



# Xicotepec, Mexico: An International Perspective

<sup>2</sup>A. Schwemm, <sup>2</sup>K. Hanson, <sup>2</sup>L. Duffey, <sup>2</sup>J. Kampf, <sup>2</sup>A. Schmelzer, <sup>2</sup>H. Seaba, <sup>1</sup>J. Florman, <sup>3</sup>C. Just  
<sup>1</sup>Center For Teaching, University of Iowa, Iowa City, Iowa  
<sup>2</sup>The University of Iowa College of Pharmacy, Iowa City, Iowa  
<sup>3</sup>The University of Iowa, College of Engineering, Iowa City, Iowa  
Rotary International



## Description

- A collaboration with Rotary International (District 6000, Iowa and Xicotepec, Mexico) to develop discipline-specific projects aimed at identifying and addressing community needs (particularly healthcare, social service, and environmental quality) in Xicotepec, Mexico.
- Nine week multi-disciplinary course involving students from journalism, pharmacy, engineering, public health, women's studies and urban planning.

## Pharmacy Objectives

- Interact with members of the Xicotepec community and adapt the project as necessary based on the conditions and situations we encountered
- Treat 3,000 children with anthelmintic medication
- Provide 3,000 children with fluoride treatments
- Fundraise to support the Xicotepec Project
- Educate and train Xicotepec Rotarians to sustain this biannual project.



## Planning and Preparation

- Health Travel Recommendations
  - Consulted health organization and travel resources to compile a brochure about: travel preparations, immunizations, health insurance, OTC and prescription medications, traveler's diarrhea prevention and treatment
- Cultural Competency
  - Cultural readings and discussion addressing issues of: gender inequality, socioeconomic status, the perception of pharmacy.
  - Insight from Xicotepec Project coordinator, Jim Peterson and professor of Medicinal Chemistry, Dr. Horacio Olivo.
- Preliminary Scheduling
  - In collaboration with Xicotepec Rotarians and DIF, 23 schools were scheduled to be completed in 5 days
- Medication Procurement
  - Danielle Ficke collected and presented information regarding: appropriate drug selection, cost, manufacturer and distributor, international logistics and legality, drug quality analysis.
  - Albendazole 400 mg chewable tablets; Cipla via MedPharm
  - US\$0.07/dose via MedPharm vs US \$4.00/dose to purchase in Mexico

## Planning and Preparation

- Process - Standard Operating Procedures
  - Questions and Concerns:
    - How many children to treat? What schools to treat?
    - How much time to spend/child? Health literacy of community?
    - How to educate patient and community? How to overcome language barrier?
    - How to train volunteers? How to optimize skills of volunteers?

## Deworming Treatment

- Team Members 1: Local, fluent Spanish speaker, recorded the child's weight, name, and age.
- Team Member 2: Local, fluent Spanish speaker, line the children up and maintain order at the schools.
- Team Member 3: Project volunteer, give the child a chewable albendazole tablet and tell the child to chew the tablet.
- Team Member 4: Project volunteer, instruct the child to swish and swallow with the water and do a visual check to make sure the entire dose had been taken.
- Team Member 5: Project volunteer, stamp child's hand (to ensure no child received multiple treatments) and direct them to fluoride treatment station.
- Protocol changed per school and adjustments were made accordingly.
- Volunteers with Spanish speaking ability were used at stations involving most communication with the children to help minimize the language barrier concern.



## Fluoride Treatment

- Team member 1: Local, fluent Spanish speaker, organize children into groups and explain process of fluoridation and clam anxious children
- Team members 2, 3 and 4: Applied fluoride to children; varnish or gel
- Team members 5, 6 and 7: Fill trays, timed process, and assist others



## Outcomes and Hurdles

- Outcomes
  - Treated 2,000 children with albendazole of which 9 out of 10 were likely infected with intestinal parasites.
  - Treated 1,200 children with Cavity Shield or Minute Gel fluoride treatment.
  - Raised over \$1200 from U of I College of Pharmacy students and faculty.
  - Successfully trained Xicotepec Rotarians, enabling sustainability of this biannual project.
- Hurdles
  - Mexico City Customs: sequestered supplies and donations
    - Adapt to available resources
  - Schedule and staffing fluctuating daily
    - Reassessment of skills and on-the-fly training of volunteers
  - Variable accommodations at each school

## Experience Motivated Changes

- Deworming and Fluoridation:
  - Albendazole tablets were too hard for kids to chew – hurt their teeth
  - Tablets stuck in teeth, interfered with fluoride application
  - Time of fluoride application (before lunch) interfered with adherence
  - Poor dental hygiene prevented optimal treatment with tray application

## Reflection

- The importance of our experience was not in the physical administration of the tablets, but instead the sustainability of the de-worming project accomplished through education and collaboration with Xicotepec Rotarians.
- Due to the endemic problem of intestinal parasitic infestations in Xicotepec, Mexico, the biannual re-treatment of these children is crucial to the betterment of their health.