Implementing “One Health” in Brazil: Leptospirosis in Urban Slum Communities
Atlanta, May 4, 2010

Brazilian Ministry of Health
Oswaldo Cruz Foundation (Fiocruz)
Health Secretariat for Surveillance
State Secretary of Health for Bahia
Municipal Secretary of Health for Salvador
  Dept. of Epidemiological Surveillance
  Zoonotic Disease Control Center
Resident Associations, Pau da Lima Community
Weill Medical College of Cornell Univ.
Fiocruz-Cornell Global Infectious Disease Training Program

• Research and training since 1964
  ▪ >480 Brazilian trainees
  ▪ >160 US students, faculty

• Program in 1996 to address diseases that emerged due to urbanization and social inequality

• Focus:
  ▪ Field and translational research
  ▪ Multidisciplinary approaches
  ▪ Community participation

• Support from Brazilian MoH and NIH/USA
Pau da Lima Cohort Site, Salvador, Brazil
Leptospirosis in Brazil

- Spirochaetal zoonosis
- Annual epidemics
- Attacks the same slum communities each year
- Rat-borne transmission
- Case fatality rate >10%
  - Pulmonary hemorrhage
- >12,000 cases in Brazil
- Similar conditions of poverty and climate throughout the developing world.

![Graph showing monthly cases and rainfall over years](image)

Month of Hospitalization

No. of monthly cases

No. cases

Monthly rainfall (mm)
Strategies Used in Addressing Leptospirosis

• Address **neglect** at the policy and decision making level
  ➢ Disease burden studies in *favela* communities
  ➢ High-exposure research publications

• Use existing multidisciplinary/intersectorial structures
  ➢ Zoonotic disease control centers
  ➢ Rapid response centers
  ➢ Oswaldo Cruz Foundation

• Include community and non-traditional partners
  ➢ Public sewage company, refuse service, civil defense, residents associations, media

• Prioritize training:
  ➢ FETP
  ➢ NIH-supported training programs
Brazilian Response to Leptospirosis: Outcomes

• Major investment in R&D initiatives to sequence genomes and develop rapid diagnostics and vaccines

• National guidelines on clinical management, surveillance, and prevention
  ➢ Pilot implementation in five urban centers
  ➢ Network of sites providing hands-on training

• Integrated rapid response protocols by health secretaries, civil defense and media.

• Targeted rodent control in communities with highest risk

• Large-scale sanitation projects in slum communities
Annual Case Incidence (per 100,000 pop)

Leptospirosis cases, 2007

Sewerage network

% households with net sewers
- 0 - 20
- 20 - 40
- 40 - 60
- > 60

Priority areas for rat control

Atlantic Ocean

Incidence
Mortality rate
Case fatality
One Health Approach to Leptospirosis in Brazil: Lessons Learned

• Role of research community in raising awareness

• Training is the critical to implementation
  – Need to start at undergraduate level
  – Example of veterinary medicine in Brazil

• Simple plan and clearly-defined responsibilities for participating sectors

• Equity
  – Community involvement in decision making (SUS)
  – IADB and World Bank requirement for positive health impacts in development projects
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One billion individuals, representing 32% of the world’s urban population, live in slums.

The UN Millennium Declaration pledged to achieve “significant improvement in the lives of at least 100 million slum dwellers by the year 2020.”

The world’s urban slum population will double to 2 billion in the next 25 years.