth infections, post-surveillance of onchocerciasis epidemics, and the monitoring of ectoparasitic diseases such as tungiasis, pediculosis, scabies, cutaneous migrans larva, myiasis, and tick-borne diseases.
- In 2012 and 2013, a national survey of the prevalence and intensity of soil-transmitted helminth infection was conducted among the school-age population in Colombia's biogeographic provinces (Table 1). The findings of the survey, the National Survey of Intestinal Parasitism in the School-age Population, were published in October 2015 and reported that:
 - 7,860 children aged between 7 and 10 years were surveyed, and samples of fecal material were obtained from 6,045.

- ❑ 29.62% were infected with a soil-transmitted helminth.
- ❑ The highest risk of infection was in the Amazon provinces (81.6%) and the Sierra Nevada de Santa Marta (74.05%).
- Colombia's main achievements were as follows:
 - ❑ From 2014 to 2015, ALB coverage of school-age children (5 to 14 years old) increased from 137,369 (11.8%) to 392,337 (22%).
 - ❑ Mass anthelmintic deworming is now aligned with the WHO Anthelmintic Preventive Chemotherapy strategy.
 - ❑ Clear guidelines have been established for annual operational plans to include mass anthelmintic deworming activities.
 - ❑ Organization of the program has improved at both the national and territorial level.
 - ❑ Colombia has participated in the drug donation program.
 - ❑ The territorial health departments have improved information supply and monitoring.
 - ❑ Operational teams are now employed in some territorial health departments.
 - ❑ ALB is now purchased with funds from Colombia's Collective Intervention Plan for distribution to population groups that have not been prioritized by drug donation schemes.
 - ❑ Deworming care, due to its high externality, is exempted from payment of the sliding-scale fee (*cuota moderadora*).

TABLE 1. Colombia: Intensity of parasitic soil-transmitted helminth infection

Intensity	<i>Ascaris lumbricoides</i> (%) (n=179)	<i>Trichuris trichiura</i> (%) (n=1,380)	Hookworms (%) (n=432)
Mild	39.9	59.0	86.4
Moderate	41.3	36.9	7.7
Intense	18.8	4.1	5.9

Source: National Survey of Intestinal Parasitism in the School-age Population, Colombia 2012-2014

- The main issues faced by Colombia in this area are the following:
 - ❑ Consolidate an interprogrammatic work team to enable technical assistance and program monitoring to be done at the territorial level.
 - ❑ Maintain the number of scheduled deworming rounds in each territorial area.
 - ❑ Achieve and sustain useful mass anthelmintic deworming coverage (75%) in all the territorial health departments that have made applications to the donation program.
 - ❑ Identify and manage funding sources to ensure the sustainability of the mass anthelmintic deworming activities within the Collective Intervention Plan.
 - ❑ Strengthen interprogrammatic and intersectoral management (Ministry of Housing, city and territory, and Ministry of Education).
 - ❑ Strengthen the education strategy for preventing soil-transmitted helminth infections.
 - ❑ Accelerate adaptation of the mass anthelmintic deworming strategy in the territories' health departments and commence intersectoral work.
 - ❑ Design an IEC strategy for health and social mobilization to encourage behavioral changes to prevent soil-transmitted helminth infections.

The experience of Paraguay

- a) **Dr. Estela Quiñones, Director of Surveillance of Communicable Diseases (DIVET), Ministry of Public Health and Social Welfare, Paraguay**
- b) **Lic. María José Jara, Biochemist responsible for the Specialized Services Area of the General Directorate of Environmental Health, DIGESA, Ministry of Public Health and Social Welfare, Paraguay**
- Since 2013, Paraguay's Ministry of Public Health and Social Welfare (MSPBS) and Ministry of Education and Culture (MEC) have implemented the National School Deworming Program (PNDE) within the framework of the Healthy School (Escuela Saludable) program. Mass campaigns to treat the school-age population with anthelmintics now take place on an annual basis. The first deworming campaign involved children from 6 to 12 years old (first grade through sixth grade of elementary school) in all the country's public schools. Coverage was expanded in 2014 to include children 13 to 15 years old (seventh, eighth, and ninth grades).
 - Within the framework of the PNDE it has been possible to coordinate this task with different sectors related to health, education, drinking water, and local governance. The intervention strategy includes two major lines of approach to the target population: mass drug administration (MDA) and communication, training, and education.
 - The PNDE aims to achieve and maintain at least 75% deworming coverage for the target population (those 6 to 15 years old in grades one to nine). In 2014 and 2015, the estimated target population for deworming consisted of 1.4 million students in over 8,070 public schools (Table 2).
 - The methodology for calculating MDA was based on the following premises:
 - Population estimates were based on data provided by the General Directorate of Statistics, Surveys, and Censuses (DGSEC).
 - Information on the number of schools was provided by the Ministry of Education and Culture (MEC).
 - The methodological tools recommended by WHO were used to calculate the amount of deworming drugs.
 - At the beginning of the campaign the prevalence of soil-transmitted helminth infection in Paraguay was not known.
 - The estimate of infection prevalence was done by calculating the percentage of the population living in homes with no access to proper sanitation facilities. In 2013, 70% had access to sanitation (90% in urban areas and only 40% in rural areas).
 - The methodology was applied in accordance with WHO guidelines.

TABLE 2. Paraguay: National Mass Deworming Program (PNDE), 2013-2015

	2013	2014	2015
Campaign	Start	Strengthened	Improvement
Schoolchildren target	700,000	1,400,000	1,400,000
Coverage	76.1%	87%	94%
Age range	6-12 years	6-15 years	6-15 years
Evaluation system	No	Under study	Under study
Prevalence study	No	Yes	Yes
Sentinel surveillance	No	No	Ongoing

Source: Table presented during the Regional Meeting by Dr. Estela Quiñones, Director of Communicable Disease Surveillance (DIVET), Ministry of Public Health and Social Welfare, Paraguay; database of the Ministry of Public Health and Social Welfare, Paraguay

- The operational responsibilities of health workers and teachers for the campaign were defined.
- Monitoring and evaluation indicators were established for the PNDE in order to monitor progress and record the lessons learned. A sentinel surveillance system is being developed for monitoring and evaluating progress in the STH control program.
- Regulation of the drinking water and basic sanitation services is at present the responsibility of the Paraguay Health Services Regulatory Body (ERSSAN), established in 2001. Although the General Environmental Health Directorate (DIGESA) laboratory does not have a parasitosis monitoring program, any data obtained from monitoring water quality is communicated to the Ministry of Public Health and Social Welfare, which is responsible for notifying the ERSSAN.
- Paraguay's drinking water supply originates mainly from groundwater sources. While 65% of the population has access to drinking water, the country's indigenous population has less access to both drinking water and basic sanitation services (according to the most recent census, only 2.5% of homes in indigenous areas have drinking water). In the country as a whole, the drinking water coverage level for 20% of the population has grown from 10% to 40%.
- Challenges faced by the drinking water sector are the following:
 - To improve the population's quality of life by resolving the problem of basic sanitation and reducing the negative environmental effects of inappropriate sanitation solutions.
 - To obtain access to know-how and technological innovation in order to respond creatively to problems that cannot be resolved by traditional methods.
 - To ensure that funds are available and effectively applied in order to achieve the established goals.

The experience of Brazil

Dr. Santiago Nicholls, Regional Advisor, Neglected Infectious Diseases Program (CHA/VT/NID), PAHO/WHO

- In 2011, Brazil created the General Office for Leprosy and Diseases in Elimination, which covered such NIDs as leprosy, soil-transmitted helminth infections, lymphatic filariasis, onchocerciasis, schistosomiasis, and trachoma. Subsequently, a Strategic Action Plan to comprehensively address these diseases also involved the health, education, and water/ sanitation sectors. The first active search campaign launched for leprosy also included deworming and trachoma tests for school-age children in the public school system. Brazil also developed a comprehensive risk index for identifying municipalities at risk, which considers such factors as poverty and access to potable water and sanitation.
- The proposals to control STH contained in the integrated Strategic Plan for 2011-2015 resulted in a substantial number of school-age children being reached by the STH program (which also included leprosy and trachoma surveillance activities).
- During the first campaign (2013), self-assessment forms were handed out to children to enable them to examine themselves and to report any signs that might indicate the presence of leprosy, such as skin patches. In addition, a dose of ALB was administered to the children, and tests were conducted to detect trachoma. In 2013, the campaign reached 890 municipalities, with around 3 million self-assessment forms delivered, resulting in the deworming of approximately 2.9 million school-age children. In 2015, 1,999 municipalities were targeted, and around 6.6 million self-assessment forms delivered to children, resulting in the deworming of 6,983,000 school-age children. Around 1 million children were also examined for trachoma, with 24,000 new cases detected and treated (including other family members) with azithromycin. A total of 274 new cases of leprosy were also detected in school-age children, and 48 cases found among the contacts of these children. Without the program, the leprosy cases might have gone undetected for many years. Treatment at the correct time prevented the cases from evolving to more advanced stages, with disability and other undesirable outcomes.

2. MONITORING AND EVALUATION OF PROGRAMS FOR THE CONTROL OF SOIL-TRANSMITTED HELMINTH INFECTIONS IN THE AMERICAS

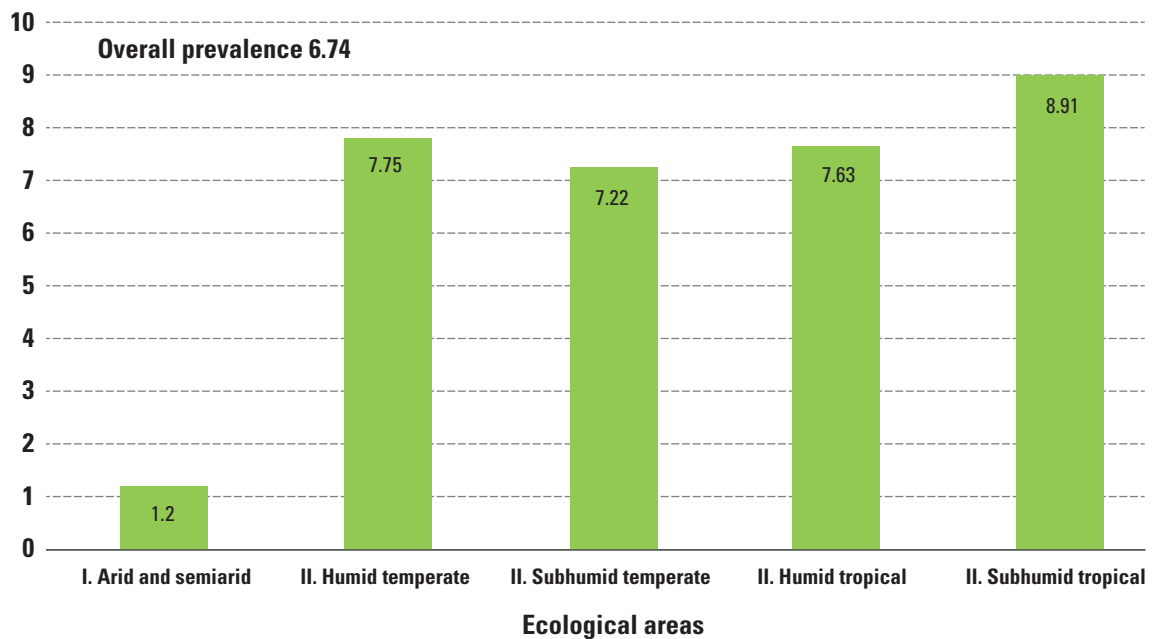
2.1 INTEGRATED EPIDEMIOLOGICAL SURVEYS

The experience of Mexico

Dr. José de Jesús Méndez de Lira, Assistant Technical Director for Child Health, National Center for Child and Adolescent Health (CENSIA), Federal Health Secretariat, Mexico

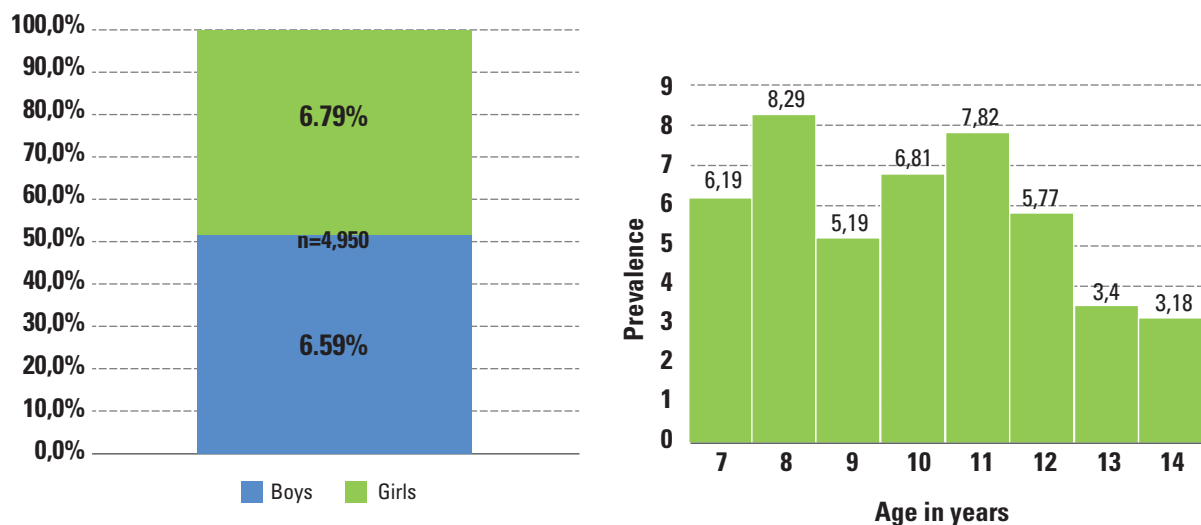
- Mexico's deworming program has resulted in the largest number of dewormed children in the Region of the Americas.
- Published data on STH prevalence vary substantially. Studies show that social and environmental determinants have an impact on the prevalence of the disease.
- No impact assessment of the deworming program was done between 1993 and 2015. However, a comprehensive epidemiological survey of schoolchildren living in south-southeast Mexico was done in 2015 under the purview of the STH and Malaria Prevalence and Infection Intensity Project. One of the aims of the survey was to measure STH prevalence throughout Mexico 22 years after the introduction of the deworming interventions that were included in the National Health Week events.
- Mexico's south-southeast region has a long history of poverty, social and economic backwardness, and limited health care access. Because of that, it was decided to conduct the study in the 10 states of that area region (Campeche, Chiapas, Guerrero, Morelos, Oaxaca, Puebla, Quintana Róo, Veracruz, Tabasco, and Yucatán).
- The comprehensive survey was designed to establish the prevalence of both malaria and soil-transmitted helminth infections, and to measure the intensity of the latter. Fieldwork was undertaken between August and September 2015. The methodology involved a sample of 4,925 children between 7 and 14 years old who were living in the beneficiary municipalities and were enrolled in the Mexican Government's National Crusade against Hunger.
- The methods and findings of the survey were as follows:
 - 5,240 stool samples were collected at 148 selected schools.
 - 4,950 final samples were obtained for results analysis.
 - 49% of the children surveyed were girls and 51% were boys.
 - Total prevalence of soil-transmitted helminth infection was 6.74%, distributed across the five ecological areas (Figure 5).
 - The tropical subhumid area had the highest prevalence (8.9%) while the arid and semiarid ecological area had the lowest (1.2%).
 - The prevalence of STH by sexes was 6.59% in girls and 6.79% in boys (Figure 6).
 - All the malaria samples were negative.
 - STH intensity among schoolchildren was slight (64.3%), moderate (33.86%), and serious (1.84%).
 - The highest intensity of serious general infection and *Ascaris* infection was detected in the subhumid tropical area.

FIGURE 5. Mexico: Prevalence of soil-transmitted helminth infection by ecological area, 2015



Source: Database of the Prevalence and Intensity of Soil-Transmitted Helminth Infection and Prevalence of Malaria study. August-September 2015. Federal Secretariat of Health, Mexico

FIGURE 6. Mexico: Prevalence of soil-transmitted helminth infection by sex and age, 2015



Source: Database of the Prevalence and Intensity of Soil-Transmitted Helminth Infection and Prevalence of Malaria study. August-September 2015. Federal Secretariat of Health, Mexico

- The conclusions were as follows:
 - The main significant variables of the risk factors associated with STH were homes with dirt floors, overcrowding, and the wearing of open footwear.
 - Overcrowding was identified as a risk factor in all the ecological areas.

- The most significant risk factors identified in the tropical subhumid ecological area were homes with dirt floors, the wearing of open footwear, and open defecation.
- The guidelines for further discussion and recommendations are as follows:
 - Given the findings of this study, Mexico's guidelines need to be revised and adjusted in accordance with the PAHO/WHO recommendations. This effort should include discussing:
 - Conducting RCM after each deworming round (actions to include vaccination).
 - Carrying out a surveillance study of the effectiveness of ALB in Mexico.
 - Publishing the findings of this study and using them to complement other national or international studies.

The experience of El Salvador

Dr. Alexandra Portillo, Coordinator, Neglected Infectious Diseases (NID) Unit, Ministry of Public Health and Social Welfare, El Salvador

- Up to 2012, two deworming campaigns per year were carried out in El Salvador with MEB, but there were no up-to-date STS prevalence data for children aged under 15.
- In 2012, the country ran an integrated survey on the prevalence and intensity of STH and on malaria prevalence in Salvadorian schoolchildren aged between 8 and 10. Samples were taken from 280 children in the third grade at participating schools in each of the five ecoepidemiological areas (a total of 51 schools). Some 10 municipalities were included from each ecoepidemiological area.
- A total of 1,352 stool samples were collected and, after 27 samples were ruled out due to insufficient quantity or inadequate consistency, 1,325 samples (93% of the estimated sample size) were analyzed.
- The results of the analysis were as follows:
 - Children who defecated in the open were three times more likely to contract a soil-transmitted helminth infection.
 - Children who consumed well water were 2.7 times more likely to contract the infection than those who drank water from other sources.
 - Children who did not use correct footwear on a permanent basis were 2.3 times more likely to contract the infection than those who did.
 - Children who did not consume clean drinking water were 2.2 times more likely to contract the infection than those who did.
 - A total of 101 positive cases of STH were identified. While the general prevalence of infection was 7.9% in the entire country, prevalence increased differed according to the ecoepidemiological area, ranging from 2.6% in the mountains to 14.9% on the coastal plain.
 - In 2014, the country decided to carry out annual deworming campaigns, and 4,932 Salvadoran schools have been involved so far.

2.2 EXPERIENCE OF SENTINEL SURVEILLANCE IMPLEMENTATION IN HONDURAS

Dr. Reina Velásquez, Coordinator, Neglected Infectious Diseases and Zoonosis, Ministry of Health, Health Surveillance Unit, Honduras

- In recent years, Honduras has been working to implement its National Strategic Plan for the Prevention, Management, Control, and Elimination of Nine Neglected Infectious Diseases (PEEDH). The goal of this

- Plan is to address comprehensively, intersectorally, and interprogrammatically nine neglected diseases that have been prioritized in the country.
- Using the Sentinel Units strategy, epidemiological surveillance of parasitological indicators and other indicators of interest is conducted in an effort to control soil-transmitted helminth infections. The aim is to gather information on the progress being made to control STH in order to inform decision-making regarding the implementation of actions during the program cycle.
 - The program involved 1,233,319 children aged between 5 and 14 years old who were studying in 28 sentinel schools (identified by the Ministry of Health) in 298 municipalities located in the six ecological regions of Honduras.
 - Stool samples from 50 children in the third grade of primary education were collected for parasitological examination and determination of parasitological indicators. Collection and examination of these samples is done every two years, which makes it possible to assess progress on the indicators.
 - Sentinel surveillance included collecting the following data:
 - Risk factors in the schools (water sources, sanitation, etc.)
 - Data on children related to:
 - Nutritional status (height, weight, body mass index, nutritional classification, etc.).
 - Water and sanitation (use of latrine or sanitary installation, water source, drinking water treatment, etc.).
 - Use of footwear.
 - Hand hygiene (handwashing).
 - The results of the sentinel surveillance are as follows:
 - 14 departments participated.
 - Children aged between 7 and 14 were studied.
 - 28 schools participated.
 - 8,713 children participated.
 - 1,495 children were examined.
 - 673 samples gave positive results.
 - Positivity was 42.7%.
 - 858 samples tested positive.
 - The negative response was 57.3%.
 - The conclusions were as follows:
 - There was a reduction of 0.8% in overall prevalence between 2011 and 2015.
 - With the exception of ecological area No. I, STH prevalence declined slightly in the regions.
 - Fewer than 1% of the children had a serious infection caused by an STH.
 - Due to the deworming activities there was a reduction in the proportion of children with severe STH, while STH prevalence reduction was slower. This suggests that more attention needs to be given to the determinants that favor the perpetuation of the infection.
 - To improve the outcomes, Honduras needs to strengthen management and coordination with the entities involved in improving water quality, basic sanitation, and, especially, health promotion.
 - Due to the $\geq 50\%$ prevalence in ecological areas I and VI, three rounds of deworming per year will be implemented there.
 - Sentinel surveillance has proved useful for evaluating compliance with the surveillance indicators on deworming and STH.

- ❑ Sentinel surveillance has also enabled direct monitoring of programmed activities on deworming days, as well as progress on STH prevalence reduction.
- ❑ Sentinel surveillance in schools has shown that two rounds per year of MDA led to a reduction in the intensity of STH in the school-age population.
- ❑ It is also suggested that such actions should be carried out in conjunction with other strategies, such as for education, hygiene, water, and sanitation, given that deworming alone does not reduce the prevalence of the parasites (although it does reduce the intensity of infection).
- ❑ Actions to reduce and stabilize the STH load have a major impact on the health of the school-age population, and it is clear that MDA has had a series of important effects. These effects, such as increased iron stores in the body, are indicators of age-appropriate growth, improved cognitive performance, lower incidence of clinical complications, and reduced absenteeism due to illness.

2.3 MONITORING THE EFFICACY OF DRUGS USED IN MASS DEWORMING CAMPAIGNS AT THE GLOBAL LEVEL

- Dr. Amadou Garbá, Delegate of the WHO Department of Control of Neglected Tropical Diseases, presented the protocol of the WHO Evaluation of anthelmintic drug efficacy against schistosomiasis and STH study. He drew attention to the need for the country STH control programs to harness the support of the WHO Collaborating Centers and research groups to assist with surveillance and monitoring studies.

2.4 ON-LINE COURSE ON THE CONTROL OF SOIL-TRANSMITTED HELMINTH INFECTIONS

Dr. Santiago Nicholls, Regional Advisor, Neglected Infectious Diseases Program (CHA/VT/NID), PAHO/WHO

- PAHO/WHO has produced an on-line course titled Soil-Transmitted Helminth Infection: Prevention, Treatment, and Control,³ to support NID surveillance, control, and elimination activities in the Americas.
- Access to the course, designed for independent study, is free of charge. However, course participants are invited to submit evaluations to confirm that they have completed the course and to comment on whether it has achieved its desired objectives.
- The course is for professionals in charge of STH control programs and other health care professionals responsible for managing and providing support in this area.
- The program consists of the following modules:
 1. Soil-transmitted helminths as a public health problem.
 2. Clinical manifestations, diagnosis, and treatment.
 3. Social determinants of STH.
 4. STH prevention.
 5. Incorporating STH control in other programs and platforms.
 6. Implementation of STH control measures at the national, subnational, and local level.
 7. Requests for drugs donated through PAHO/WHO.

The course is available at <https://mooc.campusvirtualsp.org/course/view.php?id=10>.

3. INTEGRATING THE WATER, SANITATION, AND HYGIENE (WASH) STRATEGY WITH STH CONTROL MEASURES

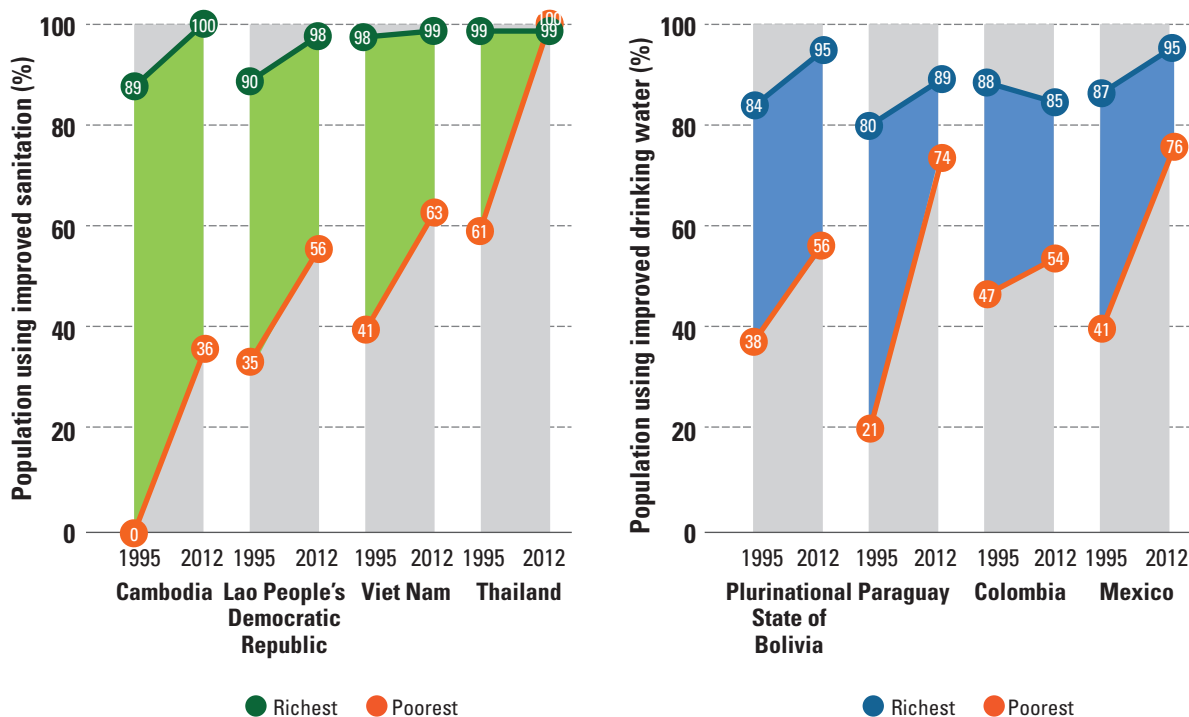
3.1 THE WASH FRAMEWORK FOR NEGLECTED INFECTIOUS DISEASES (NIDS) AND GLOBAL EXPERIENCES IN THE IMPLEMENTATION OF WASH PROJECTS FOR CONTROLLING STH

Dr. Teófilo Monteiro, Advisor of the Regional Water and Sanitation Technical Team (ETRAS), PAHO/WHO-Peru, on behalf of Dr. Sophie Boisson, WASH (WHO) Advisor

- The Joint Monitoring Program for Water Supply and Sanitation has been studying progress in the drinking water and sanitation area since 1990, including monitoring the seventh Millennium Development Goal (MDG7). The Program currently collaborates with UN partners on the subject of water in order to develop a framework for comprehensively monitoring Sustainable Development Goal 6 (SDG6) targets related to water and sanitation.
- The global MDG on drinking water was met in 2010 in 107 countries of five developing regions, including Latin America and the Caribbean. Of the world's population, 91% currently benefit from an improved drinking water source. Although 2.6 billion people have obtained access to improved drinking water sources since 1990, North Africa, Sub-Saharan Africa, Central Asia, the Caucasus, and Oceania have still not reached this goal.
- Despite progress, major disparities persist between countries in accessing water and sanitation. Of the world's urban population, 96% of them use improved drinking water sources, compared with 84% of the rural population. Eight out of 10 people who still lack access to improved drinking water live in rural areas. In 2015, 663 million people still lacked improved drinking water sources.
- The MDG on sanitation was not met in 2010. Only 95 countries in four developing regions reached the target. Latin America and the Caribbean failed to do so. Since 1990, 2.1 billion people have gained new access to an improved sanitation installation, and 68% of the world's population now have access. The only developing regions that have met the sanitation goal are North Africa, Central Asia, West Asia, East Asia, and the Caucasus.
- Over the 1990-2015 period, the practice of open defecation declined in all the regions, with the most significant changes recorded in the least developed countries (from a level of 45% in 1990 to 20% in 2015). Although the reductions are an important first step toward the sanitation goal, around 1 billion people worldwide still practice open defecation.
- There are also major disparities in sanitation. While 82% of the world's urban population benefits from improved sanitation facilities, this applies to only 51% of the rural population. In rural areas, 7 out of 10 people lack improved sanitation facilities, and 9 out of 10 continue to defecate in the open. Worldwide, 2.4 billion people still lacked improved sanitation facilities in 2015.
- In all the regions, there are inequalities of access to improved water and sanitation services between the richest and poorest population quintiles (Figure 7). Levels of inequality vary in both urban and rural areas in terms of the type and level of water/sanitation service. For example, in Bolivia, Colombia, Mexico, and Paraguay, wealthier people living in rural areas tend to have better access to the services than do the poorer population, although provision of water and sanitation services for the rural poor has, since 1995, advanced more rapidly. This is especially the case with Mexico and Paraguay. In Colombia, a decline in the water and sanitation coverage for the wealthiest households has narrowed the gap between rich

and poor. In Cambodia, Laos, Thailand, and Viet Nam, access to improved sanitation in urban areas continues to favor wealthier households.

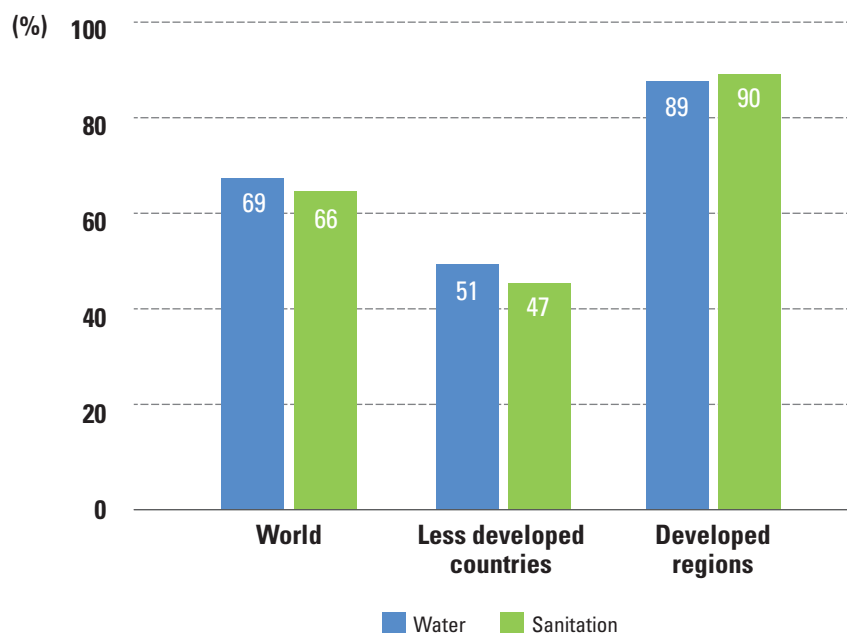
FIGURE 7. Trends in the use of improved water and sanitation services for the richest and poorest quintiles of urban and rural populations in Southeast Asia and Latin America, respectively, 1995-2012



Source: Progress on Sanitation and Drinking Water–2015 update and MDG assessment. UNICEF and World Health Organization 2015. http://www.ircwash.org/sites/default/files/progress_on_sanitation_and_drinking_water.pdf

The purpose of SDG6 is to ensure the availability and sustainable management of water and sanitation for all the world’s people. SDG6 has three targets:

- Target 6.1: To achieve, by 2030, universal and equitable access to drinking water at an affordable price for all.
- Target 6.2: To achieve, by 2030, access to adequate and equitable sanitation and hygiene services for all, and to put an end to open defecation, paying special attention to the needs of women and girls, and people in situations of vulnerability.
- Target 6.3: To improve water quality worldwide by 2030 by reducing contamination, eliminating dumping, minimizing the amount of chemical products and other hazardous materials entering water sources, reducing by 50% untreated wastewater, and increasing risk-free recycling and water reuse.
- Universal access to water and sanitation concerns not only people’s homes but also schools, health centers, etc. (Figure 8). Of the world’s schools, 69% have access to water, and 66% of them have sanitation facilities (89% and 90% respectively in developing countries; 51% and 47% in less developed countries).

FIGURE 8. Overall share of schools with drinking water and sanitation, 2013

Source: Progress on Sanitation and Drinking Water – 2015 update and MDG assessment. UNICEF and World Health Organization 2015. http://www.ircwash.org/sites/default/files/progress_on_sanitation_and_drinking_water.pdf.

- Many health centers still lack basic water and sanitation. With only 30% of health centers in Latin America and the Caribbean with water and sanitation facilities, health workers have difficulties to apply infection prevention and control measures, and to teach communities to adopt the safe practices vital for controlling and halting outbreaks of disease. The goal now is to accelerate equitable access.
- In 2012, WHO launched a road map aimed at accelerating work to overcome the global impact of neglected tropical diseases. The road map proposes five key interventions:
 1. Preventive chemotherapy.
 2. Intensification of case treatment.
 3. Effective vector control.
 4. Provision of drinking water and basic sanitation and hygiene.
 5. Inclusion of the veterinary sector in public health.
- There is a need to strengthen collaboration among the health, water, and sanitation sectors. All three would appear to have different approaches, limited communication, and few guidelines or ideas on how to provide water and sanitation services alongside other more effective NID interventions. Thus interventions tend to be based on medical care and treatment while environmental interventions and efforts to change behaviors lag behind.
- There are opportunities to work together with the water and sanitation sectors to control neglected infectious diseases, given that both sectors share common objectives: health, prosperity, equity, and sustainability. This joint work also favors the cost-effectiveness of the interventions and is aligned with the SDGs through other shared objectives, such as maximizing healthy life and universal access to both health services and water and sanitation.
- The WHO publication titled *Water, Sanitation and Hygiene for accelerating progress on Neglected Tropical Diseases: a Global Strategy 2015-2020* proposes the rapid and sustainable achievement of the

milestones of the NID road map targeted especially at the poorest and most vulnerable populations through joint and better-focused efforts to scale up WASH and NID topics, such as to:

- ❑ Improve knowledge of the common benefits of the WASH strategy and neglected tropical diseases (NTDs), by sharing experiences and ideas resulting from improved water and sanitation services delivery.
 - ❑ Use monitoring of NIDs and the WASH strategy to highlight inequalities, determine investment objectives, and boost progress.
 - ❑ Obtain more solid evidence on ways to use effective WASH interventions for controlling NIDs.
 - ❑ Plan, provide services, and evaluate WASH and NID programs with coordinated inputs from WASH, health, and NID partners at all levels.
- Some of the priority actions proposed by the WHO document are to:
 - ❑ Disseminate the global strategy.
 - ❑ Record and share the knowledge and experience acquired from improved practices.
 - ❑ Contribute ideas through the WASH and NID operational research agenda.
 - ❑ Support the NID and WASH coordination process.
 - The conclusions of the WASH framework for NIDs are the following:
 - ❑ It is necessary to work jointly with the WASH and NID strategies to interrupt transmission of the disease.
 - ❑ The WASH strategy must be prioritized in high-endemicity areas.
 - ❑ Schools should be a platform for distributing the required drugs and promoting the WASH strategy (hygiene, joint efforts to improve infrastructure, etc.).
 - ❑ Integrate the WASH strategy with nutritional and other health interventions.
 - ❑ Record and share experiences and knowledge.

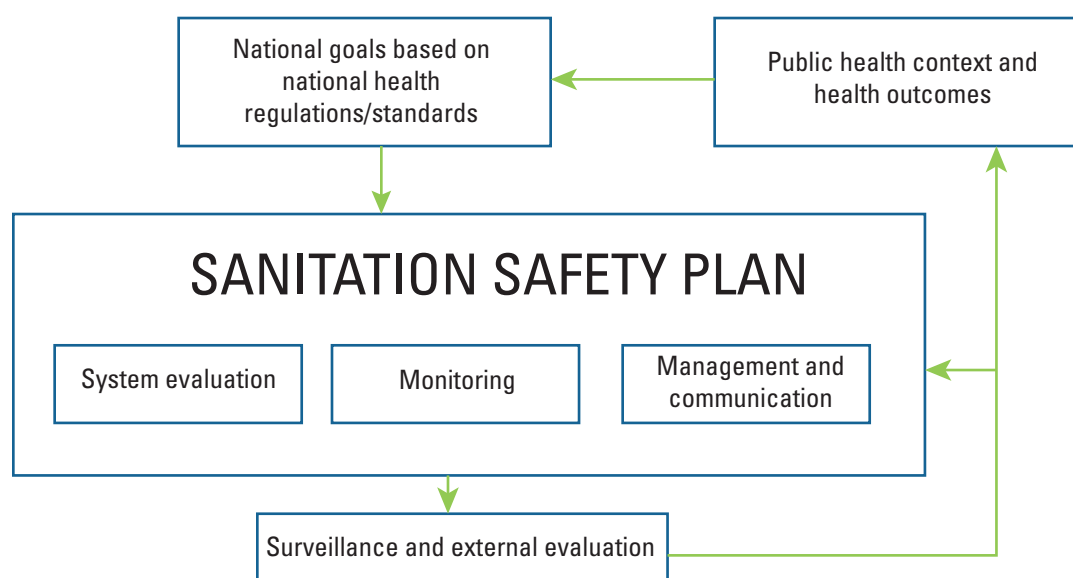
3.2 REGIONAL WATER AND SANITATION PLAN

Presented by Dr. Teófilo Monteiro, Advisor, Regional Water and Sanitation Technical Team (ETRAS), PAHO/WHO-Peru

- Public health depends on water and sanitation. In Latin America and the Caribbean, the water and sanitation situation explains why most NIDs (including soil-transmitted helminth infections) affect almost exclusively poor and marginalized population groups with limited access to better living conditions.
- The Millennium Development sanitation target has not been achieved in LAC. Around 105 million people in the LAC countries currently have no access to improved sanitation. In 2014, approximately 167 million people were living in poverty, including 83 million in extreme poverty. Of the homes with no access to sanitation, 85% of them are in the two lowest income quintiles.
- Some 18.5 million people in LAC, especially in rural areas, continue to defecate in the open. This is an important risk factor for STH control. Only 28% (estimated) of the wastewater collected via sewerage systems and 18% of the wastewater generated overall is treated, contributing to deterioration in water quality.
- According to WHO, an estimated 2 billion people throughout the world are infected by soil-transmitted helminths and over 600 million school-age children live in areas with intense transmission of the parasites, with no access to treatment or prevention interventions. In 25 LAC countries, there are an estimated 47 million children under 15 at risk of contracting STH. The critical factors in LAC that favor

- intestinal parasite infection include poor water quality and availability, lack of adequate sanitation, lack of health education, and neglect of food safety.
- The WHO publication titled *Water, Sanitation and Hygiene for accelerating progress on Neglected Tropical Diseases: A Global Strategy 2015-2020* proposes a sanitation strategy aimed at controlling oral-fecal exposure in order to reduce and eliminate helminthiasis transmission and prevent reinfection. According to this WHO road map, safe and permanent water and sanitation systems are needed, including adequate wastewater treatment and correct sewage management and disposal.
 - The road map for helminth infections proposes that by 2020 75% of school-age and preschool-age children who need treatment should be receiving it regularly.
 - The water and sanitation strategies set out in the road map are to:
 - Prevent open defecation and ensure adequate sanitation and stools management. Both of these are crucial for preventing infection by the eggs of these parasites, which are transmitted through the stools of infected people, which can reach the ground and can come into contact with food and hands.
 - Improve hygiene practices at home and school, such as handwashing with soap and water.
 - The strategy of the PAHO/WHO Regional Water and Sanitation Technical Team (PAHO/ETRAS) is based on *Sanitation Safety Planning (SSP)*, a WHO manual on the safe use and disposal of wastewater, gray water, and excreta.
 - The SSP methodology ensures the identification and evaluation of hazards and risks along the entire sanitation chain, based on the key principles of the water safety framework. Meanwhile, safety plans for managing wastewater must be based on the local health targets in accordance with national regulations and standards. The SSP framework includes the evaluation, monitoring, management, and coordination (communication) of the sanitation system, and the need for external surveillance. The SSP is a good guide to better understand the public health context and to allow ongoing feedback on updated goals, regulations, and standards.

FIGURE 9. Safety framework of Sanitation Safety Planning (SSP)



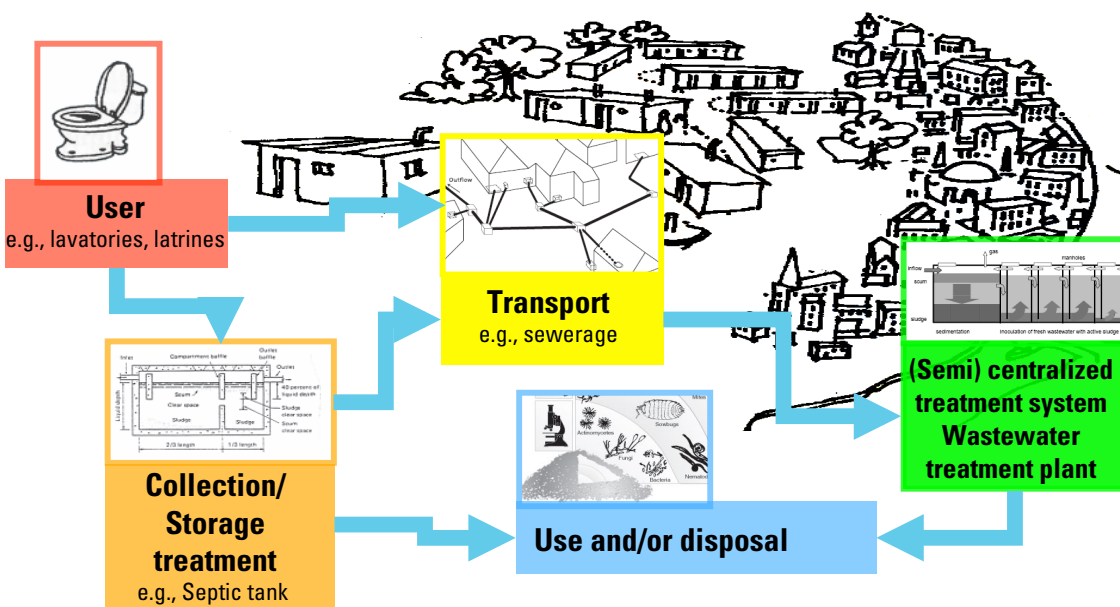
Source: Figure presented at the Regional Meeting by Dr. Teófilo Monteiro, Advisor, Regional Water and Sanitation Technical Team (ETRAS), PAHO/WHO.

- Safe management of the sanitation chain has a significant impact on the burden of disease and on interventions (Figure 10). Based on the WHO Water Safety Plan (WSP), the SSP seeks to maximize human health protection according to the following guidelines:
 - ❑ Establish multiple barriers (control measures) to prevent the transmission of water pollutants.
 - ❑ Follow the guidelines on drinking-water quality.
 - ❑ Establish multiple sanitation barriers to prevent the spread of contaminants.
 - ❑ Establish environmental limits for soils.
 - ❑ Follow the guidelines related to the safe use of wastewater, excreta, and gray water (*Codex Alimentarius*).
 - ❑ Establish environmental limits for surface water and groundwater.

- The SSP seeks to target the following:
 - ❑ Health authorities, health regulators, and local governments.
 - ❑ Sanitation company managers.
 - ❑ Sanitation companies and farmers.
 - ❑ Community organizations, farmer associations, and NGOs.

- The SSP has a risk management approach to sanitation systems based on six modules:
 - ❑ SSP planning preparation.
 - ❑ Description of the sanitation system.
 - ❑ Identification of hazards, dangerous events, control and risk measures.
 - ❑ Preparation and implementation of an incremental improvement plan.
 - ❑ Monitoring of control and verification measures.
 - ❑ Development of programs to support and review the plans.

FIGURE 10. Identification of dangers and risks throughout the sanitation chain



Source: Figure presented at the Regional Meeting by Dr. Teófilo Monteiro, Advisor, Regional Water and Sanitation Technical Team (ETRAS), PAHO/WHO.

- SSP pilot projects have been developed in Ghana, India, Malaysia, Peru, the Philippines, Portugal, Tanzania, Uganda, and Vietnam. The SSP can be applied to different sanitation regimens, such as the following in Lima:
 - The Huáscar Zonal Park in Villa El Salvador, supplied by the Huáscar Wastewater Treatment Plant run by the Lima Water and Sewerage Service (SEDAPAL, direct recycling).
 - The Cono Este de Lima agricultural area, with plots located in Huachipa and Nievería. These are supplied with water from the Rímac River, which is contaminated with wastewater. Some farmers use catchment basins in an attempt to improve water quality and breed fish (indirect recycling).

3.3 EXPERIENCES IN THE IMPLEMENTATION OF THE WATER, SANITATION, AND HYGIENE STRATEGY (WASH) FOR CONTROLLING SOIL-TRANSMITTED HELMINTH INFECTIONS IN HONDURAS

Dr. Reina Velásquez, Coordinator, Neglected Infectious Diseases and Zoonosis, Ministry of Health, Health Surveillance Unit, Honduras

- Resolution CD49.R19, titled Elimination of Neglected Diseases and other Poverty-related Infections, was issued in October 2009 under Article 49 of the PAHO Directing Council. The overall aim of the resolution is to eliminate STH and reduce its prevalence (according to egg count) among school-age children in high-risk areas from >50% to <20%. The resolution also urges, as a primary WHO-recommended strategy, the promotion of access to safe water, sanitation, and health education, by means of intersectoral collaboration.
- Honduras also has laws covering the delivery of water and sanitation services. The main ones include:
 - Framework Water Supply and Sanitation Sector Law (2003).
 - General Water Law (2009).
 - Vision of the Country 2010-2038.
 - National Plan 2010-2022 (2010), which defines the guidelines on water and sanitation services provision, institutional roles, water resources management, and watershed/ regional development planning.
- The permanent multipurpose household survey (EPHPM) in Honduras yielded the following results:
 - 86% of homes have access to drinking water, either through in-house connections (41%) or outside connections (45%) supplied through public or private water services (41% and 45%, respectively).
 - 96% of homes in urban areas have access to drinking water, compared with 75% in rural dwellings.
 - 49% of households report that piped water (public or private) is their main source of drinking water (urban 38% and rural 60%).
 - 13% of rural households obtain drinking water from wells, streams, or springs.
 - At the national level, 34% of the population have access to a piped sewerage connection.
 - 23% of the population uses septic tanks (approximately double the percentage recorded by the previous survey).
- Although Honduras possesses a precise legal and institutional framework covering water and sanitation, institutional and sectoral reform is not yet consolidated, due to the following:
 - The National Drinking Water and Sanitation Council (CONASA) has not assumed the functions conferred on it by the Drinking Water and Sanitation Sector Framework Law.

- ❑ The National Autonomous Water Supply and Sewerage Systems Service (SANAA) has not succeeded in transferring 100% of the systems to the municipalities. Furthermore, SANAA has not been restructured to enable it to assume the new roles conferred upon it by the Framework Law.
 - ❑ Municipal governments have not received incentives to take over the SANAA systems or to decentralize their existing systems.
 - ❑ Municipal governments suffer from financial, economic, and technical problems.
 - ❑ The Sectoral Steering Committee has functioned only intermittently, thus impeding effective coordination.

- Implementation of the WASH strategy has progressed as follows:
 - ❑ The NID Technical Group is functioning, and Regional NID plans have been rolled out to health regions, municipalities, and communities.
 - ❑ An intersectoral approach has been adopted.
 - ❑ Intersectoral management has involved local government and the community, within the framework of the “healthy municipality” strategy.
 - ❑ Priority requirements have been identified in schools and communities.

- With regard to hygiene and health education, the following is worth noting:
 - ❑ The Ministry of Health is responsible for the entire country, with 2 metropolitan and 18 departmental offices. Health Ministry Environmental Health Technicians (TSA) are responsible for day-to-day operations.
 - ❑ In the early 1990s, SANAA piloted the Healthy School and Home Project (ESCASAL), which employed participatory methodology to address sanitation, hygiene, and environmental topics. Supported by SANAA, UNICEF subsequently adopted this methodology, which later became a useful strategy for dealing with rural communities and peri-urban areas.

- Hygiene promotion in Honduras has a number of positive features:
 - ❑ It has been an ongoing operation, especially in rural areas.
 - ❑ The ESCASAL Methodology (School and Healthy Home) has produced very good results in both rural and peri-urban areas.
 - ❑ The recently implemented handwashing strategy has produced positive results among the target population.
 - ❑ Various NGOs and municipalities are now developing school hygiene programs on their own initiative.

- Hygiene promotion and health education in Honduras nevertheless faces the following challenges:
 - ❑ The ESCASAL methodology has only been implemented with the population that has access to water and sanitation services and has not yet reached more remote, vulnerable people.
 - ❑ The population is reluctant to adopt good health and hygiene practices.
 - ❑ The methodologies encounter problems, mainly in schools without a permanent water supply or the necessary physical sanitary facilities.
 - ❑ The law establishes that the service providers (i.e., individuals or legal entities that are authorized to provide water and/or sanitation services) are also charged with promoting health and hygiene education, but to date they have not assumed responsibility for this.

- Different types of NIDs are easily spread via polluted water sources and poor hygiene and sanitation practices. One strategy to reduce this problem has been to encourage teachers and health professionals to foster good hygiene practices by children through the Healthy School and Healthy Housing programs. These initiatives have produced the following results:
 - Four chlorine-producing devices (safe water systems) have been installed in the municipalities of El Triunfo and Marcovia, and in the departments of Choluteca, Colón, and Santa Fe, benefiting 100,461 people.
 - Chlorine tablet feeders have been installed in 30 communities of the Comayagua municipality in order to improve drinking water quality.
 - The Water Control and Supervision Unit (USCLAC) has trained the Water Management Steering Groups (*mesas*).
 - Water quality testing reagents have been supplied to the departments of Comayagua, Copán, and Intibucá.
 - Three hypochlorinators have been constructed for the water storage tanks in the municipality of Dolores, Intibucá.
 - 160 water filters have been provided for families in the departments of Intibucá and Copán who obtain drinking water from wells.
 - 50 schools have received 100 barrel-type water filters in 14 departments of Honduras, benefiting over 15,000 children.
 - Educational material on handwashing and intestinal parasitism has been prepared and distributed to schools and communities, reaching 22,755 educational establishments with a total of 1,727,743 children.

4. NEW TOOLS FOR CONTROLLING SOIL-TRANSMITTED HELMINTH INFECTIONS

4.1 MANUAL ON GOOD PRACTICES FOR REFILLING, REPACKAGING, DISTRIBUTION, AND DISPENSING OF DRUGS USED IN MASS TREATMENT CAMPAIGNS FOR NEGLECTED INFECTIOUS DISEASES (NIDS)

Dr. Nora Girón, Regional Advisor, PAHO/WHO

Regional Revolving Fund for Strategic Public Health Supplies (Strategic Fund)

- PAHO/WHO is preparing a manual with operational guidelines for good practices in the refilling, repackaging, distributing, and dispensing of drugs used in mass NID treatment campaigns based on the PC strategy in the Region of the Americas. These guidelines are intended for the following groups:
 - Those responsible for NID programs in Latin American and Caribbean countries where the PC strategy is implemented
 - Health personnel (auxiliaries, technical staff, technologists, and professionals) and education personnel (administrators and teachers).
 - Community leaders and volunteers involved in developing NID-related PC campaigns.
- The operational guidelines in the manual seek to identify concepts, methodologies, tools, and appropriate ways of refilling, repackaging, distributing, and dispensing drugs used in mass anti-NID campaigns in the Region.
- The main challenges to handling the drugs used in mass PC campaigns are:
 - Incorrect handling and splitting of drugs.
 - Inadequate monitoring of the shelf life of drugs used for refilling and distribution.
 - Incorrect preparation of pediatric dosages (tablet trituration and dissolution).
 - Nonexistent standards and procedures for drug handling in some countries.
 - Nonexistent standards for the management and disposal of unused drugs.
 - Drugs with labels and medical inserts in different languages.
 - Human resources not trained to carry out correct refilling procedures.
- The issues that need to be considered with regards to drug handling are:
 - Know the health regulations of the different countries before carrying out drug refilling.
 - Know the stability and technical specifications of the PC drugs being used.
 - Know the shelf life of the products and the conditions of the original container so that reconditioning can be correctly programmed.
 - Determine the infrastructure, equipment, and human resources required for the tasks.
- The management of drug supply involves four basic stages:
 - Selection of the drugs to be used.
 - An estimate of the requirements and knowledge of the procurement process (this stage involves managing drug donations).
 - Refilling and repackaging drugs is done during the storage and distribution stages.
 - Rational use of the drugs by the prescriber and dispenser in the community.

- The guidelines are framed to meet the following requirements:
 - To ensure that the quality of the drugs is suitable for PC.
 - The personnel involved in refilling, distributing, and dispensing drugs for mass PC campaigns must have the required skills and knowledge to perform the activities correctly.
 - To improve the management of drug supply and handling during mass distribution of drugs used for PC, MDA, and focused or selective PC.
- Details of the guidelines were presented during the Regional Meeting, although the recommendation are still at the working-document stage. The PAHO/WHO Regional NID Program hopes to publish the guidelines officially in 2017 when the final document is completed.

4.2 METHODOLOGIES AND TOOLS FOR MONITORING AND EVALUATION OF PREVENTIVE CHEMOTHERAPY (PC) COVERAGE

Dr. Martha Saboyá, Specialist in Neglected Infectious Diseases (CHA/VT/NID), PAHO/WHO

- PAHO/WHO technical cooperation for 2013-2016 has focused on increasing PC coverage in the Americas, including:
 - Administering and providing optimal coverage of PC to priority population groups.
 - Ensuring timely access to sufficient quantities of quality drugs (access to donations).
 - Timely communication of coverage and planning of MDA rounds.
 - Monitoring of serious adverse phenomena.
 - Combining PC with other platforms: VWA, Healthy Schools, various health campaigns, etc.
- A PAHO/WHO analysis of PC coverage for STH for the countries of the Americas has identified the following explanations for the differing coverage levels (<75% or >100%), and the challenges faced:
 - Mass drug distribution involves a series of operational difficulties.
 - There is a lack of regular reports and also of the definition of an adequate flow of coverage information. Local level reports are submitted late, and in some cases not at all.
 - There are difficulties in defining the target population, and it is necessary to determine if it is an issue with the denominator.
 - Inconsistencies have been noted between reports of drugs delivered to the local levels and reports of tablets actually used.
 - There is no single entity responsible for compiling, reviewing, adjusting, and analyzing PC data and indicators for monitoring the STH control program at the different country levels.
- The toolbox for monitoring coverage of integrated public health interventions, including STH vaccination and deworming, is being developed by the PAHO/WHO Regional Comprehensive Family Immunization Program and the PAHO/WHO Neglected Infectious Diseases Program. This tool indicates whether 75% of the target population in each MDA round is being treated. Still in the drafting stage, this document is scheduled to be published in 2017. However, the countries can use it now to initiate their planning and development of coverage monitoring. The instrument consists of six modules:
 - Module 1: Conceptual and methodological bases.
 - Module 2: Analysis of administrative coverage.
 - Module 3: Monitoring coverages in the field.
 - Module 4: Data quality analysis.

- ❑ Module 5: Coverage surveys.
- ❑ Module 6: Data analysis of surveys and nominal registries
- The analysis of administrative coverages makes it possible to confirm if coverage based on the administrative data has been achieved. The coverage indicators must be analyzed according to person, time, and place, and take into account the quality of deworming (dropout rate, etc.).
- Monitoring coverage in the field aims to confirm that the target population has received the intervention. The aforementioned toolbox describes the steps needed to develop this type of monitoring.
- Data quality analysis involves:
 - ❑ Evaluating the data quality (complete data quality assessment (DQA) and data quality self-assessment (DQS)).
 - ❑ Evaluating the data concordance and the quality of the information system (abbreviated DQA).
 - ❑ Evaluating data concordance.
- The coverage surveys make it possible to estimate the level of coverage based on probabilistic studies.

4.3 THE EXPERIENCE OF HONDURAS AND EL SALVADOR WITH THE IMPLEMENTATION OF MONITORING PREVENTIVE CHEMOTHERAPY COVERAGE (PC) IN THE FIELD AND WITH DATA QUALITY EVALUATION

The experience of Honduras

Dr. Reina Velásquez, Coordinator, Neglected Infectious Diseases and Zoonosis, Ministry of Health, Health Surveillance Unit, Honduras

- Honduras' Strategic Plan for the Prevention, Management, Control, and Elimination of Neglected Infectious Diseases (NIDs) 2012-2017 was launched in 2012 with PAHO/WHO support.
- STH control is implemented using strategies such as mass distribution of ALB or MEB to school-age children (5-15 years) in relation to prevalence, with >75% coverage.
- The MDA is implemented twice a year with two deworming campaigns in the schools for school-age and preschool-age children and during the National Vaccination Campaign Day for preschool-age children.
- In April 2012, a pilot project in San Esteban (Olancho) was launched for deworming preschool-age children during the National Vaccination Campaign Day.
- Coverage analysis involves two methods:
 - ❑ Coverage based on administrative registries, which provides:
 - Periodic data for monitoring the progress of deworming coverage.
 - Systematic deworming coverage data according to time, place, and person.
 - ❑ House-to-house and schools rapid coverage monitoring (RCM):
 - RCM of people vaccinated in a small, conveniently located area.
 - A simple, low-cost tool that provides immediate results.
 - Can be used as a supervisory tool.
 - Provides immediate information for improving coverage, by means of "sweeps," according to the findings.
 - Can be used by local health teams under the supervision of more senior staff, thus enhancing program performance evaluation.

- The DQA tool was applied as follows:
 - The partial evaluation was done:
 - Once the program coverage report was completed or at the end of the campaigns.
 - At least once a year at the national and departmental levels.
 - Data concordance was done during the supervisory activities. The data was analyzed and questions on critical points were entered on the supervision form (the aim is to enhance the DQA based on the results of the complete and partial evaluations at the national, departmental, and municipal levels).
 - After the National Vaccination-Deworming Campaign Day involving vaccination and the administration of antiparasitic drugs, the DQA of both interventions was simultaneously evaluated.

- The analysis of the findings generated by RCM and DQA made it possible to:
 - Obtain realistic data on the population targeted by deworming campaigns.
 - Obtain evidence of data inconsistencies.
 - Examine the data subsystem to ensure that it was suitable for its purpose.
 - Report the availability of materials, drugs, etc.
 - Identify the causes of non-deworming.
 - Assess the willingness of parents, students, and teachers to accept deworming.
 - Raise the awareness of mothers, teachers, schoolchildren, and the population in general about the deworming campaign and its benefits.
 - Know the extent to which deworming activities had been promoted.
 - Test the uniformity of coverage.

The experience of El Salvador

Dr. Alexandra Portillo de Juárez, NID Coordinator, Ministry of Health, El Salvador

- As a preliminary step for implementing monitoring of PC coverage in the field and for evaluating data quality in El Salvador in 2000-2001, two MEB rounds were carried out as part of the Healthy Schools initiative, which included completion of a family record card (ficha familiar), vitamin A treatment, and the provision of dentistry services.
- Table 3 indicates the deworming status of school-age children (5 to 15 years) in public schools in the ecoepidemiological areas on the coastal plain and the central plateau after the Health-promoting Schools initiative recommenced in 2014.

TABLE 3. Honduras: Deworming coverage in children 5 to 15 years old in public schools located in ecoepidemiological areas of the coastal plain and central plateau, 2014

Health region	Deworming		Coverage (%)
	Target (no. of children)	Implemented (no. of children)	
Western	152,066	95,288	62.7
Central	41,260	39,417	95.5
Metropolitan	127,340	114,335	89.8
Paracentral	71,764	64,461	89.8
Eastern	178,666	68,213	38.2
Total country	571,096	381,714	66.8

Source: Table presented at the Regional Meeting by Dr. Alexandra Portillo de Juárez, NID Coordinator, Ministry of Health, El Salvador. Ministry of Health deworming records, El Salvador, 2014-2015.

- The deworming target set for 2014 was 571,096 school-age children, and 381,714 dewormings were completed.
- The target for 2015 was to reach 1,184,441 schoolchildren enrolled in 4,932 public schools. Coverage by the 2015 antiparasitic campaign is shown in Table 4, by health region.

TABLE 4. Honduras: Coverage by the antiparasitic campaign, by health region, 2015

Health region	Coverage (%)
Central	71
Western	46
Metropolitan	50
Paracentral	80
East	49
Total	60

Source: Ministry of Health of Honduras.

- During the 2016 campaign, Ministry of Education departmental chiefs and technical assistants were trained under the purview of the Health-promoting Schools initiative. New forms were prepared, and a platform was standardized for compiling the resulting data (www.seps.salud.gob.sv). Evaluation of the findings is scheduled for 2017.
- In 2015, a pilot study was implemented for monitoring coverage as part of a WHO project designed to compare and standardize methodologies. Officials hope to commence coverage monitoring in 2017 once the study is finalized.

4.4 TOOL FOR INTEGRATED PLANNING AND COSTING (TIPAC)

Jackie Fuentes, Specialist in Project Support, Regional Neglected Infectious Diseases Program (CHA/VT/NID), PAHO/WHO

- The TIPAC is a computer program based on the application of Microsoft Excel macros that calculates, analyzes, and synthesizes the costs and funding gaps of NID operational plans.
- The TIPAC is used to:
 - Analyze costs and identify funding gaps in NID operational plans in countries.
 - Promote operational planning, including the identification of core tasks and activities (and financial imbalances), in order to help generate funds to implement NID operational plans.
- The TIPAC was introduced in response to:
 - Expansion and growth of NTD or NID programs.
 - Need for greater consistency and standardization of data related to NTD/NID programs.
 - Need for greater accuracy in program costs and funding gaps.
 - Need for coordinating budgets with activity plans.
 - Need for more transparent and effective communication with partners and donors.
- The key features of the TIPAC are:
 - Flexible format for recording estimated costs and funding.
 - Transparency of cost entries.

- ❑ Automatic estimate of government contribution to salaries.
 - ❑ Automatic calculation of target populations and drugs requirements.
 - ❑ Automatic results that summarize key data fed into the tool.
 - ❑ Forecast of costs and drug requirements over five years.
 - ❑ Progress monitoring in real time.
 - ❑ Ability to share and update information.
- The TIPAC makes it possible to perform the following operations:
 - ❑ Estimate the cost of implementing NID program activities within the framework of the national integrated action plans and international technical guidelines.
 - ❑ Quantify existing government-sourced funds and funding from other entities financing NID programs.
 - ❑ Identify and quantify funding gaps.
 - ❑ Promote the rational allocation of NID program funds.
 - ❑ Define concrete integration actions at the operational level.
- Country delegates attending the Regional Meeting were urged to use the tool in their operational plans, and were invited to request training support from PAHO/WHO in the use of this tool.

5. ACCESS TO DRUGS FOR PREVENTIVE CHEMOTHERAPY (PC)

5.1 PROSPECTS FOR DRUG DONATIONS FOR PRESCHOOL-AGE CHILDREN

Dr. Amadou Garbá, of the WHO Department of Control of Neglected Tropical Diseases, has indicated that drug donations for STH control are only available at present for school-age children. Efforts are being made with the donors to extend donations to other risk groups such as women of reproductive age and preschool-age children.

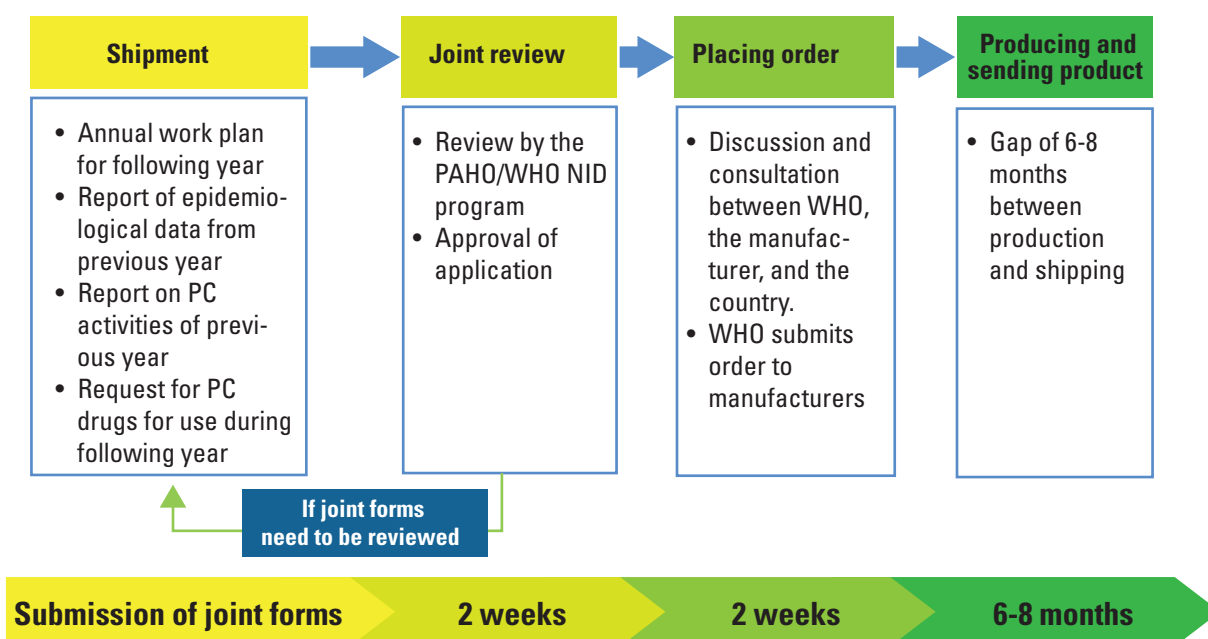
5.2 CHALLENGES IN DRUG DONATION MANAGEMENT: FORMS AND APPLICATION

Dr. Santiago Nicholls, Regional Advisor, Neglected Infectious Diseases Program (CHA/VT/NID), PAHO/WHO

- Drug donations by WHO for STH control programs:
 - Are aimed at school-age children.
 - Consist of MEB presented in 500-mg tablets and ALB in 400-mg tablets
 - Are available for countries with STH control programs.
 - Are requested on a once-a-year basis.
 - 10 countries of the Americas receive drug donations through PAHO/WHO (2014-2015): Brazil, Colombia, the Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Nicaragua, and Paraguay.
 - Some countries, such as Mexico and Venezuela, procure drugs in their local markets.
 - Drugs for preschool-age children are acquired by the countries through both purchase and donations.
 - In some countries, drugs are donated by NGOs.
- The following steps are required to access PAHO/WHO drug donations:
 - Health ministries must estimate their drug requirements and submit applications accordingly.
 - The ministry must report on its conditions for accepting donations.
 - The ministry must follow the standard procedures established by the country's National Regulatory Authority regarding drug donations.
 - WHO always requests the country's authorization before shipping the donations and ensures that all the documents required for importation are annexed.
 - WHO donates drugs that normally have a long shelf life, with expiration dates from three to five years.
 - Health ministries must establish ways and means for the donated product to pass into public ownership, from customs clearance to distribution throughout the country. Moreover, they must guarantee that the National Regulatory Authority has authorized the transaction, importation, customs clearance costs, etc.
- Problems have arisen in countries with regard to submitting data to PAHO/WHO on PC activities. PAHO/WHO requires that all countries report the following data (not only the recipients of donations):
 - PC rounds should be reported a maximum of two months after implementation.
 - PAHO/WHO requests that the previous year's reports be submitted before 31 March.

- ❑ Some countries delay more than a year in sending the report, or they fail to send it altogether.
 - ❑ A full and timely report facilitates performance monitoring of each PC round and provides information on the following:
 - Drug accountability (i.e., how they are used).
 - Cases of low PC coverage (to enable corrective actions to be taken).
 - ❑ In some cases the request form is completed but the results (to facilitate action) are not analyzed.
 - ❑ In most countries, unsatisfactory reports on unused drugs display lack of consistency between coverage data and the leftover drugs.
 - ❑ The country has no standardized formats and data flows.
 - ❑ The report must include subnational data (PC implemented by government agencies, NGOs, etc.).
 - ❑ Poor coordination between NGOs and other organizations that perform PC activities.
- Problems related to requests for donated drugs include:
- ❑ Difficulties in identifying the target population at the subnational level (school-age and preschool-age children).
 - ❑ Discrepancies in epidemiological data and the number of deworming rounds programmed, including in countries with baseline prevalence surveys.
 - ❑ Surplus drug data do not always include locally available drugs (deficient drug monitoring procedures, no follow-up of deliveries, etc.)
 - ❑ Requests do not reach PAHO/WHO between six to eight months before the deworming round, which makes planning difficult (Figure 11).
 - ❑ The countries do not consider the additional time (in some cases, months) required between PAHO/WHO receiving an initial request and the revisions and adjustments needed before final approval.

FIGURA 11. Línea de tiempo entre el envío de los formularios y la llegada de los medicamentos al país



Fuente: Solicitud conjunta de medicamentos seleccionados para quimioterapia preventiva y Formulario de notificación conjunta: Manual del usuario. OMS.

5.3 MANAGEMENT OF DONATED DRUGS IN COLOMBIA: CHALLENGES AND OPPORTUNITIES

Dr. Diana Gómez, Advisor, Director of Promotion and Prevention, Ministry of Health and Social Protection, Colombia

- The following is Colombia's experience of managing ALB donated by WHO. Regarding the 2014 report and the application for donations in 2016, these are the questions that came up:
 - What should be reported?
 - How should it be reported?
 - What was the 2014 target population?
 - What amount of drugs was received?
 - What amount of drugs was distributed?
 - How many children received the drugs?
 - Who is the contact person?
 - Where is the data?

- The lesson learned was that in order to guarantee deworming for the school-age population, it is not enough simply to apply to the WHO ALB donation program. In addition, the situation must be analyzed, and strategic and operational planning carried out.
- The following activities were implemented:
 - Constant communication with the contact persons (through e-mail, video conferences, telephone calls, and training sessions).
 - Feedback provided for each department, with data on:
 - Municipalities reached.
 - Target population.
 - PC rounds planned.
 - Quantities of ALB distributed.
 - Application forms and report forms were used.
 - A national meeting of the deworming program coordinators was held in December 2015.

- Drug donation management improved in the following respects:
 - There are trained contact persons committed to the mass deworming program.
 - Work plans are available in some departments.
 - A drug inventory was carried out.
 - There are contact persons who are trained in processing the report form and the application form.
 - A schedule has been prepared for the report and the application (delays of between three and five months).

- The following opportunities for improvement should be considered:
 - Study the realities of the program by taking into account each territory's special characteristics.
 - Identify opportunities for improving ALB donation management.
 - Update data on incoming and outgoing drug supplies.

- The challenges facing management of donated drugs are to:
 - Strengthen program contact persons' technical drug management capacities.
 - Improve the accuracy, quality, and timeliness of data collection and reporting.
 - Increase the coverage of the ALB donation program.
 - Implement the mass anthelmintic deworming policy throughout the country and ensure its sustainability.

6. RECOMMENDATIONS FOR STRENGTHENING GEOHELMINTHIASIS CONTROL IN THE AMERICAS

The delegations from the invited countries and the delegates from partner and allied organizations working on STH control who participated in the meeting worked in four groups to give recommendations on the following topics:

- ❑ Increase and sustain adequate PC coverage among groups at risk from soil-transmitted helminth infections.
- ❑ Incorporate the WASH strategy in STH control programs.
- ❑ Monitor and evaluate deworming coverage.
- ❑ Boost coordination with, and the support from, partners in STH control programs in the Americas.

The recommendations of the Regional Meeting work groups are presented in Annex 3.

7. CONCLUSIONS AND GENERAL RECOMMENDATIONS FROM THE MEETING

7.1 CONCLUSIONS

1. At the global level, progress is being made toward achieving 75% PC coverage among school-age children by 2024. In 2014, coverage in the Americas reached 44% of preschool-age children and 51.3% of school-age children.
2. The countries in the Region that have carried out deworming campaigns (e.g., the Dominican Republic, Honduras, Mexico, and Nicaragua) have strengthened the capacities of the STH control programs.
3. STH control programs have been established in several countries of the Region (e.g., Colombia, El Salvador, Paraguay).
4. Deworming activities have been integrated with existing platforms such as the Healthy Schools Program, the Expanded Program on Immunization, and efforts for other NIDs (lymphatic filariasis, trachoma, etc.).
5. The number of countries that receive PC drug donations to combat STH has increased (10 countries are now recipients).
6. New tools are now available to support STH control (e.g., manual to guide integration with other platforms, coverage monitoring, TIPAC, etc.).
7. IEC materials have been developed as part of the communication and social mobilization strategies for STH control in various countries (e.g., Honduras and Paraguay).
8. Opportunities have arisen in some countries for more interinstitutional dialogue aimed at strengthening advocacy and the development of STH control measures (e.g., committees, national steering groups, and municipal working groups).
9. Countries have improved data surveys of parasitological indicators and STH risk factors. Decisions to implement PC interventions have been based on these indicators. In some countries, these surveys have been integrated with ones on other diseases, such as malaria, trachoma, and schistosomiasis.
10. The goal of eliminating STH as a public health problem is to achieve a <1% level for moderate and severe infections.
11. Countries have national plans for improving WASH that are regulated and deployed by relevant entities. However, there are no WASH goals and targets associated with the NID control and elimination programs.
12. Globally and in the Americas, it is clear that drug donations have produced major benefits for programs to control and eliminate NIDs. However, problems in managing these donations persist in the countries, which make the donations difficult to track.
13. The *Manual of Good Practices of Refilling, Repackaging, Distribution, and Dispensing of Drugs in Mass Treatment Campaigns for Neglected Infectious Diseases in the Region of the Americas* is a useful tool for responding to the concerns and situations faced by entities trying to develop their programs. Country representatives, stakeholders, and partners who attended this Regional Meeting are urged to send their comments and suggestions on this manual to the PAHO/WHO NID regional program by 1 September 2016 at the latest.
14. The STH control programs in the Region of the Americas still have gaps in their deployment of monitoring and evaluation activities, given that efforts have mainly focused on increasing PC coverage rather than on M&E. Individual countries are at different stages of this process.

15. Use of the toolbox for monitoring coverage of comprehensive public health interventions, including vaccination and deworming, is invaluable at the different moments of the life cycle of the control programs dealing with STH. The toolbox contains the standardized methodologies for management data analysis, deworming coverage monitoring, and PC data quality assessment (DQA).

7.2 RECOMMENDATIONS

The following list of recommendations is intended for those responsible for the programs to control soil-transmitted helminth infections in the countries of the Americas, for PAHO/WHO, and for the partners and stakeholders associated with this issue:

1. Expand deworming to the different age groups at risk of soil-transmitted helminth infection in the countries of the Region (school-age and preschool-age children and women of childbearing age). PAHO/WHO support is needed to ensure the availability of drug donations to assist the programs to expand coverage of these population groups.
2. Lobby at the national and subnational level in all the countries for intersectoral actions to be taken to address the social determinants of health associated with soil-transmitted helminth infections (e.g., water, sanitation, hygiene, etc.). Actions include identifying common work goals among the practitioners responsible for STH control and those responsible for water, sanitation, and hygiene activities.
3. Mount an advocacy campaign to persuade local authorities (e.g., mayors) to adapt, plan, implement, and monitor STH control and elimination measures tailored to local cultural, ethnic, social, and economic conditions, and to promote integrated initiatives to address the social determinants of health.
4. Identify opportunities for joint interventions by WASH and NID programs for designing and developing well-focused, integrated projects in high-risk areas in the countries (e.g., to work up joint projects in schools in areas with a high risk of STH). This approach includes defining proxy indicators for monitoring integrated WASH and NID actions. PAHO/WHO technical support is needed for planning, developing, and monitoring such actions, which can be pursued under the purview of the WHO global strategy on water, sanitation, and hygiene (WASH) for accelerating progress on neglected tropical diseases 2015-2020.
5. Strengthen the mechanisms for managing PC drugs for soil-transmitted helminth infections. This involves monitoring the quality of the drugs purchased in local markets or donated by different WHO organizations, and improving coordination between health ministries and regulators in the different countries.
6. Those responsible for STH control programs are encouraged to avoid as much as possible refilling or repackaging PC drugs originally labeled as “multidose.” In order to achieve this, national and subnational programs must plan intelligently and use extreme care when considering the benefits and risks of repackaging drugs.
7. Program managers are advised to follow the recommendations in the *Manual of Good Practices for Refilling, Repackaging, Distribution, and Dispensing of Drugs in Mass Treatment Campaigns of Neglected Infectious Diseases in the Region of the Americas* provided by PAHO/WHO in the form of a working document. Official publication of this manual is scheduled for 2017. PAHO/WHO will include a training and technical assistance plan for the countries of the Region to learn how to use it.
8. Countries are encouraged to redouble their efforts to plan and apply for drug donations in advance, using the package of appropriate forms. Planning should take place at least six to eight months before the next scheduled date for deworming exercises.

9. Strengthen the information system in all countries so as to produce timely, good-quality information so that decisions can be made based on the best available evidence for STH control. Data collection instruments should be developed that are straightforward and easy to use for producing good-quality information. The countries are urged to obtain deworming data by age group and sex.
10. Strengthen the capacities of the national STH control programs to enable managers to prepare a comprehensive and critical analysis of epidemiological data, interventions that have already been deployed, and countries' current socioeconomic conditions, prior to making decisions on any changes or adjustments that might affect the STH programs. As a basis for the analysis, the programs will use the algorithm recommended by the WHO for modulating the interventions at the end of the program's life cycle (five to six years of intervention with PC epidemiological coverages equal to or more than 75% in each deworming round).
11. In all countries, strengthen the planning and deployment of monitoring and evaluation actions on deworming coverage, in order to determine if the population groups in need of preventive therapy are being reached, and to take the necessary corrective actions in each local context. The countries are urged to use the toolbox for monitoring coverage of integrated public health interventions.⁴ PAHO/WHO will provide the necessary technical cooperation after each country's requirements have been identified.

⁴ World Health Organization. Helminth control in school-age children. A guide for managers of control programmes. Geneva: 2011. Second edition. WHO; 2011. 72p.

ANNEXES

ANNEX 1: AGENDA

Regional Meeting to Boost Efforts for the Control of Soil-Transmitted Helminth Infections in the Americas

Lima (Peru), 1- 3 August

Venue: Hotel Meliá Lima, Avenida Salaverry, 2599.

Day 1: 1 August

Chairpersons: Martha Saboyá (PAHO/WHO) and Theresa Gyorkos (McGill University)

Rapporteurs: Session 1: Reina Teresa Velásquez (Honduras); Session 2: Mónica Díaz Miranda (Panama)

8.00-8.30	<i>Registration of participants</i>
8.30-8.40	<i>Welcome</i>
8.40-9.10	Inaugural session: Representative of the PAHO/WHO office in Peru Delegate of the Peruvian Ministry of Health Chief of the PAHO/WHO Neglected, Tropical, and Vector-borne Diseases Unit: Luis Gerardo Castellanos Delegate of the Coalition for STH: David Addiss
9.10-9.30	Introduction of participants
9.30-9.40	Presentation of Regional Meeting objectives: Nicholls Santiago, Regional Advisor, Neglected Infectious Diseases Unit (NID), PAHO/WHO
9.40-10.10	Session 1: Progress in global, regional, and national STH control programs Global context of deworming to control STH, and prospects for elimination: Amadou Garba, Department of Neglected Tropical Diseases (NTDs), WHO
10.10-10.40	Break and group photo
10.40-11.00	Advances in the control of STH in the Americas: Santiago Nicholls, PAHO/WHO
11.00-12.20	Experiences in the control of STH: Peru, Brazil, Colombia, and Paraguay
12.20-13.00	<i>Plenary Session 1</i>
13.00-14.00	Lunch
14.00-15.00	Session 2: Monitoring and evaluation of STH control programs in the Americas Integrated epidemiological surveys: the experiences of Mexico, the Dominican Republic, and El Salvador
15.00-15.20	Experience of the implementation of sentinel surveillance: Honduras
15.20-15.40	Monitoring the efficacy of drugs used in mass deworming campaigns at global level: Amadou Garba, WHO
15.40-16.10	<i>Plenary Session 2</i>
16.10 -16.30	Break
16.30-16.55	Presentation of the on-line course on STH: Santiago Nicholls, PAHO/WHO

Day 2: 2 August

Chairpersons: Jackie Fuentes (PAHO/WHO) and Diana Paola Gómez (Colombia)

Rapporteurs: Session 3: Alba Heredia (Dominican Republic); Session 4: Estela Quiñonez de Meza (Paraguay);

Session 5: José Jesus Méndez de Lira (Mexico)

8.00-8.30	Conclusions of Day 1
	Session 3: Water, sanitation, and hygiene (WASH) strategy
8.30-9.00	WASH framework for NIDs, and global experiences with the implementation of WASH projects for STH control: Sophie Boisson, WASH, WHO
9.00-9.20	Regional Water and Sanitation Plan: Teófilo Monteiro, Advisor, Regional Water and Sanitation Technical Team (ETRAS), PAHO/WHO
9.20-9.40	Regional experiences in the implementation of the WASH strategy for STH control; Honduras and Nicaragua
9.40-10.10	<i>Plenary Session 3</i>
10.10-10.30	Break
	Session 4: New tools for STH control
10.30-11.00	Manual on Good Practices of Refilling, Repackaging, Distribution, and Dispensing of Drugs in Campaigns of Mass Treatment of NIDs in the Region of the Americas: Nora Girón, Strategic Fund specialist, PAHO/WHO
11.00-12.00	<i>Plenary Session 3</i>
12.00-12.30	Methodologies and instruments for monitoring and evaluation of preventive chemotherapy coverage: Martha Saboyá, PAHO/WHO
12.30-13.00	Experience of Honduras and El Salvador in the implementation of monitoring of preventive chemotherapy coverage in the field, and in the evaluation of data quality
13.00-14.00	Lunch
14.00-14.30	<i>Plenary Session 4</i>
14.30-14.50	Tool for Integrated Planning and Costing (TIPAC): Jackie Fuentes, PAHO/WHO
14.50-15.00	Questions on TIPAC
	Session 5: Access to drugs for preventive chemotherapy
15.00-15.20	Prospects for drug donations for preschool-age children: Amadou Garbá, WHO
15.20-15.40	Challenges in the management of donated drugs: forms and application Santiago Nicholls, PAHO/WHO
15.40-16.00	Challenges and opportunities in the management of donated drugs: Colombia
16.00-16.20	Break
16.20-17.00	<i>Plenary Session 5</i>

Day 3: 3 August

Chairpersons: María Jesús Sánchez (PAHO/WHO) and Alexandra M. Portillo de Juarez (El Salvador)

Rapporteurs: Session 6: Jorge Alejandro San Juan (Argentina) and Luisa Teresa León Lanz (Venezuela)

8.00-8.30	<i>Conclusions of Day 2</i> Session 6: Recommendations for strengthening STH control measures in the Americas
8.30-10.30	Work in groups
10.30-10.45	Break
10.45-1.00	Continuation of work in groups
13.00-14.00	Lunch
14.00-15.20	Presentation of recommendations from the work groups
15.20-15.40	General questions and presentation of the course for NID program managers
15.40-16.00	Break
16.00-16.30	Next steps and closure
17.30	Farewell cocktail

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ANNEX 3: RECOMMENDATIONS TO STRENGTHEN CONTROL MEASURES FOR SOIL-TRANSMITTED HELMINTH INFECTIONS IN THE AMERICAS

Conclusions and recommendations by the Regional Meeting work groups

1. RECOMMENDATIONS TO INCREASE AND SUSTAIN ADEQUATE PREVENTIVE CHEMOTHERAPY COVERAGE OF GROUPS AT RISK OF SOIL-TRANSMITTED HELMINTH INFECTION

1.1 Recommendations to increase and sustain at least 75% coverage in each PC round in each group currently prioritized by the countries

1. Promote intersectoral and interprogrammatic integration policies to implement joint deworming programs.
2. Identify, involve, and define the roles and responsibilities of the different actors (health, education, NGOs, cooperation agencies, etc.).
3. Develop ethical, economic, and political arguments to sustain NID elimination efforts.
4. Develop information, education, and communication strategies, considering the special characteristics of each country (e.g., indigenous populations and illiterate persons). The activities must be performed at three different levels: decisionmaker, technical staff, and user.
5. Institutionalize the deworming actions during the comprehensive health weeks

1.2 Recommendations to move forward on deworming the different population groups at risk of STH (school-age and preschool-age children, pregnant women, adults in risk occupations, etc.)

1. Identify the target population in each risk group and analyze the different social programs through which deworming can be carried out for these groups.
2. Preschool-age children can be cared for through the EPI, full-time educational institutions, day-care centers, community health programs, etc.
3. School-age children can be cared for through agreements with the ministries of education.
4. Pregnant women can be cared for through the reproductive health program, with deworming as part of the control process for pregnant women.
5. Occupational groups at risk can be seen through public-private partnerships, farmers or rural workers associations, cooperatives, social organizations, etc.

1.3 Recommendations to increase support from PAHO/WHO technical cooperation or that of partners, NGOs, and other strategic allies

1. Develop interactive educational material for working with schoolchildren.
2. Record experiences and lessons learned that support the advocacy strategies.
3. Create a training and follow-up mechanism for countries to learn how to use TIPAC and to correctly complete drug donation application forms.
4. Provide technical support for countries that need to perform baseline surveys.
5. Assist with training in the use of tools for monitoring coverage.
6. Carry out advocacy actions to integrate NIDs and WASH programs.

2. RECOMMENDATIONS TO INCORPORATE WASH STRATEGY INTO STH CONTROL PROGRAMS

2.1 Recommendations to facilitate collaboration among national institutions responsible for WASH and NIDs at the national and subnational level (departments, states, provinces, municipalities) to ensure that NIDs are part of the decision-making process for implementing WASH actions and vice versa

1. Persuade ministries of health to change their erroneous perception that they are not responsible for WASH strategies and to raise their profile on the subjects of water and sanitation.
2. Advocate WASH strategies at the highest political level based on the Health in All Policies initiative promoted by the PAHO Environmental Health and Sustainable Development Unit, to forge a consistent national commitment.
3. Encourage formal agreements between the ministries of health of the countries and other involved sectors, institutions, and organizations, with a view to facilitating coordination and collaboration.
4. Persuade the countries' ministries of health to buy into a leadership role to:
 - Promote the participation of multiple institutions, organizations, and other sectors to facilitate the coordination, planning, and implementation of WASH actions.
 - Identify WASH-related tasks in different ministries and other sectors.
 - Lobby for regulation, policy formulation, and interventions.
 - Seek out strategic partners both internally and in other sectors.
 - Integrate WASH strategy with STH control and vice versa; adopt an integrated approach.
 - Work at the local authority level to strengthen political commitment and to plan and coordinate activities.
5. Include the management of waste, wastewater, and human excreta.
6. Formulate national STH and NID policies.
7. Establish steering committees or nationwide working groups.
8. Strengthen the role of the technical divisions to facilitate advocacy at the highest political level.
 - Remember that the health sector is the “eyes and ears” of WASH-related topics.
 - NID “focal persons” can advocate for better access to WASH.
 - Use the strengths of the health sector (guidelines, regulations, and policy formulation) to obtain better access to WASH.
9. Evaluate WASH measures in the countries in accordance with the PAHO/WHO recommendation, in order to determine what works and what does not work.
10. Use technical experience to raise local authority awareness of, and need for, WASH.

2.2 Recommendations to monitor implementation of the agreements and joint activities for STH control (data and report-sharing)

1. Lobby countries' ministries of health to improve the quality of data for controlling STH, to ensure that it is accurate, complete, and suitable for its purpose.
2. Seek to enhance the capacity of some ministries of health to improve coordination with institutions, experts, and other people with knowledge of WASH and NID strategies.
3. Improve or establish mechanisms for intersectoral coordination (housing, water, sanitation, health, etc.).
4. Conduct a careful review of the existing monitoring and evaluation tools.
5. Promote the combined use of standardized WASH and NID tools.
6. Use the local health system structures to facilitate monitoring and evaluation.
7. Strengthen the use and the application of health promotion as described in the WASH strategy.

8. Develop guidelines for monitoring and evaluating joint WASH and NID implementation (adequate programming of activities within the programs' life cycles).
9. Generate short-term integrated plans to boost effectiveness.
10. Consider other health determinants in addition to those linked to STH and WASH.

2.3 Recommendations to strengthen the support that is required from the PAHO/WHO technical cooperation or from NGOs, and other strategic allies and partners

1. With PAHO/WHO support, assist countries to improve their evaluations of the current status and requirements of existing NID programs.
2. With PAHO/WHO encouragement, promote the establishment or strengthening of national intersectoral committees prior to launching an integrated NID program.
3. With PAHO/WHO assistance, to promote and support countries' efforts to produce, distribute and share related or pertinent information.
4. All the NGOs and other actors need to make additional efforts to maintain adequate communication and data exchange with their national authorities

3. RECOMMENDATIONS TO MONITOR AND EVALUATE DEWORMING COVERAGE

3.1 Recommendations to boost the capacities, tools, and instruments needed by the countries to carry out the monitoring and evaluation of deworming coverage

It is suggested that the countries implement the following actions:

1. Analyze their needs for a nominal or consolidated registry of PC that reflects their goals and interventions.
2. Ensure that the forms are validated and adjusted to report coverage that includes the variables of age group and sex.
3. Prepare drug monitoring forms in order to be able to compare coverage data (i.e., verification).
4. Carry out a detailed exercise to identify the PC target population, so that the three coverage indicators (epidemiological, programmatic, geographical) can be correctly estimated.
5. Set up and disseminate data flows for the PC campaigns. This flow should be included in the national guidelines for deworming campaigns.
6. Promote meetings with those responsible for each administrative level in order to plan and evaluate PC actions, and to monitor and evaluate coverage.
7. Incorporate the data from the STH control programs .

3.2 Recommendations on best strategies to implement the monitoring tools discussed at the Regional Meeting

Each country should carry out the following action:

1. Prioritize their requirements for monitoring and evaluation training, including the use of the "toolbox."
2. Establish systematic communication between the different administrative levels in order to strengthen the monitoring and evaluation of coverage as an integral part of STH control programs.
3. Incorporate the deworming coverage analysis component in order to improve decision-making and data quality.
4. Strengthen oversight capacities at the subnational levels so as to improve coverage monitoring and evaluation.
5. With other platforms, conduct monitoring and oversight of integrated deworming activities, in order to be more efficient and to increase the quality of activities and data.

6. Explain and share the national strategy of the STH control program with the partners as a means of promoting and developing partnerships with NGOs, universities, research groups, cooperation agencies, and UN agencies, in order to strengthen the country's monitoring and evaluation capabilities.

3.3 Recommendations to enhance the support that is required from PAHO/WHO technical cooperation or from NGOs and other strategic allies and partners

1. With PAHO/WHO support, develop workshops in the countries that have not been trained in the use of the M&E toolbox.
2. With PAHO/WHO support, develop on-line courses as a way of disseminating knowledge of the M&E toolbox.
3. With PAHO/WHO assistance, ensure that partners, donors, and other allies support countries' efforts to insert the subject of NID control and elimination (to include monitoring and evaluation components) at the top of the public agenda.
4. With PAHO/WHO support, promote the sharing of experiences among the countries of the Region and thus strengthen monitoring and evaluation.

4. RECOMMENDATIONS TO ENHANCE PARTNERS' COORDINATION AND SUPPORT WITH RESPECT TO STH CONTROL PROGRAMS IN THE AMERICAS

4.1 Recommendations to strengthen coordination among countries and partners (included NGOs) to carry out deworming actions and to provide timely reports on deworming coverage in the countries

1. Promote deworming as a national priority.
2. The ministries of health, as the institutions responsible for implementing NID activities, should develop the national policy and work framework.
3. Develop action plans for the NID programs.
4. Establish STH and NID coordination groups to include ministries, NGOs, and other key actors at all administrative levels, taking into account the decentralization process.
5. Organize annual meetings for STH and NID coordination groups.
6. In order to achieve the NID objectives, the ministries of health should foster intersectoral links with other sectors (e.g., WASH, agriculture, nutrition, etc.) and share responsibility for NID activities.
7. The ministries of health should map out the partners' activities, to improve coordination and communication.
8. The ministries of health should establish reporting mechanisms to receive information from partners.
9. The ministries of health should maintain close links with the ministries of education, which are essential partners in the implementation of deworming programs.
10. Create platforms and coordination mechanisms for the three risk groups.
11. Standardize data reporting.
12. The ministries of health should acknowledge the usefulness of NGOs for achieving NID goals, and should seek to improve links between them and the government.

4.2 Recommendations to engage partners' support of national and regional efforts for STH control

1. NGOs should support national policies and plans.
2. The governments should clarify and simplify the mechanisms through which NGOs interact with ministries.

3. The Caribbean Water and Wastewater Association should develop, with the participation of PAHO, NGOs, governments, and other partners, a resources library to support NID activities.
4. The WHO Collaborating Centers should collaborate in efforts to boost capacities.
5. Existing WHO resources, including formats, should be used to ensure standardization of data reporting.
6. The ministries of health should work with other government departments and partners to develop NID activities (e.g., policy and planning development and implementation).
7. PAHO/WHO should share the executive summaries and recommendations of this Regional Meeting with the partners.
8. NGOs should develop mechanisms for communication among NGOs and between NGOs and government.
9. NGOs should report information to the national authorities.
10. NGOs working on other NID activities in addition to deworming (WASH, education, etc.) should be included.
11. Ways and means should be established to enable NGOs to share work, experiences, results, lessons learned, etc.

4.3 Recommendations to boost coordination and support of the partners for the countries of the Americas through PAHO/WHO technical cooperation .

1. NGOs contribute by identifying needs and reporting them to PAHO/WHO.
2. PAHO/WHO conveys coordination requirements to the STH coalition and to other partners.
3. PAHO/WHO holds more frequent meetings to sustain NID momentum.
4. PAHO/WHO identifies priority countries and specific technical issues needed to enhance its technical support.



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