Impact of Public Health Intervention on Rate of Soil Transmitted Helminthias (STH) Among Indigenous Village Children in the Santa Maria Tepexipana Region of the State of Oaxaca, Mexico

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Background

* Soil Transmitted Helminths (STH) are the most prevalent Neglected Tropical Disease (NTD) in Mexico.
* Infection in children can cause nutritional, physical, and cognitive impairment.
* Can we decrease STH prevalence in children in Mexico?

Santa Maria Tepexipana

Intervention

* 18-month public health intervention:
  * Treatment
    * Single dose Albendazole (200-400mg)
    * Administered at 0, 9, and 18 mos.
    * Exclusion of pregnant & nursing women
  * Hygenic Facilities
    * Hand washing stations & pit latrines
  * Education

Study Aims

* Test a sample of children representative of the population for STH before and after Intervention

* Map the distribution of infection across 8 villages in 4 regions

Study Design

* Location: Southern Oaxaca, Mexico
* Population: 2,800 (8 villages)
* Treatment: Albendazole at 0, 9, and 18 mos.
* Sample: ~10% of children aged 2-12 years
* Test: Modified Kato Katz method at 0 and 18 mos.
* Outcome: Pre- and Post-Treatment estimate of STH prevalence for 4 Village clusters

Methods

* Modified Kato Katz

Results

Estimated total number of infected children:

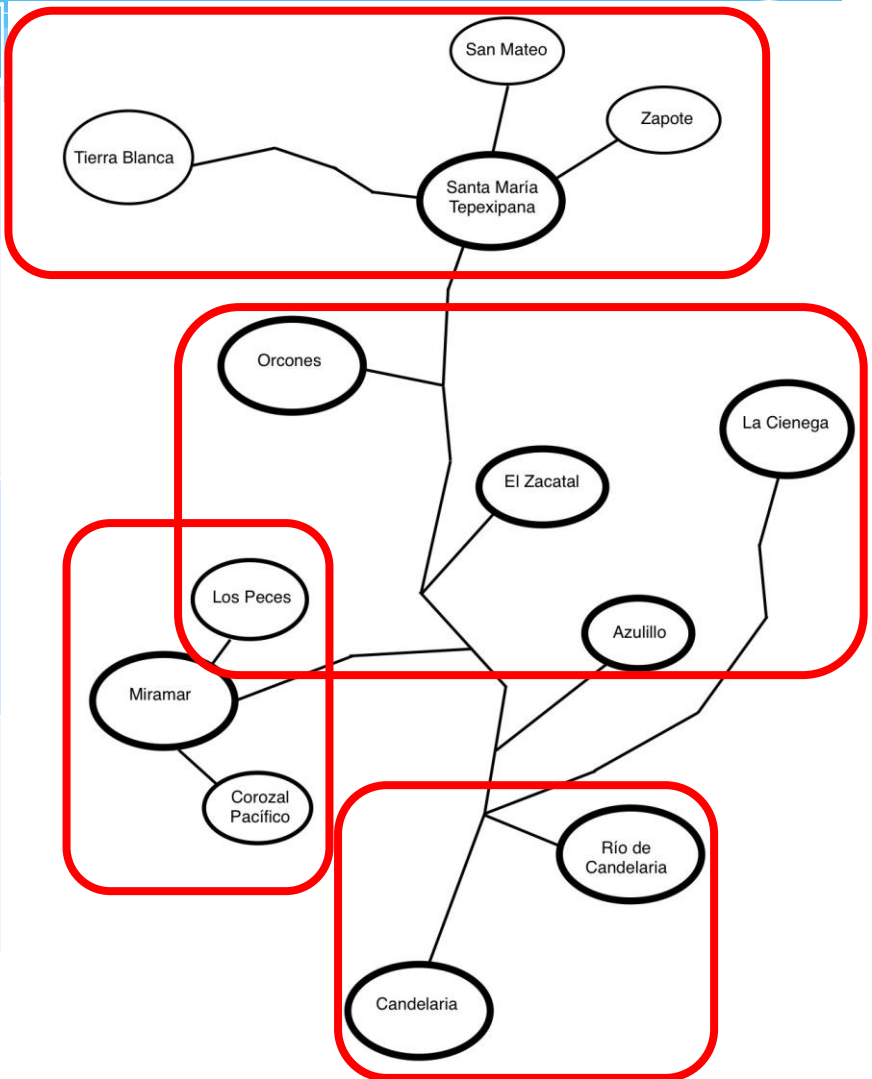
* At program initiation:
  * 960 47% (95CI = 40-56%) N = 166
* After 18mos intervention:
  * 603 31% (95CI = 23-39%) N = 140

* 37% overall reduction ($p<0.01$)
* No treatment side effects were observed

Results

Santa Maria T.	N	STH	Reduction
June 2013	40	68%	54%*
Nov. 2014	39	31%	
La Cienega	**N**	**STH**	
June 2013	47	53%	51%*
Nov. 2014	23	26%	
Miramar	**N**	**STH**	
June 2013	41	44%	6%
Nov. 2014	29	41%	
Candelaria	**N**	**STH**	
June 2013	21	24%	10%
Nov. 2014	14	21%	

*p<0.01



Conclusions

* This multifaceted intervention was effective in reducing the burden of STH in children , particularly in high risk regions.

* This method of evaluation is a replicable in resource-poor regions

Strengths & Limitations

* Intervention evaluation in an underserved population
* Reproducible intervention and study design
* Collaboration between NGO and academic research

* Non-systematic, non-random recruitment of children
* No assessment of STH infection intensity
* Difficulty identifying non-roundworm STH
* Multiple Interventions – difficult to pinpoint efficacy

Moving Forward

* Further intervention (treatment, hygenic facilities, and education) is warranted and currently underway.
* Ultimate goal of a <10% STH rate in these villages.
* Replication of Intervention & Study Design in other underserved communities with high STH burden.

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THANK YOU!