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# Barriers to Care for Prevention and Treatment of Asthma in Nicaragua

Amber Beg

UNC Department of Pediatrics

May 16, 2019

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# Asthma

- Common chronic disease globally
- Particularly severe consequences in lower income countries due to lack of resources and physicians for diagnosis and treatment
- Prevalence in asthma in Nicaragua is 15.2%



## **Community Health Worker Case-Detection of Asthma in a Resource-Poor Community in Nicaragua**

Mary Crocker, MD, MPH – Division of Pediatric Pulmonology, University of North Carolina

Ceila E. Loughlin, MD – Division of Pediatric Pulmonology, University of North Carolina

Charles Esther, MD, PhD – Division of Pediatric Pulmonology, University of North Carolina

Terry Noah, MD – Division of Pediatric Pulmonology, University of North Carolina

Sonia Picardo Fernández, MD – AMOS Health & Hope, Nicaragua

Gabriela Woo, MD – AMOS Health & Hope, Nicaragua

Laura Chanchien Parajón, MD, MPH – AMOS Health & Hope, Nicaragua

Sylvia Becker-Dreps, MD, MPH – Department of Family Medicine, University of North Carolina

# AMOS Health And Hope

- Nonprofit focused on improving primary care in Nicaragua
- Founded by Drs. Laura and David Parajon
- Serves 27 communities in 4 departments, offering basic healthcare to over 13,000 individuals
- Health promoters (consejeras)

## Each promoter offers primary health services to their community in several ways:

1. Attending to patients two days a week at a community clinic the promoter manages.
2. By taking a community census, the health promoters and health committee determine who is the most vulnerable to sickness and death. This often includes children under five years old, pregnant women, persons with chronic illnesses, and the elderly.
3. As part of their work, health promoters do home visits to people as defined as vulnerable to promote health, provide follow-up care, and prevent illness.
4. In the case of a health emergency, all of the AMOS health promoters are certified as first responders and are formally recognized by the Nicaraguan Ministry of Health (MINSA) to arrange for immediate help in their communities.



# Urban Programs



# El Samaritano Medical Clinic

- Outpatient clinic on outskirts of Managua
- 2 full time general physicians; Pediatrician 1-2 days a week
- Appointments, first-come first-serve, for approximately \$2 (80 córdobas)
- Also has support groups for pregnant women and patients with diabetes





## Health Educators

A Health Educator, also called a Consejera, is an individual from Nejapa who has been trained to work alongside the Samaritan Clinic to bring better health care to their community and families.

In 2014, we realized that many of the people we wanted to serve in the Samaritan Clinic were not using our services. Our strategy changed to incorporate many aspects we use in our rural community work. Volunteers were chosen to become advocates for health and be trained, just like we do with our health promoters, to improve the health of people living in Nejapa alongside the clinic.



### **Health Educators Serve their Community through:**

- Helping medical service teams and clinic staff conduct health fairs for Nejapa
- Attending trainings on a variety of relevant health issues
- Visiting with the most vulnerable patients in their homes
- Participating in weekly support groups at the clinic
- Planning and facilitating community clean-Up projects
- Collecting and documenting census data for the 3 Sectors in Nejapa



# Project Overview

- Collaboration with AMOS Health & Hope, a non-profit community organization in Managua, Nicaragua
- **Problem Identified:** Asthma is prevalent but under-treated in the communities served by AMOS
- **Hypothesis:** A screening questionnaire administered by community health workers will be effective in case-detection of asthma in a semi-urban, poor Nicaraguan community.

# Objectives

1) Determine the prevalence of asthma in community

- Via pediatric pulmonologist evaluation
- Using spirometry

2) Evaluate the effectiveness of a community health worker-administered asthma screening questionnaire

3) Explore environmental or demographic factors contributing to asthma prevalence



## Study Population

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<b>Vladimir Hernandez</b>	
Total population (2014 census)	733
Expected # children ages 2-17	218
Total enrolled	199
Refusals	4 individuals, 2 families

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# Prevalence of Asthma

- 65 out of 199 children (33%)



# Prevalence of Asthma in Vladimir Hernandez

- Prevalence = 33% (65 of 199 children)
- For comparison, here are some data from the ISAAC study in several other countries:

• Mexico	7 %
• <b>Nicaragua</b>	<b>15 %</b>
• United States	17 %
• Honduras	18 %
• Panama	21 %
• Costa Rica	23 %
• El Salvador	24 %
• <b>Vladimir Hernandez</b>	<b>33 %</b>
• Peru	33 %



# Community Health Worker Questionnaire

- Sensitivity: 86%
- Specificity: 75%
- An effective tool in a low resource setting!

# Initial Conclusions

- Feasible for use by lay community health workers after a brief training
- Accurate enough to be effective for case-detection of asthma and reactive airways disease.
- **Able to connect children with medical care**

# A Year Later...

- Poor follow up
  - Only 3-4 of patients documented as returning to clinic
- Misunderstanding
  - Community health workers felt that needed a physician to return to community to diagnose asthma
- AMOS didn't have dedicated funding for the project specifically, community health workers had other responsibilities, project stalled

# Barriers to Care

# Barriers to Care Questionnaire

- Difficult to find a validated questionnaire in this type of population in literature review
- Wanted to develop more of a qualitative set of interview questions with opportunity for flexibility in answers
- Also wanted demographic information
- Became more of a QI type project

# Barriers to Care Questionnaire

- Demographics
- General health of Child
- Knowledge of Asthma
- Severity of asthma
- Medications and Treatments used
- Barriers to Care





# Interviews

- 30 of the 65 pediatric patients identified with asthma on initial screening (46%)
- Spoke with caregivers of patients
- Interviewer, Interpreter, consejera
- Home visits
- Written questionnaire documented by interviewer as well as audio recordings (over 900 minutes of interviews)



# Results



# Demographics

Nombre del paciente \_\_\_\_\_

Edad de la paciente \_\_\_\_\_

Nombre de los padres \_\_\_\_\_

Edad de los padres \_\_\_\_\_

Dirección \_\_\_\_\_

## Características de los padres:

1. ¿Tiene un ingreso económico en la familia?      Sí      No

¿Está usted?

\_\_\_\_ Empleado por salarios

\_\_\_\_ Trabajadores por cuenta propia

\_\_\_\_ Sin trabajo, pero en busca de trabajo

\_\_\_\_ Sin trabajo, pero no estoy buscando trabajo

\_\_\_\_ Ama de casa

\_\_\_\_ Estudiante

\_\_\_\_ Retirado

\_\_\_\_ Incapaz de trabajar

2. ¿Cual es su grado de escolaridad?

\_\_\_\_ Primaria    \_\_\_\_ Secundaria    \_\_\_\_ Universidad    \_\_\_\_ Tecnico    \_\_\_\_ Analfabeto

# Results

- Caregivers
  - Mothers (84%), Sisters (10%), Grandmother (3%), Grandfather (3%)
- Employment
  - All except 1 had at least 1 family member employed
  - 2 parents employed (60%)
  - 1 parent working (40%)
- Education
  - University- 23%
  - Secondary education- 47%
  - Primary education- 17%
  - Technical education- 10%
  - None- 3%



# General Health Of Child

## Salud general del niño:

3. En general, ¿cómo calificaría la salud de su hijo en este momento?

- a. Excelente
- b. Muy bueno
- c. Bueno
- d. Regular
- e. No bueno
- f. Otro

Por que?

4. En comparación con hace un año, ¿cómo calificaría la salud general de su hijo actualmente?

- a. Mejor
- b. Mas o menos
- c. lo mismo o igual
- d. Peor
- e. Otra

Por que?



# Results

- Current health
  - 1 (regular): 50%
  - 2 (bueno): 16.6%
  - 3 (muy bueno): 16.6%
  - 4 (excelente): 16.6%
- Health compared to a year ago
  - 1 (peor): 17%
  - 2 (lo mismo): 3%
  - 3 (mas or menos): 10%
  - 4 (mejor): 70%

# Knowledge of Asthma

## Conciencia del asma:

5. ¿Su hijo tiene asma?

Sí

No

No Sabe

6. ¿Qué tan grave es el asma de su hijo?

0

1

2

3

4

No tiene asma

El asma le  
afecta de vez  
en cuando,  
pero no  
empeora su  
calidad de  
vida

El asma es tan  
frecuente y  
grave que  
afecta su  
calidad de vida

7. ¿Ve el asma de su hijo (o problema de respiración) como un problema que normalmente se cura?

8. ¿Qué puede pasar si el asma de su hijo (o problema de respiración) no se controla?

# Knowledge of Asthma

(Si no toma medicamentos controlados)

14. ¿Sabía que hay medicamentos de control que tome diario para evitar que su hijo tenga un ataque de asma (problemas respiratorios)?
15. Si tuviera estos medicamentos, ¿los usaría? Si no, ¿por qué?

# Results

- Has asthma?
  - Yes: 70%
  - No: 17%
- Can be cured?
  - Yes: 83.3%
  - No : 13.3%
  - Not sure: 3.3%

# Results

- Severity
  - 0: 10%
  - 1: 17%
  - 2: 53%
  - 3: 7%
  - 4: 13%
- Consequences:
  - Could die: 63%
  - Go to hospital: 27%
  - Get worse: 10%
  - Not get enough air: 3%

# Results: Controller medications

- Knowledge about controller medication: 13.3%
- Use a controller medication: 17%
- 2 used a controller medication but didn't know that daily medications could be used
- 1 had knowledge of controller medication, but didn't use

# Causes of Asthma Exacerbations

- Dust, change in weather, cold weather, exercise
- Bathing in the afternoon
- 4 patients had notes from physicians saying they couldn't exercise at school
- Only one person said illness







# Medications and Treatments used

## Control del asma:

9. Qué hace usted/qué tratamientos da a su niño cuando tiene problemas de respiración o un ataque de asma?
10. ¿Le das a tu hijo algún medicamento? ¿Puede mostrar los medicamentos que le da a su hijo?
11. ¿Cuánto tiempo ha estado usando su niño estos medicamentos?
12. En caso afirmativo, ¿con qué frecuencia o en qué circunstancias le da medicamentos a su hijo?
  - a. ¿Salbutamol?
  - b. ¿Otro inhalador?
  - c. ¿Usan una mascara/ un espaciador?
  - d. ¿Montelukast o otro medicamento para la alergia?
  - e. ¿Prednisona?

# Results

- Only 2 didn't use albuterol
- 5 used controller medications
- Most used prednisone
- Allergy meds
  - Claritin
  - Benadryl
  - Ketofino
  - Fluticisone nasal spray
- Lots of confusion between cold medications and asthma medications

# Results

- Spacer
  - 23% don't use
  - 2% had but didn't use it
  - 75% used
- Traditional remedies
  - Prevalent
  - Not dangerous (eucalyptus tea, lemongrass, cinnamon, oregano)
  - Shark oil?
- Nebulizers



# Barriers to Care

## Barreras a la asistencia médica

25. ¿Usted ha visitado al médico por su hijo? Por que?
26. Hace 2 años, un médico de AMOS vino a su casa para hablar sobre el asma: ¿alguna vez regresó con su hijo a AMOS para ver a un médico o para obtener medicamentos?
  - No. ¿por qué?
  - Sí. ¿ por qué?
27. ¿Cómo ha estado su hijo desde que fue visto por el médico de AMOS?
28. ¿Ha tenido informaciones acerca del asma en el pasado?
29. ¿Le gustaría aprender sobre el asma?
30. ¿Cómo le gustaría recibir esta información? ¿Papel/afiches? Capacitaciones en casa? Capacitaciones grupal en AMOS?
31. ¿Que podríamos hacer por usted para que su hijo reciba atención médica? ¿Cómo podríamos ayudarle para que su hijo reciba los medicamentos de asma?
  - a. Transporte
  - b. Medicamentos a bajo costo
  - c. Visitas Domiciliares
  - d. Otra

# Results

- Returned to AMOS
  - Yes: 73% (22 patients as opposed to 3-4 patients)
  - Saw a doctor: 57%
- Had information about asthma in the past?
  - No: 40%
  - Yes: 60%
- From whom?
  - Mary: 37%
  - Family members: 13%
  - A doctor: 13%
  - Written information: 3%

# Results

- How would you like to receive information:
  - Group classes: 80%
  - Written information: 23%
  - Home visits: 20%
- How can we help?
  - Transport: 0%
  - Cheaper visits: 47%
  - Cheaper medications: 90%
  - Home visits: 53%
  - Group classes: 7%
  - Clearer information: 3%





# Conclusions

- Expense of visits and medications were a huge barrier to care in the population
- There was more follow up than expected
- Group classes were preferred

# Acknowledgments

- Dr. Sylvia Becker-Dreps and Dr. Laura Parajon
- Dr. Mary Crocker
- Consejeras and Staff at AMOS



**Questions?**