Strategies for Strengthening Technical Capacities in the Implementation of the Integrated Campaign of Co-Administration of Azithromycin-Albendazole for the Control of Trachoma and Soil-Transmitted Helminthiasis Among the Indigenous Populations of Medio Vaupés, Colombia

Universidad de los Andes and the Health Campaign Effectiveness Program at The Task Force for Global Health

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**Key Messages**

- For the planning and implementation of integrated campaigns, a fundamental pillar is the training of community leaders in the understanding of neglected infectious diseases.

- Continuous training, which gives tools to health personnel on how to diagnose, treat, and monitor neglected infectious diseases, is fundamental to ensuring quality and equity in primary health care.

- For the success of integrated campaigns in the Vaupés Department of Colombia, an area in the Amazon River basin, it is necessary to unite all key actors in preparing for the integrated campaign to address neglected infectious diseases. Representatives of Indigenous groups are included as stakeholders in the planning committees to ensure the integrated campaigns are relevant to these communities.

- Preparations for the follow-up, monitoring, and evaluation processes of the upcoming integrated campaigns enable campaign planners to start early to identify opportunities for improvement and address challenges in promoting the well-being of the population.
Introduction and Background

Neglected infectious diseases are a public health problem in the department of Vaupés, Colombia [1]. The first focus of trachoma occurred when 21 Indigenous people of the Jupdá-Makú ethnic group in the communities of Santa Catalina and San Joaquín were diagnosed in 2010 [2]. Subsequently, through a large-scale population survey, the prevalence of follicular trachoma in children aged 1 to 9 years was estimated to be 23% [3], constituting a public health problem [4]. Similarly, gastrointestinal infectious diseases are the second leading cause of hospital consultations and the second leading cause of morbidity and mortality in Vaupés, according to a 2020 analysis of the health situation in Vaupés.

Given this problem, a study was conducted in 2012-2013 to investigate the prevalence of trachoma and associated factors in Vaupés [5]. Findings from the study contributed to conceptual elements in the design of a plan for eliminating trachoma and minimizing soil-transmitted helminthiasis and ectoparasites in the department of Vaupés [6]. This plan intends to use azithromycin to treat the population for trachoma, albendazole for treating soil-transmitted helminths, and sulfur ointment to treat scabies.

To achieve this, one of the specific objectives of the plan is to strengthen the technical capacity of the implementers of the plan. Within this objective, several training sessions are planned for the technical team that executes the plan. The four training courses initially proposed are Module 1 on ethno-educational processes in trachoma, soil-transmitted helminths, and ectoparasites; Module 2 on the behavior, environment, social inclusion, and treatment and care (BEST) framework and WASH (water, sanitation, and hygiene) strategy; Module 3 on diagnosis and treatment suitable for trachoma, soil-transmitted helminths, and ectoparasites; and Module 4 on management of the community-based information system (SIBACOM) and the information system for neglected infectious diseases (SENIDE).

Objectives

The objective of this work was to implement technical and pedagogical strategies to strengthen capacities of the health volunteers implementing the integrated campaign through the provision of mass drug administration of azithromycin and albendazole for the control of trachoma, soil-transmitted helminths, and ectoparasites in the Indigenous population of Vaupés, Colombia, in 2022.

Methods

There were four stages of data collection for this study: a systematic literature review, a methodology design of the training courses, training and information collection, and evaluation of the training module, described as follows.
Stage 1: Systematic Literature Review

We conducted a literature review oriented toward three competencies: (1) knowledge of the WASH (water, sanitation, and hygiene) strategy; (2) knowledge of the BEST framework; and (3) adequate diagnosis and treatment for trachoma, soil-transmitted helminthiasis, and ectoparasites. The scoping review was conducted based on the PRISMA checklist for scoping reviews [7] and findings were published in 2022 [8]. We developed a search strategy through the electronic databases of MEDLINE, Embase, LILACS EBSCOhost, and Scopus. The article selection process included reviewing titles and abstracts, reviewing selected articles, then reviewing full-text articles. Data extraction was conducted by two reviewers, in duplicate and independently. Rayyan software was used for the article selection process. Studies meeting the following criteria were included: (1) included a component related to educational strategies that were related to health; (2) orientation toward Indigenous communities in the Amazon region; and (3) orientation in one of the three related competencies. Data extraction was performed through standardized tables. Both a narrative and descriptive synthesis of the results were conducted to identify the findings for each of the competencies related to the search.

Stage 2: Methodology Design of Training Courses

In the second research stage, a training module was built through pedagogical methodologies appropriate to the context of the department of Vaupés, with relevance to local ethnic groups. The training was divided into a virtual repository and a face-to-face module, which relates to the type of actor to receive the training. For both situations, the modules were conducted in three phases: global design, detailed design, and development: (1) the objective of the global design phase was to identify the main themes to be addressed in the sessions. (2) In the detailed design phase, specific activities were created to meet the objectives of each session. (3) In the development phase, technical and audiovisual resources were available with their instructions for each day of work. The activity did not require any sample calculation or techniques; however, it was developed by a working group of experts. Additionally, Indigenous delegates from the prioritized areas were included to evaluate the ethnic relevance.

Stage 3: Training and Information Collection

Training in the two information systems was conducted: the community-based information system (SIBACOM) and the information system for neglected infectious diseases (SENIDE). Subsequently, the data collection instrument was applied in families located in the following areas: Suburbana Rio Arriba, Suburbana Rio Abajo, and Vaupés Medio. In this stage, information was collected in the SIBACOM and SENIDE systems from the communities (approximately 3,700 people and 750 families). The 2022 census was used as a sampling frame.

The data collection instrument includes the following sections: housing location, family members, housing quality and basic sanitation, health indicators by life cycle (weight, height, complete/incomplete vaccination report, morbidity, and blood pressure measurement), psychosocial risks (in the family, food safety, mortality). The only physical interventions made were weight measurement, height measurement, and blood pressure measurement in adults. The rest of the variables were self-reported by the family. Verification of this information was done through a home visit.
Stage 4: Evaluation of the Training Module

All personnel involved in each stage were the same personnel responsible for implementing the integrated campaign of the simultaneous administration of azithromycin and albendazole for treatment of trachoma and soil-transmitted helminths in prioritized communities. A total of 40 people participated in this intervention. A quantitative quasi-experimental methodological design was done through a pre- and post-evaluation of knowledge and practices related to topics of the training modules.

Results

Objective 1: Literature Review

The search yielded 490 records, of which 258 were excluded due to duplication. After screening by title and abstract, 23 full-text articles were reviewed. Six articles were included on which to perform data extraction, in addition to two studies that were included based on the recommendation of experts in the field. These eight articles met the criteria and were included. Two referred to the BEST framework, four to WASH, and two to the diagnosis and treatment of neglected infectious diseases.

De Toledo and Giatti (2015) mention that the cyclical framework of the combination of tools of different nature (dialectical and non-dialectical) strengthens the participatory process and promotes empowerment and initiative-taking of social actors, especially Indigenous communities [9]. Dialectical tools make it possible to overcome the challenges of participation and non-dialectical tools and complement the process in order to meet the needs of Indigenous communities.

Badanta-Romero et al. mention Purnell’s cultural competence model as the basis of the community care plan developed in their study [10]. This model gives facilitators, who in this case were nurses, the ability to assess the plan competently and intervene to improve people’s health in a given culture.

Regarding the educational strategies identified in the Amazonian context for the WASH sector, Giatti LL et al. and Toledo et al. (2006) agree on the importance of not only involving social actors but also allowing them to express their needs and expectations, feelings, and opinions [11,12]. Therefore, they propose an educational strategy called the “talking map” (participatory mapping), in which the participants must draw the place where they live, identifying the environmental and sanitation conditions related to their health as good or bad. Clinical material includes clinical training tools and patients’ educational material [13]. In addition, the material provides an e-learning module based on the Trachoma Story Kit, which was developed by the Remote Area Health Corps and Indigenous Eye Health for urban health professionals to create short-term contracts in remote Indigenous communities. Schools are a crucial setting for trachoma education worldwide, and as children can be agents of change for trachoma elimination, lesson plans were developed to align with the school curriculum.
Objective 2: Training Course Design

A virtual course, called Neglected Infectious Diseases: Training for Health Agents in the Conceptualization and Socialization Phases, was designed and developed. Three phases were proposed for the course: (1) The first phase of educational analysis addresses the recognition of the conditions of the context, the characteristics of the subject, and the population. (2) The second phase covers techno-pedagogical educational design. (3) In the third phase of development, the virtual learning environment designed in the previous stage was created, involving content and technology from the educational field. The complete course has a total of four modules: Module 1: Neglected Infectious Diseases from the ONE HEALTH approach; Module 2: Soil-Transmitted Helminths; Module 3: Ectoparasites; and Module 4: Information and Registration System (SENIDE).

Objective 3: Training and Information Collection

The information system on neglected infectious diseases tool, known by its acronym SENIDE, was designed and developed. In addition to the paper file's design, the tool was digitized to facilitate its completion. Once designed, and jointly with SIBACOM, the team traveled to Medio Vaupés to collect data, which revealed the following findings:

- The travel time between the capital and the communities was on average four hours, with communities located two days away from Mitu and two hours as the minimum travel time, which constitutes one of the main difficulties in accessing the health system.

- The demographic structure of Vaupés is a young population of boys, girls, and adolescents. However, when visiting, only older adults and women were found.

During the tour, the following health problems were found. The main queries made to the commission were related to specific events:

- Chronic noncommunicable diseases, especially hypertension and diabetes.

- Neglected infectious diseases including scabies, myiasis, pediculosis, leishmaniasis, filariasis, and parasitic diseases, which were present in about 70% of the population who showed signs and symptoms of parasitism.

- Pregnancy-related conditions.

- Accidents and natural disasters.

- Insufficient and inadequate means of communication and transportation.

Objective 4: Training Evaluation

Training on neglected infectious diseases was conducted, in which 37 people participated, including 8 health promoters, 12 public health technicians, 10 environmental management technicians, 4 nursing assistants, 1 veterinarian, and 2 head nurses. This team is responsible for implementing the integrated campaign for mass drug administration of azithromycin and albendazole for the control of trachoma, soil-transmitted helminths, and ectoparasites in the Indigenous population of Vaupés, Colombia. The plan includes the training and instrument design.
phase, which was carried out by the Universidad de los Andes (University of the Andes). The Departmental Secretary of Health of Vaupés is conducting data collection throughout the department of Vaupés, and then in the first quarter of 2023, the drug will be co-administered for trachoma and soil-transmitted helminths.

When evaluating the performance of the training using the questionnaire on the trachoma elimination program, it became clear that the training had increased knowledge and competencies, on average by 5.2 correct answers (out of total 20 questions), with a significance level of 99%. It also increased, on average and significantly at 99% confidence, by 1.3 points on a 5-point scale. All questions could be answered correctly. On average, the 18 groups of two health workers each answered 9.8 answers correctly before training and 15.01 after training, an increase of 5.2 correct answers, on average, at a 99% significance level. The questionnaire on soil-transmitted helminths had 20 questions, all of which could be answered correctly. On average, the 19 groups of two providers each answered 12.9 answers correctly before training and 16.33 after training, an increase of 3.4 correct answers on average with a significance level of 99%.

**Promising Practices**

- Training community leaders in understanding neglected infectious diseases is a key pillar for planning and implementing integrated campaigns.
- Continuous training, which gives health personnel tools on how to diagnose, treat, and monitor neglected infectious diseases, is fundamental to ensuring quality and equity in primary health care.
- For the success of integrated campaigns, it is necessary to unite all key actors in the territory around a common objective. Representatives of the Indigenous groups are included as stakeholders in the planning committees to ensure the integrated campaigns will be relevant to the communities.
- The success of the campaigns lies in the collective construction of sustainable solutions that respond to the territory’s needs. For solutions to be sustainable, they must respond to the needs prioritized by the communities and must be co-constructed with them, taking into account the physical resources, existing materials, and dialogue on their way of understanding the world.
- The follow-up, monitoring, and evaluation processes throughout the implementation of the integrated campaigns enable campaign planners to identify improvements and opportunities and address challenges in promoting the well-being of the population.
- The design and implementation of tools for diagnosis, treatment, and follow-up allow medium- and long-term standardization of processes that will serve to adjust the plans, programs, and projects related to neglected infectious diseases.
• Involve community leaders throughout the micro-planning process to ground activities in the sociocultural context.

Lessons Learned

• It is necessary to implement permanent and continuous education processes on neglected infectious diseases and integrated campaigns to generate evidence on implementing integrated promotion and prevention strategies. These actions must be managed by territorial institutions with a legal responsibility to deliver routine health services.

• Having a health information management system with standardized and digitized data collection tools allows for real-time monitoring of key indicators, which the health system can act upon to plan for and deliver services to the population.

Implications for Policy, Practice, and Future Research

Strengthening the capacity of health workers using an approach that is sensitive to ethnic groups and providing training processes for diagnosis, treatment, and education in health promotion and prevention are fundamental tools within the framework of health models based on primary health care approaches. These tools make it possible to build sustainability in the medium and long term in health care policies focused on individuals.

According to the results of this project, health education aimed at voluntary agents has demonstrated its effectiveness in various scenarios in appropriating behavioral changes much more quickly in different communities, resulting in the timely diagnosis and complete treatment of neglected infectious diseases.

Multiple challenges remain, however, particularly those related to the community’s involvement through the expert community peers, who are people immersed in the community. These experts must be competent in generating spaces that foster dialogue on different topics. Given their broad knowledge of the subject, peers can serve as community watchdogs for neglected infectious diseases.

Future research possibilities:

• We cannot lose sight of the fact that our center of attention is the people, and in this sense, integrated campaigns must be focused on seeking changes in behavior, the guarantee of basic sanitation, the supply of drinking water, and the non-discrimination of people affected by neglected infectious diseases.

• Integrated campaigns must prioritize all people living in highly rural and dispersed territories, but especially girls and women.

• National and local governments are obliged to prioritize programs related to neglected infectious diseases so that no one is left behind.
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References


