



Pan American Health Organization

Regional Office of the
World Health Organization



Management of Sanitary Emergency: PAHO experiences with emphasis in zoonosis

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PAHO / WHO

Montesilvano, Italy, April 2010

Outline

- **Framework in emergencies**
- **Overview of natural disasters and sanitary emergencies in the Americas**
- **Final comments**

Framework in emergencies

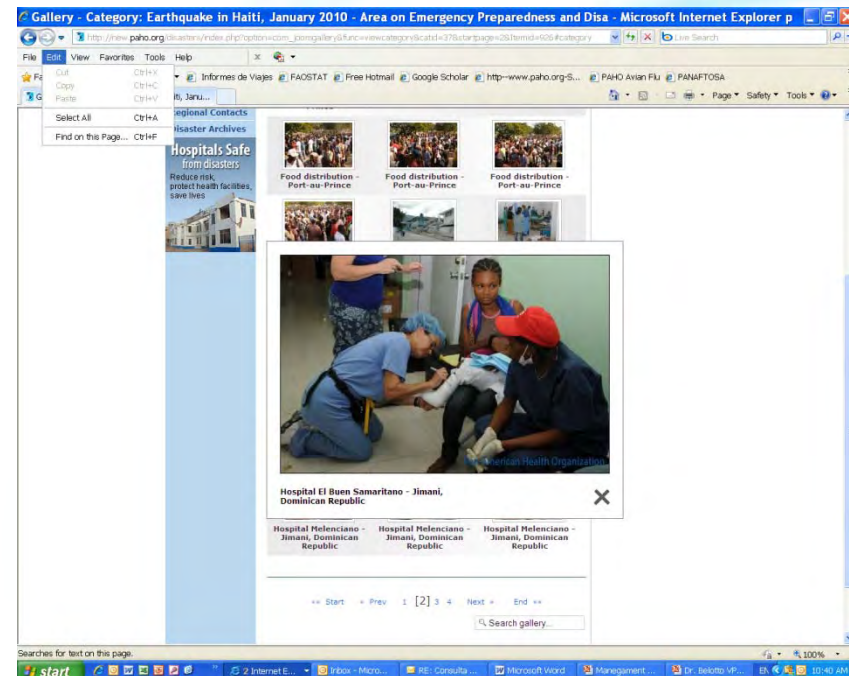
UN objectives to disaster management

Objectives:

- Increase public awareness to understand risk, vulnerability and disaster reduction globally
- Obtain commitment from public authorities to implement disaster reduction policies and actions
- Stimulate interdisciplinary and intersectoral partnerships, including the expansion of risk reduction networks
- Improve scientific knowledge about disaster reduction

UN “clusters” of response

- Shelter and non-food items (NFIs)
- Camp coordination and camp management (CCCM)
- Water, sanitation, and hygiene (WASH)
- **Health → WHO**
- Food aid
- Nutrition
- Protection
- Agriculture
- Early recovery
- Education
- Logistics and emergency telecommunication



WHO major areas related to emergencies

- Humanitarian actions - Health Action in Crisis (HAC)
- Global Alert and Response (GAR)
 - Strategic Health Operations (SHOC)
 - International Health Regulation (IHR)

GOARN – Global Outbreak Alert and Response Network



A screenshot of a Microsoft Internet Explorer browser window displaying the WHO JW Lee Centre for Strategic Health Operations (SHOC) website. The browser's address bar shows the URL 'http://www.who.int/whosearch/shoc/en/'. The website header includes the WHO logo and navigation links in multiple languages. The main content area features a section titled 'Global Alert and Response (GAR)' with a sub-section for 'JW Lee Centre for Strategic Health Operations (SHOC)'. This section contains a paragraph describing the SHOC as the WHO's global epidemic response center, followed by a video player titled 'JW Lee Centre for Strategic Health Operations (SHOC) (www.1111.mn)'. Below the video, there is a detailed text block explaining the SHOC's history, including its commissioning in July 2004 and its role in responding to the 2004 tsunami, the 2009 H1N1 pandemic, and the 2010 earthquake in Pakistan. The page also includes a 'Contact us' section with links for email, phone, and fax.

PAHO major areas related to emergencies

- Emergency and Preparedness Disaster Relief
- Health Surveillance and Diseases Prevention and Control

Working in coordination:

- Epidemic Alert and Response/International Health Regulation
- Veterinary Public Health



VPH activities related to emergencies at PAHO

- More than 50 years of experience in VPH
- Major areas FMD, food safety, rabies and others zns
- Participation in influenza preparedness plans and multidisciplinary exercises (including simulations)
- Participation in the IHR
- In elaboration of inter-programmatic guidelines to the most frequent events in the interface



Distribution of Veterinary Public Health professional staff



- **Coordination**
- **International Professional**
- **National Professional**
- **PANAFTOSA (10 veterinarians)**



VPH in disaster situation

Cope with:

- **Devastating epidemic in man and animals;**
- **The breakdown of usual services and community life.**

Situations:

- **Natural or man-made disasters**
- **Epidemic emergencies**

VPH contributions to relief, rehabilitation and reconstruction in disaster situations

- **Disposal of animal carcasses and wastes**
- **Veterinary aspects in chemical disasters and emergencies**
- **Zoonosis prevention and control**
- **Radionuclear emergencies**

Source: WHO/Mediterranean Zoonoses Control Programme/
Istituto Superiore di Sanita, 1992

Others suggestions:

- **Food security, climate change and disasters**
- **Complex situations (war, refugee, displaced population)**

Diseases associated with disasters common or related to animals

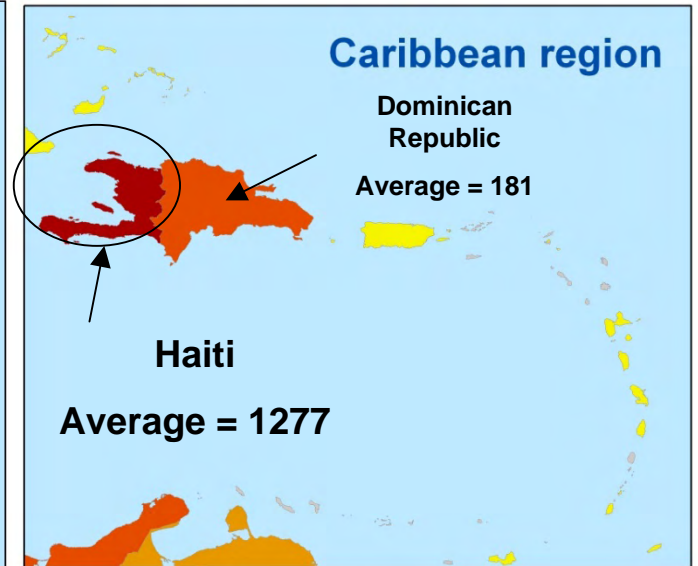
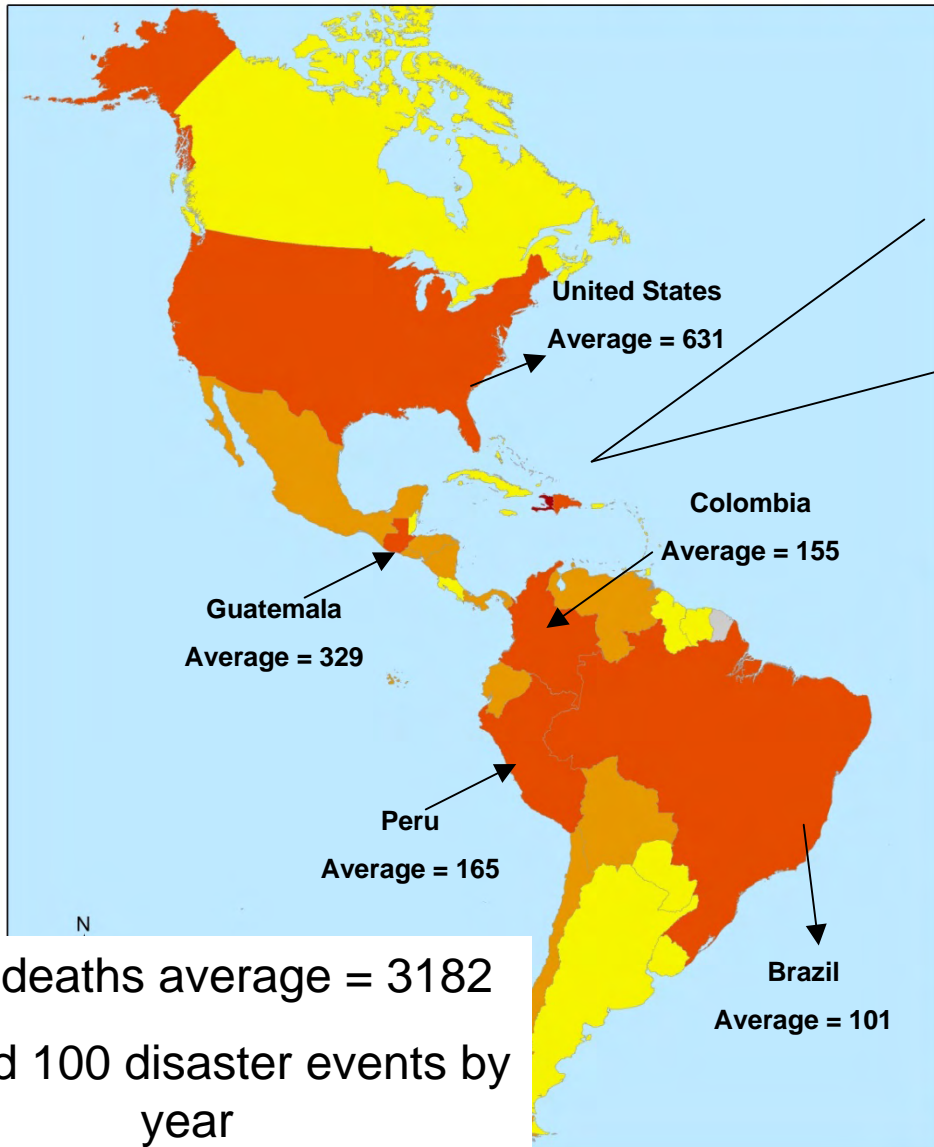
- **Related to water and sanitation (Fecal/Oral):**
 - Diarrhea including *Shigella* or *Salmonella* spp.
- **Vector borne diseases:**
 - Dengue
 - Leptospirosis
- **Associated with crowding and famine:**
 - Same zoonosis (increase the risk of rabies due to dog bites)
 - Consumption of animals with anthrax
- **Related with “ecosystem”:**
 - Snake and spider bites; bats bites



Overview of natural disasters and sanitary emergencies in the Americas

Americas

Number of persons reported killed by natural disasters 2004-2008



Legend

Persons killed

Annual Average

- No persons reported killed
- 1 - 10
- 11 - 100
- 101 - 1000
- > 1000

Data Sources:

EM-DAT Database
analyzed by PAHO

Map Production:

PAHO/HSD/CD
March, 2010

Cartographic projection:

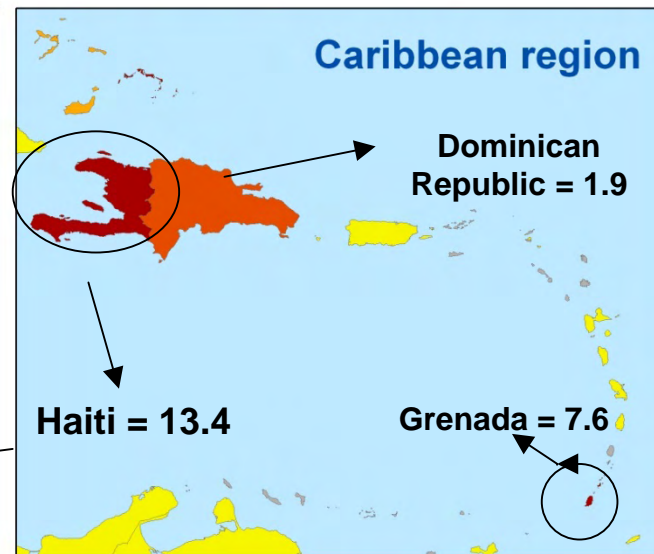
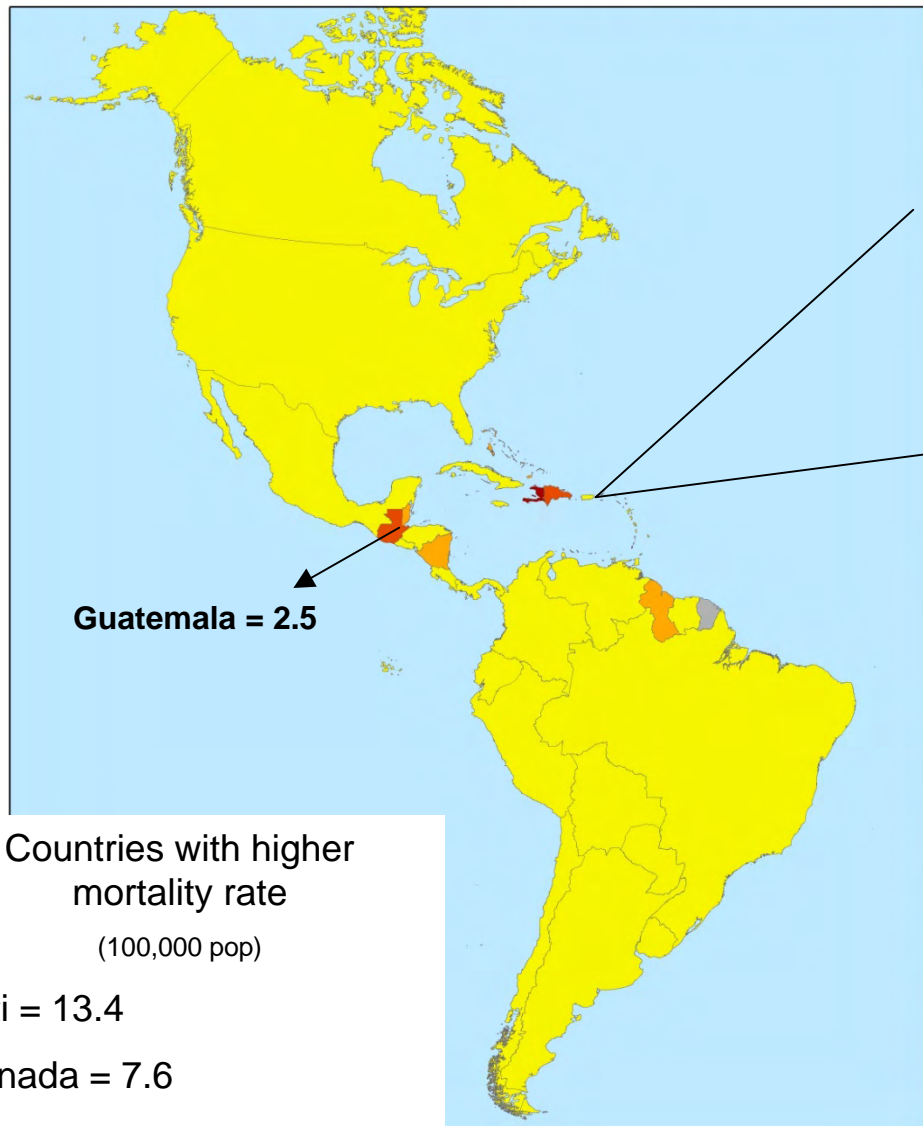
Lambert Equal
Azimuthal
Central Meridian: -90.00000
Latitude of Origin: 10.00000

Total deaths average = 3182

Around 100 disaster events by
year

Americas

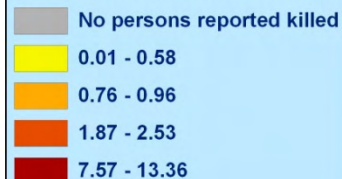
Mortality rate by natural disasters 2004-2008



Legend

Persons killed

Deaths by 100,000 pop



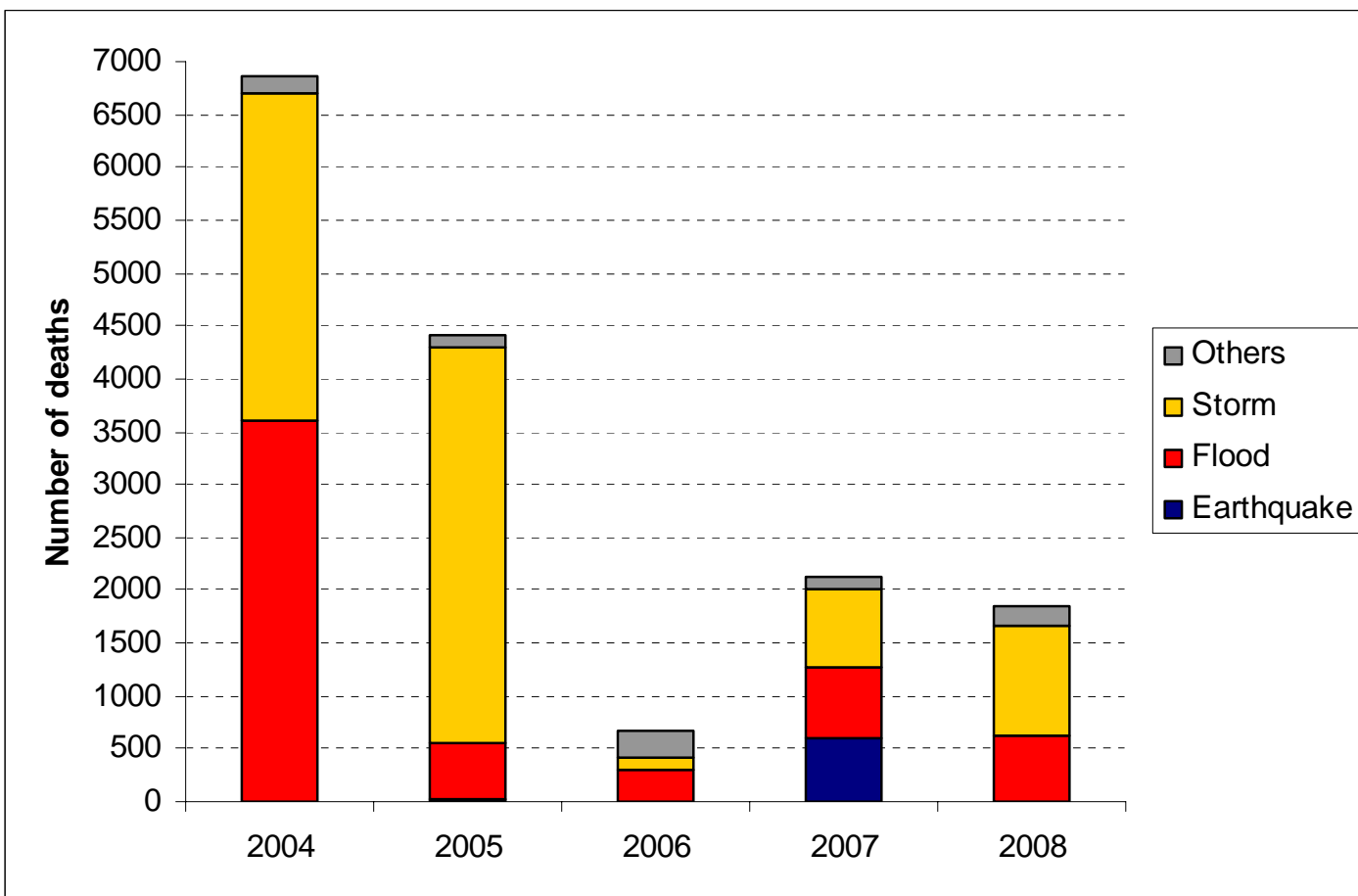
Data Sources:
EM-DAT Database
analyzed by PAHO

Map Production:
PAHO/HSD/CD
March, 2010

Cartographic projection:
Lambert Equal
Azimuthal
Central Meridian: -90.00000
Latitude of Origin: 10.00000

Average Americas = 0.34 per 100,000 pop

Number of persons reported killed by disaster types, Americas, 2004 -2008



Types of Natural Disasters and Examples in the Americas

- Hurricanes
 - (2005) “Katrina” United States
- Earthquakes
 - (2007) Coastal Peru
- Floods
 - (2007) Post Hurricane Felix Nicaragua
- Landslides
 - (2010) Rio de Janeiro, Brazil
- Wildfires
 - (2003) “Cedar Fire” California
- Volcanos
 - (1997) Montserrat, Caribbean



Hurricane Mitch, 1998

Affected Centro America and Mexico

- Direct deaths: 11,372
- Missing : 10,000
- Affected: + 2 million



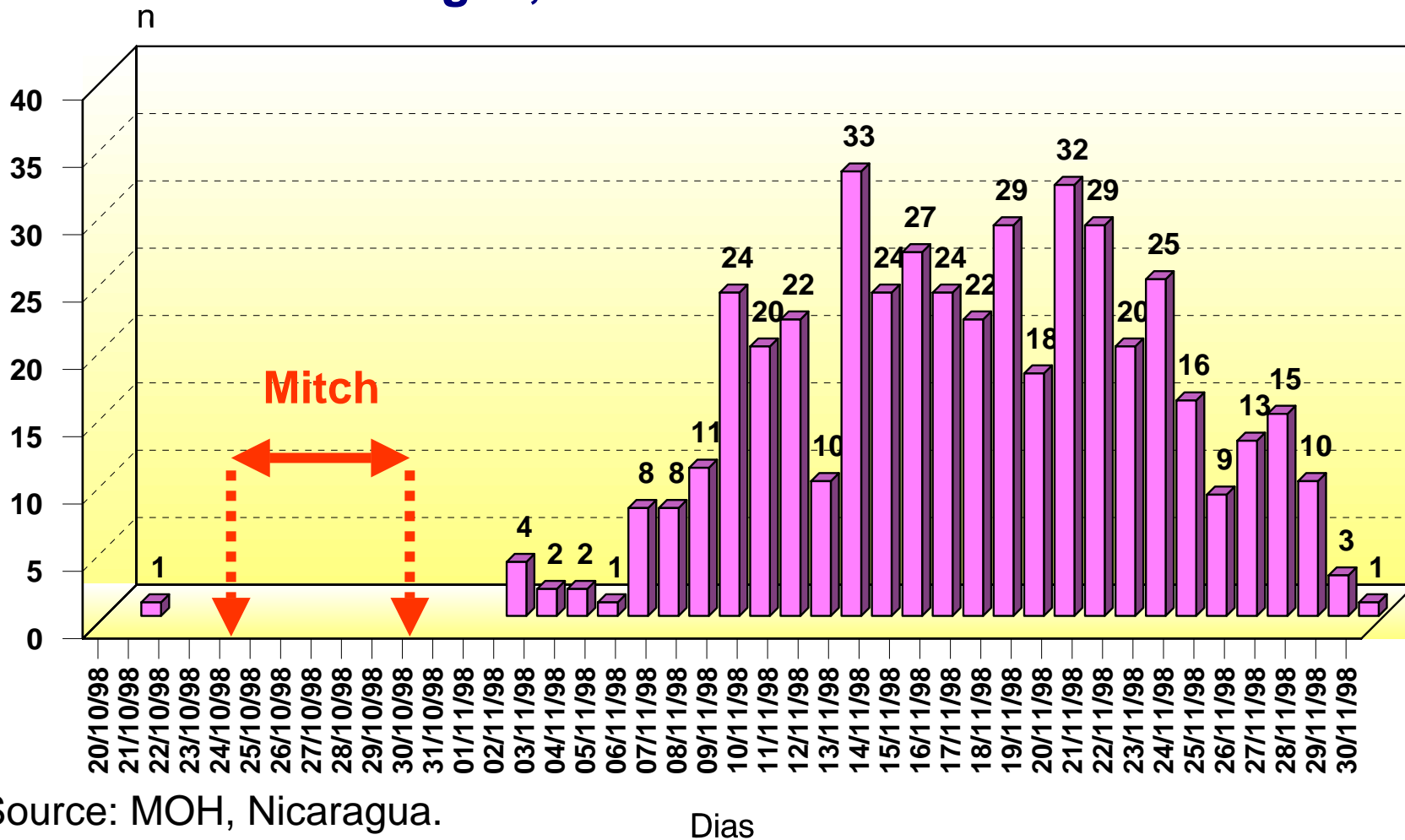
Leptospirosis: a post natural disaster emerging disease

The disease is found wherever humans come into contact with the urine of infected animals or a urine-polluted environment.



Leptospirosis outbreak Post-hurricane Mitch, Nicaragua, 1998.

Leptospirosis: Incidencia diaria de casos Nicaragua, del 02/11/1998 al 30/11/98



Source: MOH, Nicaragua.

Contribution: S Aldighieri and L. Altamirano

Key interventions for leptospirosis

Multidisciplinary teams

- Early and correct diagnosis
- Case management (treatment of suspected cases)
- Prevention (Chemoprophylaxis)
- Vector/Reservoir control
- Animal Management
- Surveillance
- Social Communication



Hurricane Stan, 2005

Guatemala

Death = 1662 (possibly 2000)

Between \$1 to 2 billion in
estimated damage

(\$400 millions in agriculture)



VPH activities

- Vector control
- Food and nutrition
- Prevention and control of zoonosis
- Prevention of food born diseases
- Water and sanitation

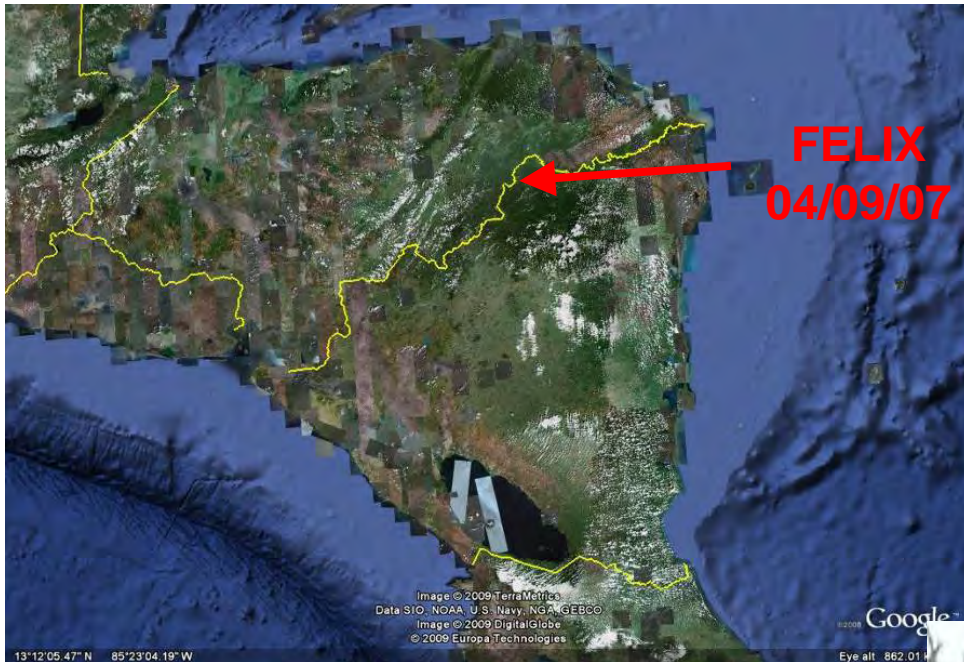
Contribution: R. Dugas, Molina H.



Hurricane Felix

North Atlantic Nicaragua

October 2007



- Put down trees and palms in savannah ecosystem
- Increase the number of bat bites (mostly in the displaced population)

Contribution: S Aldighieri and R. Dugas



Flood

North West Nicaragua

September 2007



- **Mobile Health “ Brigades”**
- **Integrated actions for dengue, malaria and leptospirosis**

Contribution: S Aldighieri and R. Dugas

Earthquake Pisco, Peru 2007



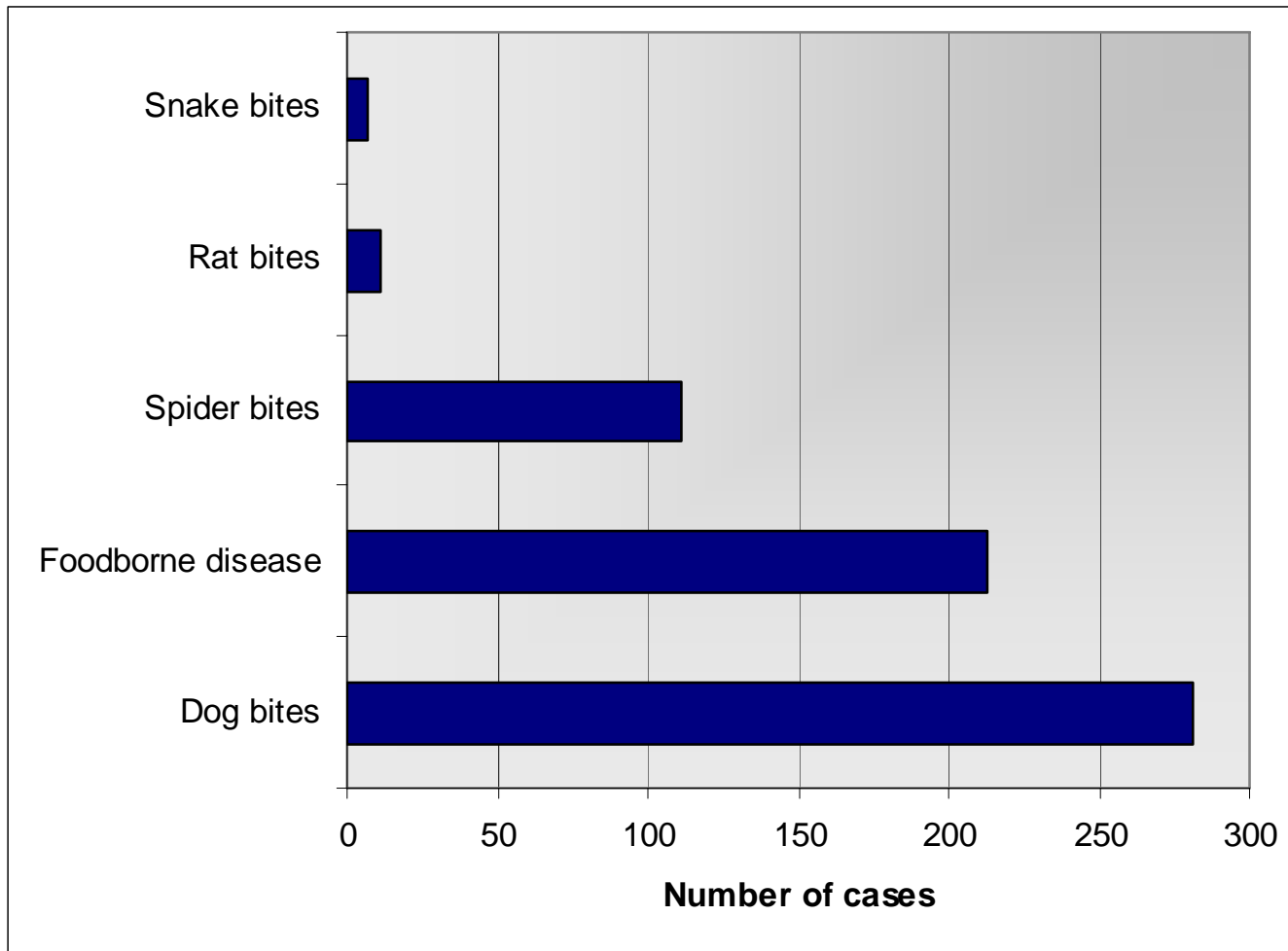
593 deaths

Estimated damage
U\$600 millions



Earthquake, Pisco, Peru, 2007

Traced damages post-disaster, Ica, Pisco, Chincha, Cañete Provinces, Peru, 2007



Source: DGE/MINSA: Sala de Situacion, 23/09/07.

Earthquake and tsunami Chile, 2010

350 deaths

**300 thousands without
homes**



VPH support for the earthquake:

- Rodent control
- Prevention and control of zoonosis
- Food safety
- Surveillance in the frame work of the IHR



Earthquake Chile, 2010



VPH support for the earthquake:

- Animal management (large and pets)
- Carcasses disposals
- Activities related environment health



**Support vital activities related
to water, food and sanitation**

Contribution: E. Alvarez

Earthquake Chile, 2010



On going: Elaboration of a project to support vulnerable areas to deal better with disasters



Recent experience in Dominican Republic and Haiti



Haiti earthquake WHO risk assessment

Chapter: Vector borne diseases and zoonosis

...

- **Human rabies transmitted by dogs** is a priority disease in Haiti. Rabies control is a priority, and a mass vaccination campaign of dogs was underway at the time of the earthquake. There may be an increased risk of rabies transmission from animal bites following the earthquake.
- **Leptospirosis** is endemic in Haiti. Infection in humans may occur indirectly when the bacteria come into contact with the skin or the mucous membranes. It can also result from contact with moist soil or vegetation contaminated with the urine of infected animals

...



Proposals to respond to the emergency in Haiti

Rabies

- **Objective:** Prevent cases of human rabies transmitted by dogs in the population of Haiti
- **Strategy:**
 1. Acute phase
 2. Re-establishment phase of health care services
 3. Rehabilitation phase
 4. Reconstruction phase
- **Actions:**
 - Medical care to people bitten
 - Vaccinate dogs and cats
 - Surveillance
 - Communication
- **Needs:** US\$ 1.000.000

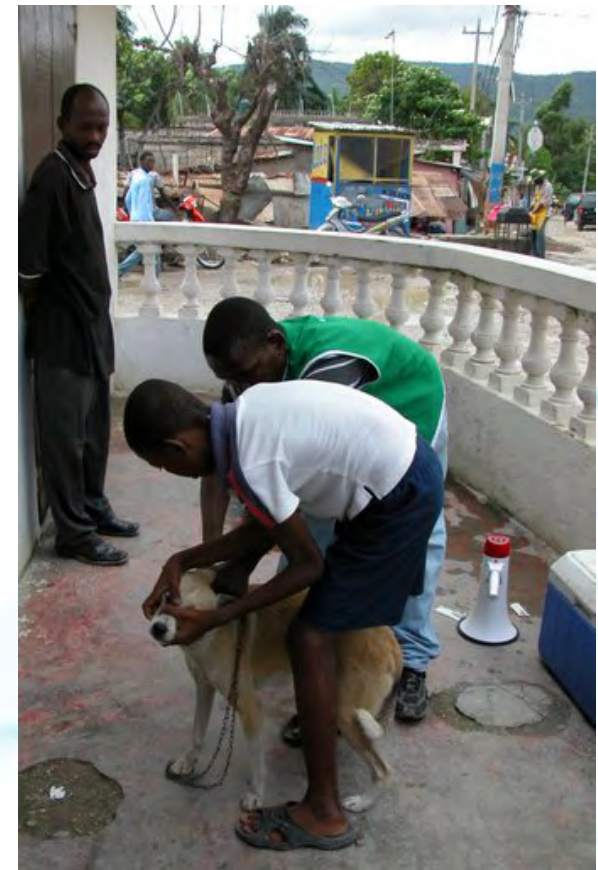


Rabies situation in Haiti

- The Americas reduced around 95% of human and dog rabies cases.
- Human Rabies transmitted by dogs is a disease close to elimination in the Americas (less than 20 cases a year).
- In 2006, Haiti reported almost 40% of the human cases transmitted by dogs in the Americas.
- Now Haiti is an example of achievements in rabies control in the Americas.
- In the first WRD (2007), a strong political commitment to fight rabies was articulated by the MA, MPH and PAHO/WHO Representative.
- Followed by the formulation of an intersectoral rabies control plan for the country, and a technical cooperation project among five countries (Brazil donated 500,000 doses of canine vaccine).



- Around 450,000 dogs were vaccinated and improved PPE.
- Cutting the human rabies cases by two thirds.
- This best practice experience was presented by Haiti authorities in international events.



Rabies TCC in
Haiti, 2007

Border Haiti and Dominican Republic



Rabies situation in Dominican Republic

- Zero human cases during 1998-2001
- From 2002, the number of human and dog cases started increasing
- In 2009, 5 human and 400 dog cases were reported; 2 more human cases this year
- Most of the cases occur in the lower income neighborhoods of the capital
- PAHO support to the emergency situation
- Emergent team was created:
 - National Rabies Director
 - 1 PAHO regional vet
 - 1 PAHO national vet
 - 1 vet consultant (previous BRA Rabies Director)
 - Support of other national authorities



Activities with PAHO participation in the emergency situation in DOR

- Participate dog vaccination in the border
- Participate dog vaccination campaign in the capital
- Support organization of national mass vaccination campaign (BRA canine donation)
- Review National Plan
- In process review surveillance system
- In process review PPE
- In process review external control dog vaccine local produced

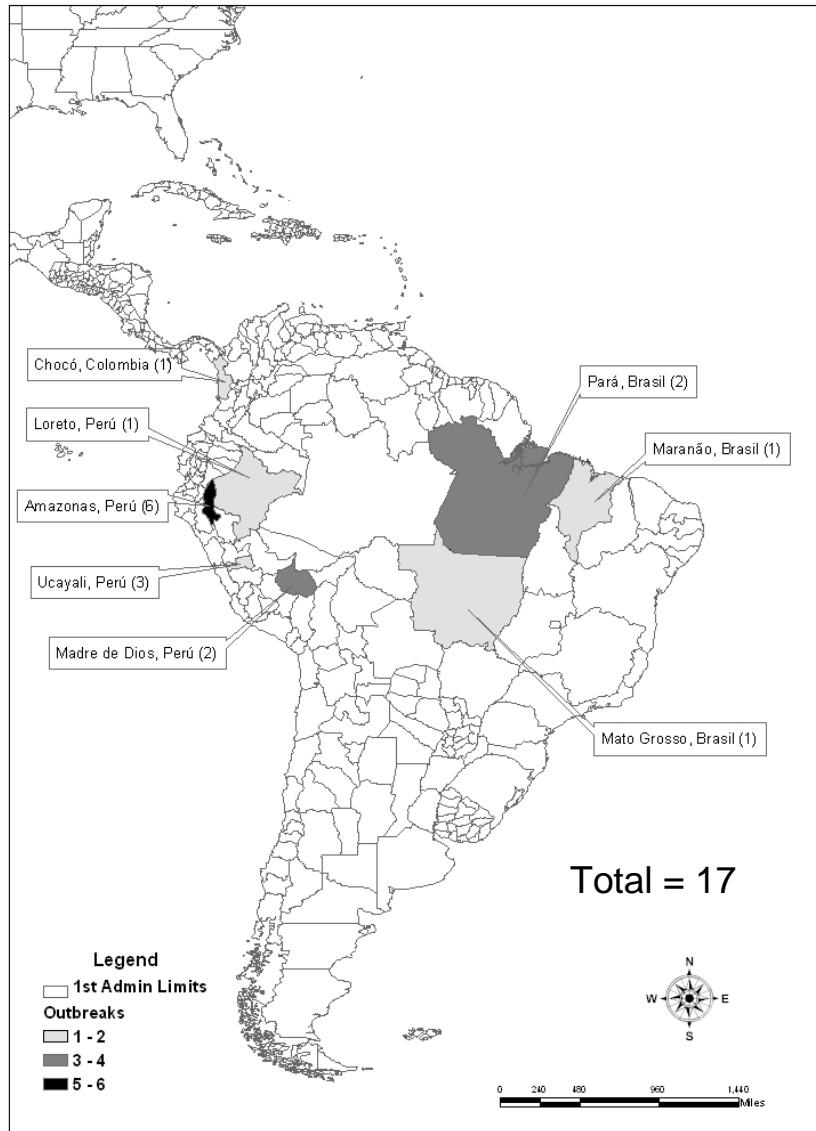


Rabies outbreak Belize, 1995

- Belize was considered “free” of rabies
- In 1995 new cases in dogs and cat
- Emergency team was created
- PPE to all
- Dog vaccination campaign (100% coverage)
- Awareness and social communication
- No cases of human rabies



Several experiences in the Amazon of human rabies transmitted by bats



Geopolitical location of the outbreaks with 5 or more cases of bat-transmitted rabies in the same year, Latin America, 1975 -2006.



Desmodus rotundus

Mato Grosso, Brazil, 1990

- **First outbreak of human rabies by bats investigated in BRA**
- **It was in a gold mining camp (legal Amazon region)**
- **8 official deaths and more suspicious cases**
- **Support from the Brazilian Air Force to actions**
- **Multidisciplinary team**
- **Investigation**
- **PPE was brought to the local**

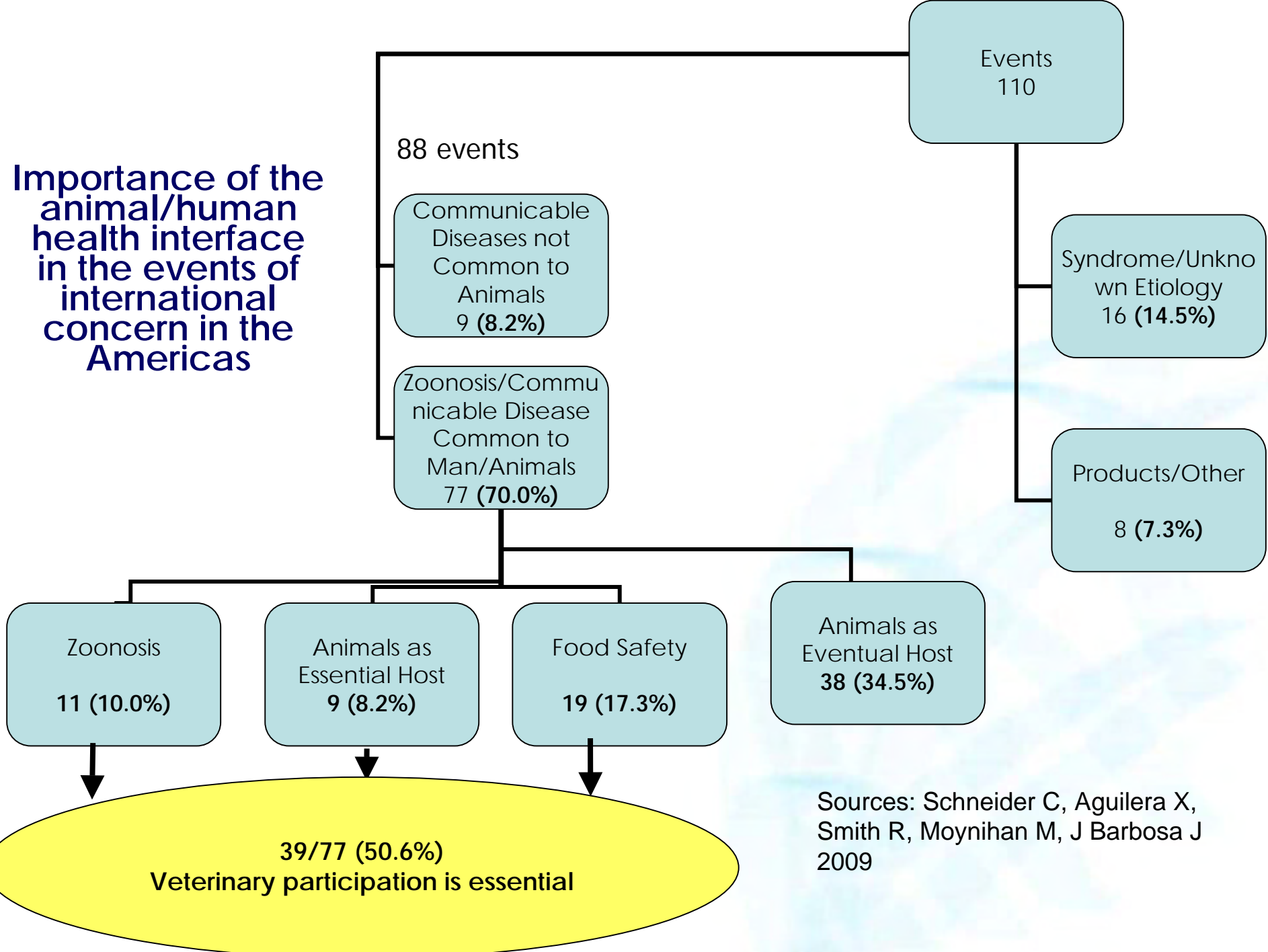


Pará, Brazil, 2004

- **Larger outbreak of human rabies by bats investigated in BRA**
- **22 official deaths**
- **It was also in the Amazon region**
- **Emergency team created with health and agriculture sectors**
- **PPE was brought to the local**
- **Bat population control**
- **Awareness and community participation**



Importance of the animal/human health interface in the events of international concern in the Americas



Sources: Schneider C, Aguilera X, Smith R, Moynihan M, J Barbosa J 2009

Final comments

Final comments

How could we veterinarians be better prepared to mitigate emergency situations?

- **Analysis of the most frequent emergencies in the Region and tools available**
- **Identification of hotspots**
- **Inter-programmatic guidelines**
- **Multidisciplinary teams prepared**
- **Trainings with a comprehensive view**

Final comments

How could we veterinarians be better prepared to mitigate emergency situations?

- **Network by cluster**
- **Strategic stocks of medicines/products to respond of the most common outbreaks**
- **Tackle the social determinants with intersectoral partners in the most vulnerable areas for emergencies**

Acknowledgements

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Thank You



<http://new.paho.org/>