

Parasite and Anemia Project

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Project Summary: Dr. Hibbert, the Provincial Secretary of Health and Human Services in Boqueron Province, is concerned about intestinal parasitic infestations and their association with protein deficiency and anemia. She has proposed a project within her Province to gain clinical information about the extent and severity of hookworm infections among the Nivaculé children. The results will assist her in obtaining more government assistance in correcting the problem. A more immediate solution will be implemented in the village of Abundancia.

Background: While rare in the U.S., hookworm infestation affects about a quarter of the world population. Hookworm eggs are passed in stool and infection results when a person comes in contact with the eggs from the contaminated soil or stool. The larvae enter through the skin and travel to the lungs through the blood. They climb up the lungs through the bronchi and trachea and then are swallowed. As the larvae pass into the digestive tract, they attach themselves to the wall of the small intestine. Here they mature into adult worms, mate and feed on the blood of the host. The cycle then starts over as more eggs are passed in the stool.

Infestation therefore occurs because of fecal contact with the soil. This occurs in areas of poor water treatment and hygiene. Infections can be treated with the drugs mebendazole, albendazole and pyrantel, but if the lifecycle of the parasite is not broken, then treatment is only temporary, as new intestinal infections will undoubtedly occur. Prevention must therefore be emphasized, not treatment.



The Nivaculé children eat a low protein diet, but their health problems are exacerbated by the hookworm infestations, resulting from blood loss as the hookworms feed in the intestinal tract. This leads to anemia (decreased energy, strength and mental ability), protein deficiency and diarrhea (fluid loss and dehydration).

The village of Abundancia, like other Nivaculé villages, has a fundamental infrastructure and education problem leading to the hookworm problem. First, the latrines are in poor condition and in locations that lead to fecal spread near the houses during heavy rains. This spreads the larvae to the soil around the houses and where the children play. Second, children often do not use the latrines. Third, children do not wear shoes, exposing their skin to the larvae.

Proposal: The following steps can be completed with the assistance of a pair of college interns. The anemia testing will be done under the direction of Dr. Sandoval, a physician working in the hospital in the village of Villa Choferes and Dr. Hibbert, a Mennonite and Secretary of Health and Human Services in Boqueron Province.

1. Each of the 43 families should have a new latrine, set in a location and engineered to avoid over-run in heavy rain. Materials for the latrines and well as building tools will be supplied by the Foundation. Labor will be provided by the families. Oversight will be provided by the college Interns.
2. In conjunction with the Boqueron Province Department of Health and Human Services, 500 children will be tested for anemia, a sampling from 10 Nivacle villages, including Abundancia. Interns will do the blood testing with the assistance of the village health providers, one-year trained nurses assigned one nurse per village. The results of this can be used by Dr. Hibbert to seek government help in solving the parasite problem throughout the chaco. Village health providers will gain valuable experience working the college interns.
3. Interns will perform presentations in 10 schools to teach children about hygiene and how to prevent parasitic infections.

Cost:

1. Hematocrit testing equipment for 500 tests	\$2,000.00
2. Materials for 43 latrines	\$2,150.00
3. Building tools and Shovels	\$ 350.00
4. Assistance for 2 Interns for the six week project (Interns will be require to provide \$2000.00 for their plane ticket and room and board)	\$1,500.00
Total Project Contribution	\$6,000.00

How Can I Help: We are seeking donations to cover all of, or part of, the above project. All money donated will be spent as outlined above. There are no administrative or fund-raising costs. If you are interested, please contact:

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