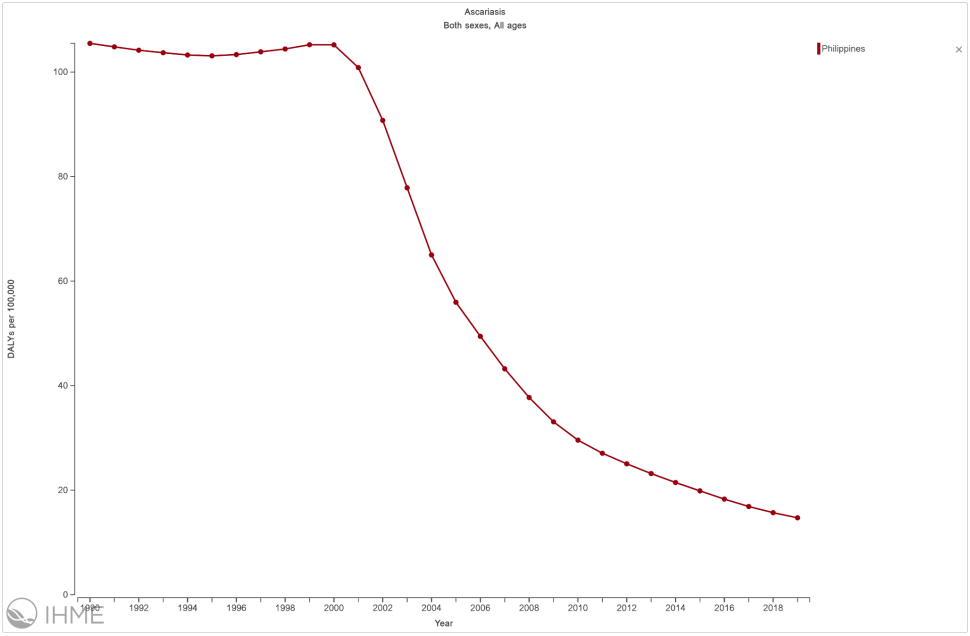
Bare Philippines: Expanding access to proper waste management systems, hygiene education, and treatment for soil-transmitted helminthiasis in the Philippines

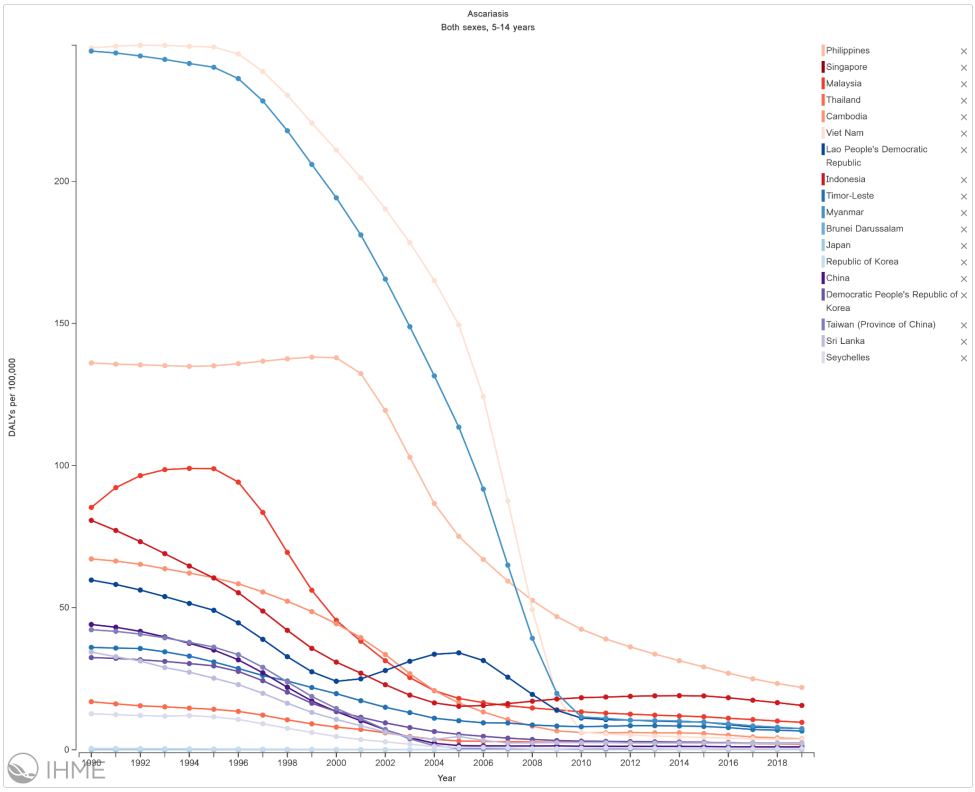
- *Bare Philippines* STH Intervention Program

Soil-transmitted helminthiasis, also known as parasitic worm infection, affects about 1.5 billion individuals every year[1], with a global burden of 9.74 DALYs per 100,000. The Philippines, a country with a population of about 117.15 million, had a burden of 14.71 DALYs per 100,000– one of the highest rates in all of Asia– as of 2019. In 1999, the Filipino government passed Administrative Order No. 30-F S 1999: "*The Soil-transmitted Helminthiasis Control Program: Guidelines on the Implementation of the Soil-transmitted Helminthiasis Control Program*", which called for regional, provincial, and municipal deworming programs for children aged 2-14 years old through the use of albendazole tablets[2]. Overall, the policy was a success as infection rates declined exponentially. From 100 DALYs per 100,000 in 1999, that number dropped by 70% to 30 DALYs in just 10 years.



Ascariasis DALYs per 100,000 in Philippines, via *VisHub IHME*

Despite this affirmative progress, the rate at which cases of STH is decreasing has begun to decelerate; Yet, the Philippines remains the number one country in SouthEast Asia and one of the top countries in all of Asia in terms of STH prevalence.



Ascariasis DALYs per 100,000 in SouthEast and East Asia, via *VisHub IHME*

STH is a cycle. Starting from an unaffected individual, the process of contraction begins with exposure to an environment where helminths are present. Possible forms of exposure include: walking without foot gear (bare foot) in helminth-contaminated soil, eating raw foods that have not been properly sanitized, improper handwashing and hygiene practices before/upon eating or activities where hands come into contact with the eyes, nose, and mouth. These remain among the list of possible ways of STH contraction, however, once inside the body, helminths lodge themselves into an individual's intestines and begin extracting the nutrients from the food they eat in order to grow themselves. The helminths, however, do not only rob their hosts of nutrients but multiply inside their bodies as well. More helminths are then released through feces and often return back into the environment due to open defecation.

Conventional treatment for STH involves albendazole deworming tablets that exterminate the worms and allow them to be flushed out of the body through the stool of the host. While this has proven to be highly effective in most cases, MDAs of the drug do not solve the problem of STH entirely. Rapid reinfection, drug resistance, and limited access to such medicines for communities that are overlooked by the nationwide program all continue to perpetuate the problem of soil-transmitted helminth infection.

- Overview

Bare Philippines is a non-governmental hybrid nonprofit that seeks to engage in both advocacy and service for those who suffer from STH. While nationwide MDAs of albendazole and hygiene and health education have been invaluable in the response to STH, infection rates have remained stubborn as the sustainability of the program has proven to be a challenge[3].

- Mission/Vision:
  - Forging a new stable equilibrium where underprivileged Filipino children, who are most vulnerable to the disease, are protected and liberated from the burden of soil-transmitted helminthiasis.
- Your organization's objectives
  - To fill in the gaps left by larger institutions and programs in the context of soil-transmitted helminthiasis control and to reduce STH prevalence in the Philippines by targeting the areas that are neglected and affected most.
- Your program's objectives
  - Rather than focusing all our attention on treatment, *Bare* targets **prevention** and an end to the cycle of soil-transmitted helminth infection. *Bare* believes that this can be accomplished through means of increased awareness of STH, sustained quality education regarding proper health and hygiene practices, consistent access to necessary drugs, and improved sanitation and waste management systems: an underlying determinant of this disease.

- Beneficiaries
  - A 2015 survey of STH prevalence per province illustrated that the disease was most pervasive in Region 3, 4B, 5, and 8, which had corresponding prevalence rates of 20.4%, 25.8%, 50.4%, and 32.5% for Ascaris Lumbricoides alone[4]. Within these regions is one of the most marginalized, disadvantaged, and poorest social groups in the country, the indigenous Aeta people. They are often[5] cited to be at great risk for STH infection as a result of their unfavorable hygiene and sanitation conditions and limited access to toilets or proper waste management systems, which perpetuate open defecation and consequential contraction of the disease. While Aeta communities and schools have been included in the government program, there is seldom a sufficient amount of medicines to treat all the infected individuals due to their staggering number— with one Aeta community having an infection rate of 97.4%— and delivery exceptions of albendazole. Although their communities have been dispersed across the country, the main concentration of the Aeta population is in Region 3, in the provinces of Tarlac, Pampanga, Aurora, and Zambales, respectively 29.1%, 28.2%, 23.6%, and 22.9% infected with Ascaris[4].

- Program Details
  - The ultimate goal of *Bare* is to minimize the burden and percentage of STH infection among school-age children (aged 2-14) in the areas of the Philippines, the population that suffers most. The first step of this intervention is a needs assessment as we believe that every individual situation requires a specific approach based on unique circumstances.
  - Needs assessment:
    - Communities qualify to be a part of this program if the rate of STH (ascaris) prevalence (AP) is greater than or equal to 12%.
    - Based on their AP, each partner community is then placed into one of the following groups:
      - P3: $13\% \leq AP < 20\%$

- P2: 20% ≤ AP < 25%
- P1: 25% ≤ AP

○ Provisions and services are then determined using the following framework:

	Description of program
P1	● STH and deworming awareness initiatives within the community. ○ Implementation of STH prevention day/week in schools or community health centers to remind individuals of STH and its prevalence in the community. ○ Discussions on the importance of deworming and dangers that come if it is overlooked with parents that refuse to have their children dewormed. ● Integration of hygiene and health education into local curricula and reinforcement of such in schools and other areas of the community.
P2	● Provision of one year's worth of albendazole tablets (2 per individual) enough for all at-risk children in the community. ○ Note: If the child is currently enrolled in the government-sponsored bi-annual deworming program, extra doses of the medication will not be administered, rather, kept in a secure storage facility at schools or health centers in case of shortages in terms of the medicine or necessary emergency treatment. ● STH and deworming awareness initiatives within the community. ○ Implementation of STH prevention day/week in schools or community health centers to remind individuals of STH and its prevalence in the community. ○ Discussions on the importance of deworming and dangers that come if it is overlooked with parents that refuse to have their children dewormed. ● Integration of hygiene and health education into local curricula and reinforcement of such in schools and other areas of the community.
P3	● Implementation of proper waste management and sanitation systems through the installation of latrines. The number of latrines installed will depend on how many are necessary to adhere to either or both of the following sanitation standards: ○ All households are less than 50 meters away from the closest latrine[6]. ○ The latrine to children ratio must be no more than 1 to 20[7]. ● Provision of one year's worth of albendazole tablets (2 per individual) enough for all at-risk children in the community. ○ Note: If the child is currently enrolled in the government-sponsored bi-annual deworming program, extra doses of the medication will not be administered, rather, kept in a secure storage facility at schools or health centers in case of shortages in terms of the medicine or necessary emergency treatment.

	• STH and deworming awareness initiatives within the community.
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	  ○ Discussions on the importance of deworming and dangers that come if it is overlooked with parents that refuse to have their children dewormed.
	• Integration of hygiene and health education into local curricula and reinforcement of such in schools and other areas of the community.

- Evaluation plan
  - Prior to implementation of the program, a survey will be conducted among the children of the partner community to provide a rough estimate of STH prevalence. Reports concerning academic performance, attendance for each of the children from the beginning of the program will be recorded. Information used to calculate BMI (height and weight) will also be requested once a year from the start of implementation. Every 4 months, academic performance will also be requested to monitor the effects of the program on the children.

- References

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