



# Bringing Dengue Prevention Down to Earth: Evaluation of a Head Start Project in Puerto Rico

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# What is dengue?



- Viral disease transmitted most commonly by *Aedes aegypti*
- Symptoms- fever, headache, body pains, rash, hemorrhagic manifestations
- Four serotypes- DEN-1,2,3, or 4
- Mosquito breeding sites- a variety of household containers with water
- Prevention methods- control or elimination of containers- community or government
- It is endemic in Puerto Rico



# Head Start Program

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- Federally-funded program to improve health and development of preschool children from low income families
- Partnership- CDC, Rotary Club, PR Dept. of Family (developed activity booklet for children and a guide for teachers)
- Dengue module incorporated in centers throughout Puerto Rico (→ 18,000 children/yr)
- New HS performance standard- increase parental involvement and empowerment



# Dengue prevention in San Sebastián

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## Goal

Promote community empowerment by enabling parents served by the Head Start Program to educate and train residents to control *Ae. aegypti* breeding sites



# Dengue prevention in San Sebastián

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## Objectives

- Promote parental participation in the development of dengue prevention activities
- Provide training to develop leadership, communication, health education, community organization and dengue prevention skills
- Develop an action plan to implement dengue prevention activities in the community



# Selection criteria

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- High incidence of dengue
- Parents were interviewed and agreed to participate
- Intervention and “control” communities of similar socio-economic level



# Implementation

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- Participating mothers (n=6) received training about dengue, leadership and communication skills, breeding site control measures, and recycling
- Participating mothers developed an action plan



# Implementation

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## Dengue prevention activities

- Painted bridge
- Educational handout and house visits
- Dengue prevention exhibit
- Children's parade



# Community activities



Training session



Painted bridge



House visit



Children's parade



# Evaluation of training

<b>Variable</b>	<b>Response</b>
Participation	All participated in training sessions
Topics	All said that the themes were interesting and necessary for them
In general, training was	50% excellent 50% good
Skills	83% acquired the skills necessary to perform activities in the community



# Skills acquired by participating mothers

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- 6 {
  - talk to neighbors about dengue
  - plan a meeting
  - request services from agencies
  - identify community problems
  - give a talk about dengue in the community
  
- 5 {
  - coordinate activities
  - develop a recycling project
  
- 4 {
  - write a letter
  - organize a community association



# Evaluation methodology

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- Questionnaire-based surveys
  - Intervention community- 106
  - “Control” community- 102

# Responses by residents in the intervention community

<b>Activity</b>	<b>Exposure</b>	<b>Message was clear</b>	<b>Motivational</b>
Painted Bridge	60/106 (57%)	28/48 (58%)	27/49 (55%)
House visit and educational leaflet	21/106 (20%)	13/13 (100%)	14/20 (70%)
Dengue Prevention Exhibit	6/101 (15%)	3/6 (50%)	5/6 (83%)
Children's Parade	15/105 (15%)	8/13 (62%)	8/11 (73%)



## Actions taken by the community

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- Cleaned patios and surroundings
- Eliminated containers with stagnant water
- Stored or discarded tires and cans
- Eliminated plants with water
- Covered containers with water

# Knowledge about dengue prevention

Variable	Intervention Community	"Control" Community
What is dengue?	53% a virus	33% a virus *
How is dengue transmitted?	63% by <i>Ae. aegypti</i>	47% by <i>Ae. aegypti</i> *
Symptoms	85% fever 78% body pain	52% fever * 47% body pain *
What should you do if you have dengue?	91% visit physician	91% visit physician
Where does <i>Ae. aegypti</i> breed?	87% containers with stagnant water 69% tires	85% containers with stagnant water 56% tires *
How do you prevent dengue?	74% cover containers 73% turn containers upside down 57% spray	69% cover containers 55% turn containers upside down * 54% spray

\*  $p < 0.05$



# Principal project outcomes

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- 72 (68%) of 106 respondents observed the activities
- 34 (60%) of 57 respondents said that the messages were clear
- 30 (50%) of 60 were motivated by the messages to take preventive measures
- Intervention community generally had a higher level of correct knowledge than the “control” community
- In spite of their knowledge about elimination and control breeding sites, both communities still wanted governmental spraying as a control measure





# Lessons learned

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- A small group of motivated women generated a good response in their community.
- More prevention-oriented activities (better promotion/better attendance) are needed.
- Develop evaluation procedures that women can use to assess community needs and monitor project implementation and outcomes.
- Include quantitative and qualitative methods to evaluate process and outcome.



## Future actions

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- Review project results with Head Start staff and participating mothers to explore future dengue prevention activities in San Sebastián.
- Expand the project to other municipalities in Puerto Rico.