The Malaria Elimination Working Group

US Naval Medical Research Unit No. 6 (NAMRU-6)

Lima, Iquitos and Puerto Maldonado, Perú

Andres G. (Willy) Lescano, PhD, MHS, MHS
Head, Department of Parasitology
Director, Public Health Training

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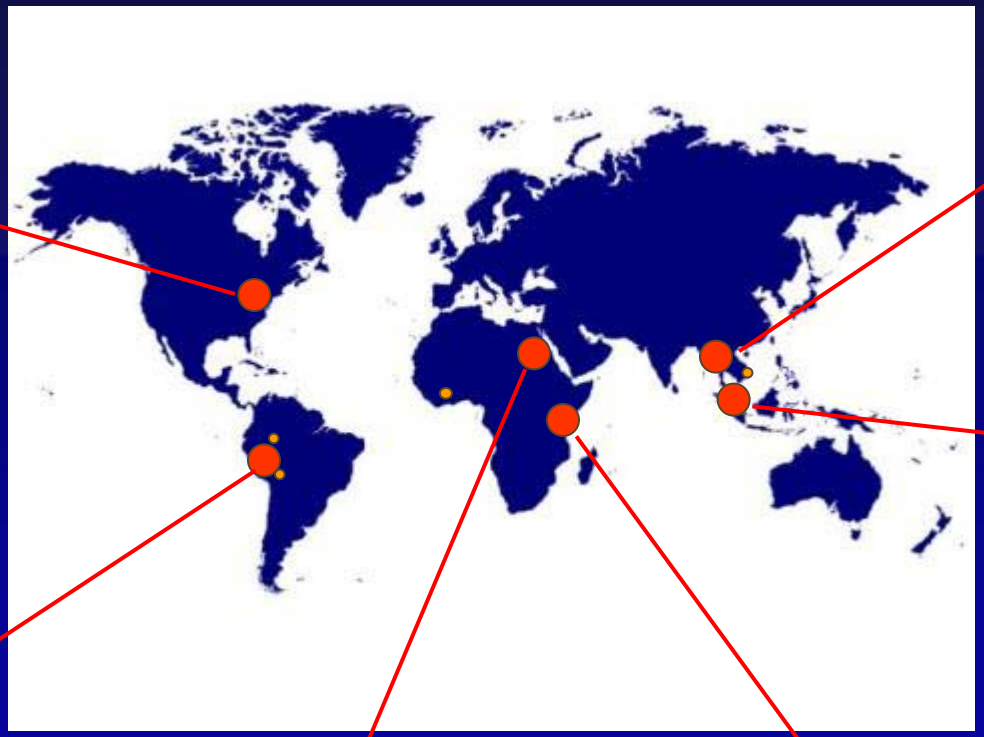


Headquarters
NMRC / WRAIR
Silver Spring, MD

AFRIMS
Thailand
1959

NMRC-Asia
Singapore
(Cambodia)
1945

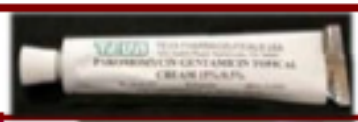
NAMRU-6
Perú
1983

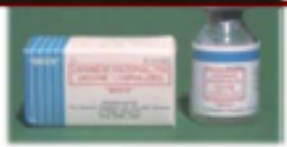
NAMRU-3
Egypt (Ghana)
1946

USAMRU-K
Kenya
1969

Infectious Disease Products Developed by Department of Defense Scientists

Research Effort		Advanced Development	Fielded Products
Antiparasitic Drugs	Malaria (CDD)	Intravenous Artesunate (CPD) Tafenoquine	Atovaquone/Proguanil (Malarone®, 2000) Doxycycline (Vibramycin®, 1992) Halofantrine (Halfan®, 1992) Mefloquine (Lariam ®, 1989) Sulfadoxine-Pyrimethamine (1983) Chloroquine-Primaquine Tablets (1969) Primaquine (1952) Chloroquine (1949)
	Leishmaniasis	Topical Paromomycin drug (CPD)	
Vaccines	Malaria (CDD) Diarrhea (CDD) Dengue Hemorrhagic fevers Scrub Typhus HIV Global (CDD)	Dengue Tetravalent (CDD) HIV Regional (CDD)	Adenovirus 4 & 7 (1980) – (2011) Japanese Encephalitis - cell based (2009) Hepatitis A (1995) Japanese Encephalitis (1992) Oral Live Typhoid Ty21A (1989) Hepatitis B (1981) Meningococcus (A, C, Y, W-135) (1981)
Diagnostics	Laboratory-based assays Point-of-need devices (CDD)	Leishmania Rapid Diagnostic Device Dengue Rapid Diagnostic Device	SMART Leish PCR Diagnostic Test (2011) Scrub Typhus JBAIDS (2010) Malaria Rapid Diagnostic Test (2007) Scrub Typhus Diagnostic Kit (1998)
Vector Control & Radioprotecta	Repellents/Insect control Insect identification Vector Diagnostics (CDD)	Combined Camouflage Face Paint Bednet Alternate Repellent System	Arthropod Vector Rapid Detection Device for Dengue (2012) Rift Valley Fever virus Vector Detection Assay (2011) West Nile Virus Diagnostic Kit (2001) Ethyol® (1995) DEET-based Insect Repellent (1946)





Staff, Facilities & Research

- **People**
  - 20 U.S. staff: 16 military
  - 300 Peruvian scientists/staff

- **Facilities**
  - Lima (BSL-3)
    - 41,000 sq ft of laboratory space
    - AAALAC certified lab animal facility
  - Iquitos (BSL-2)
    - 5,000 sq ft of laboratory space
    - *Anopheles darlingi* insectary
  - Puerto Maldonado (BSL-1)
    - 2,000 sq ft of laboratory space

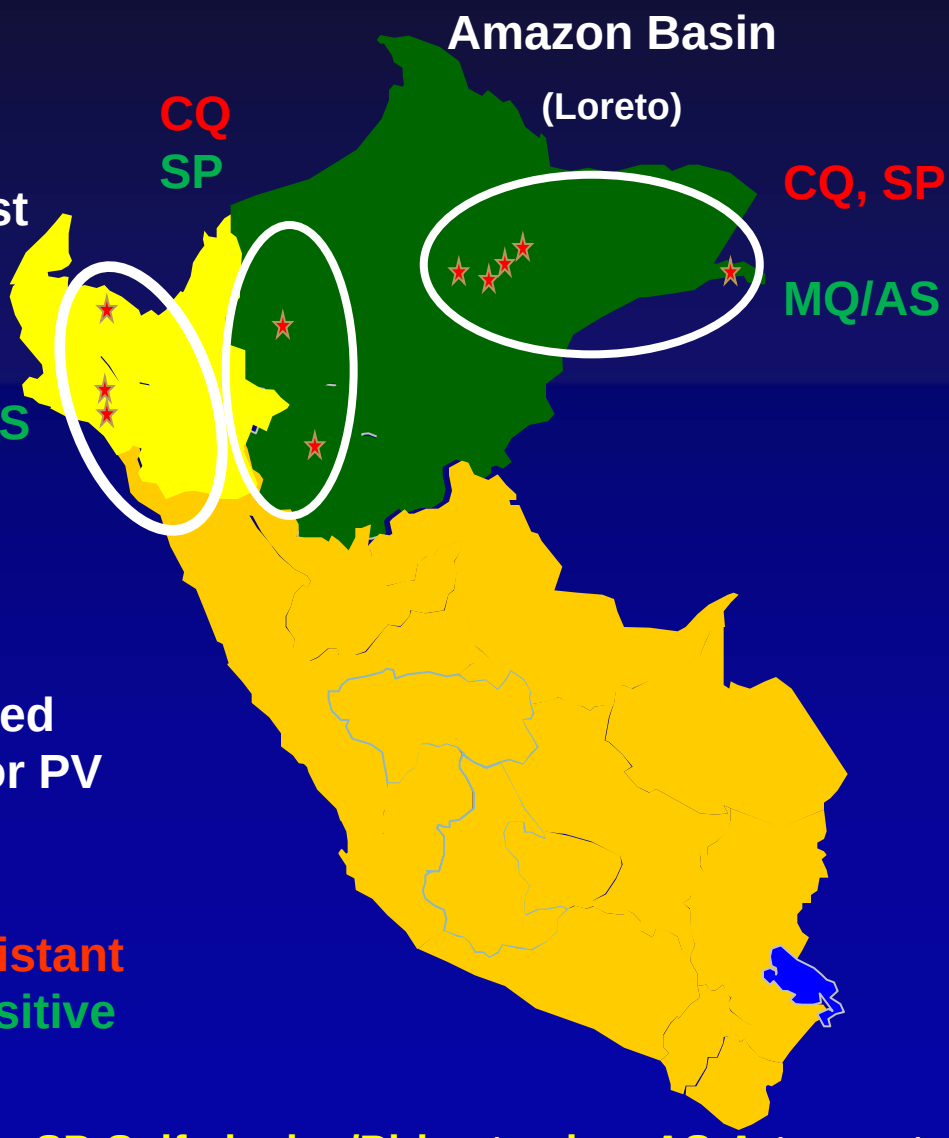
- **Research**
  - **Departments:** Bacteriology, Entomology, Parasitology and Virology/Emerging Infections
  - **Priorities:** Research, surveillance, product development, outbreak response, capacity building, collaboration

NAMRU-6
Puerto Maldonado

Study Sites

- 147 observational studies in 11 countries, 29 additional animal studies
- Scientific Review Board, Ethics Review Board and Institutional Animal Care and Use Committee (IACUC) since 1995

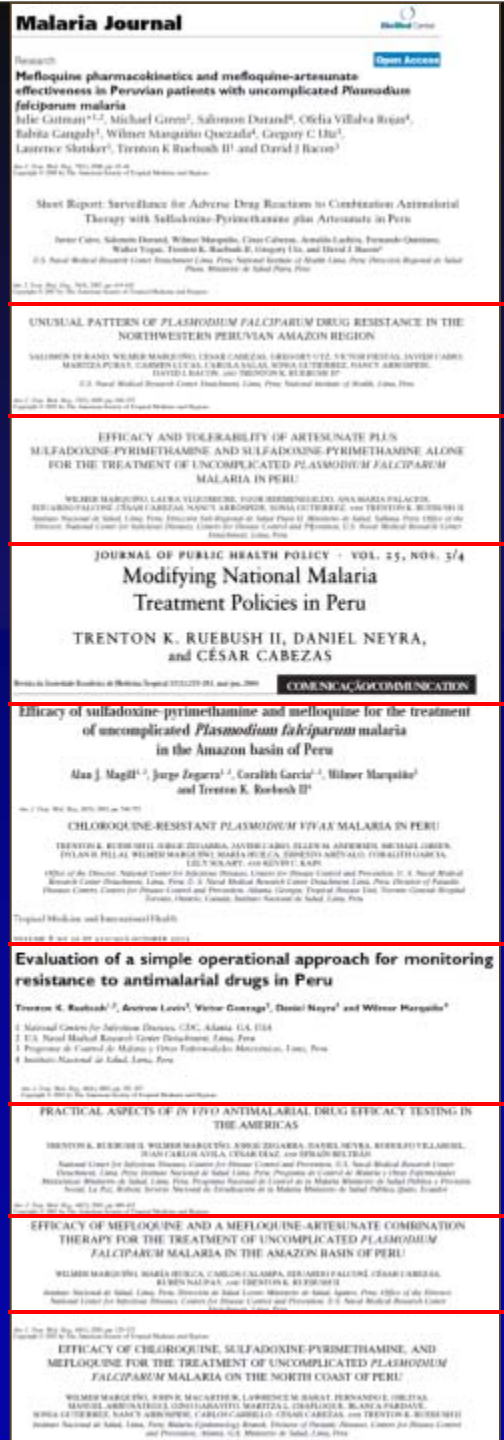
P. falciparum collaborative clinical trials with INS/USAID



CQ+PQ used worldwide for PV

R: Resistant
S: Sensitive

CQ:Chloroquine; SP:Sulfadoxine/Pirimetamina; AS:Artesunate


Malaria Journal

Mefloquine pharmacokinetics and mefloquine-artesunate effectiveness in Peruvian patients with uncomplicated *Plasmodium falciparum* malaria

Short Report: Surveillance for Adverse Drug Reactions to Combination Antimalarial Therapy with Sulfadoxine-Pyrimethamine plus Artesunate in Peru

UNUSUAL PATTERN OF *PLASMODIUM FALCIPARUM* DRUG RESISTANCE IN THE NORTHWESTERN PERUVIAN AMAZON REGION

EFFICACY AND TOLERABILITY OF ARTESUNATE PLUS SULFADOXINE-PYRIMETHAMINE AND SULFADOXINE-PYRIMETHAMINE ALONE FOR THE TREATMENT OF UNCOMPLICATED *PLASMODIUM FALCIPARUM* MALARIA IN PERU

JOURNAL OF PUBLIC HEALTH POLICY · VOL. 25, NOS. 3/4

Modifying National Malaria Treatment Policies in Peru

TRENTON K. RUEBUSH II, DANIEL NEYRA, and CÉSAR CABEZAS

COMUNICAÇÃO/COMMUNICATION

Efficacy of sulfadoxine-pyrimethamine and mefloquine for the treatment of uncomplicated *Plasmodium falciparum* malaria in the Amazon basin of Peru

CHLOROQUINE-RESISTANT *PLASMODIUM VIVAX* MALARIA IN PERU

Evaluation of a simple operational approach for monitoring resistance to antimalarial drugs in Peru

PRACTICAL ASPECTS OF *IN VIVO* ANTIMALARIAL DRUG EFFICACY TESTING IN THE AMERICAS

EFFICACY OF MEFLOQUINE AND A MEFLOQUINE-ARTESUNATE COMBINATION THERAPY FOR THE TREATMENT OF UNCOMPLICATED *PLASMODIUM FALCIPARUM* MALARIA IN THE AMAZON BASIN OF PERU

EFFICACY OF CHLOROQUINE, SULFADOXINE-PYRIMETHAMINE, AND MEFLOQUINE FOR THE TREATMENT OF UNCOMPLICATED *PLASMODIUM FALCIPARUM* MALARIA ON THE NORTH COAST OF PERU

The Malaria Elimination Working Group (MEWoG)

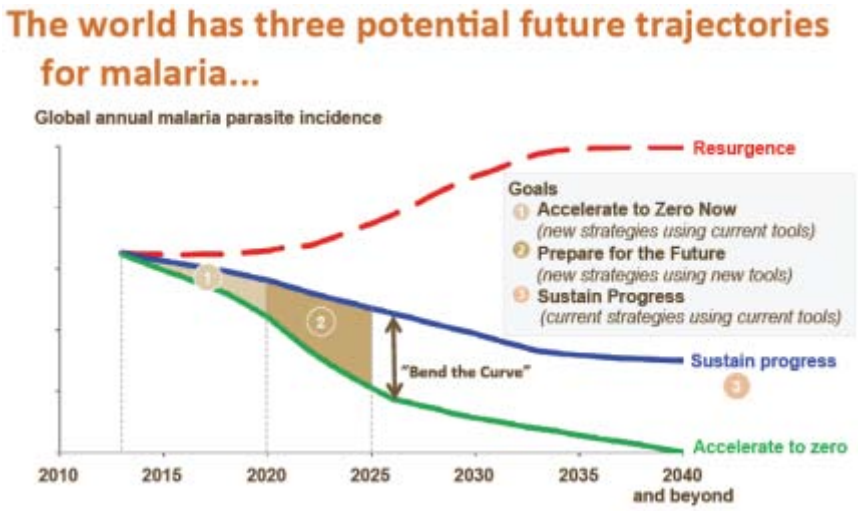
Promoting innovation to accelerate the path towards malaria elimination at the local level

Antonio M. Quispe, MD, MSc,
JHBSPH, PhD student
NAMRU-6, Adjunct Scientist

Alan Magill, BMGF Malaria Director

Keynote Speech at ASTMH Peru 2013: An analytic framework to eradicate malaria: accelerating to zero

"Any goal short of eradicating malaria is accepting malaria; it's making peace with malaria; it's rich countries saying: 'We don't need to eradicate malaria around the world as long as we've eliminated malaria in our own countries.' That's just unacceptable" **Melinda Gates, 2007`**



Accelerate to Zero

We can accelerate the trajectory to malaria eradication by targeting the human reservoir of infection in asymptomatic persons combined with geographically and temporally targeted transmission prevention and strengthened surveillance and response

How things started

- **Antonio M. Quispe, BMGF Intern Jun-Aug ‘13**
- **Global Health Conference Grant OPP1099774: “Accelerating to zero: Strategies to Eliminate Malaria in the Amazon”. Universidad Peruana Cayetano Heredia and NAMRU-6**
- **Consortium initially formed**
- **Partnership then expanded to include a multi-institution collaboration**

Who are we?

- ***A multi-organizational, multidisciplinary group of malaria researchers and public health practitioners***
- ***convened to support the agenda of malaria elimination in the Amazon region***
- ***with a particular focus in the Peruvian Amazon Basin***

Our leadership

Our Board

Our Consulting Committee

PI's

- Alejandro Llanos
- Andres Lescano
- Antonio Quispe
- Eduardo Gotuzzo
- Joseph Vinetz
- Margaret Kosek

MoH

- Carlos Lluén
- César Cabezas
- Edward Pozo
- Fernando Orihuela
- Fernando Quintana
- Helena Ogusuku
- Jorge Ascencio
- Jorge Escobedo
- Jose Carlos Del Carmen
- Luis Flores
- Luis Miguel León
- Luis Saavedra
- Martín Clendenes
- Martín Yagui
- Pedro Valencia
- Rommel Gonzalez

Regional

- César Ramal
- Cristiam Carey
- Martín Casapía
- Moisés Sihuincha
- Sonia Torres
- Carmen Montalván
- Carlos Álvarez
- Graciela Meza
- Francisco Gallo

National

- Adam Amstrong
- Amy Morrison
- Ángel Rosas
- Christian Baldeviano
- Dionicia Gamboa
- Gissella Vásquez
- Karen Campos
- Maribel Paredes
- Marta Moreno
- Raúl Chuquiyauri
- Vince Gerbasi

International

- Alan Magill
- Brian Grimberg
- David Kaslow
- David Smith
- Fernando Llanos
- Guillermo Gonzálvez
- Jaime Chang
- Max Grogl
- Steven Kern
- Sócrates Herrera
- Steve Harvey

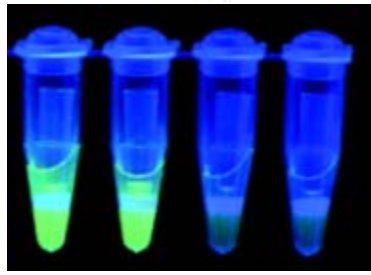
***Collaboration** is our major strength*

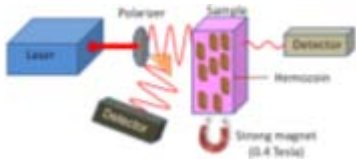
Our mission

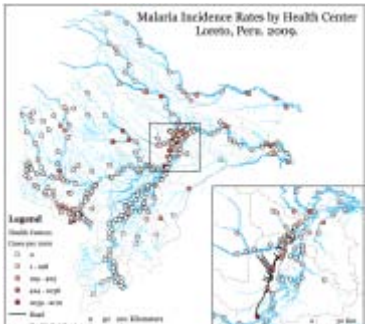
- To promote innovative solutions
- to address the scientific, technical, operational, financial and programmatic issues
- that local authorities need to address
- when pursuing or embarking on malaria elimination initiatives

Our agenda

- Support the implementation of novel strategies to target the malaria reservoir and accelerate the path towards malaria elimination
  - Support the introduction of novel molecular field deployable diagnostics
  - Strengthen local surveillance systems with novel geospatial mapping techniques and targeted transmission prevention measures
- Intensify the collaboration between national and international organizations to support local malaria elimination initiatives
  - Promote forums and policy environments that facilitate the continual experimentation and learning for new tools and strategies for malaria elimination







Iquitos Conference, February 16-17, 2013

- **All malaria research groups, international partners and sponsors together with public health authorities**
- **Presentation of relevant research findings, ongoing and future projects**
- **Feasibility, outcomes, methods and research agenda**
- **Critical gaps identified:**
  - **Targeting the *P. vivax* asymptomatic reservoir**
  - **Sensitive and deployable tests in resource-limited settings**
  - **Political commitment and support for continuity**
- **Commitment to work together in the goal of elimination**

Attendants

Ministry of Health: Loreto authorities, hospitals and laboratories. National Institutes of Health, Epidemiology, Vector Borne Diseases Control Strategy, Regional authorities

Research groups: Universidad Peruana Cayetano Heredia, University of California @ San Diego, NAMRU-6, Asociacion Benefica PRISMA, Johns Hopkins & New York Universities

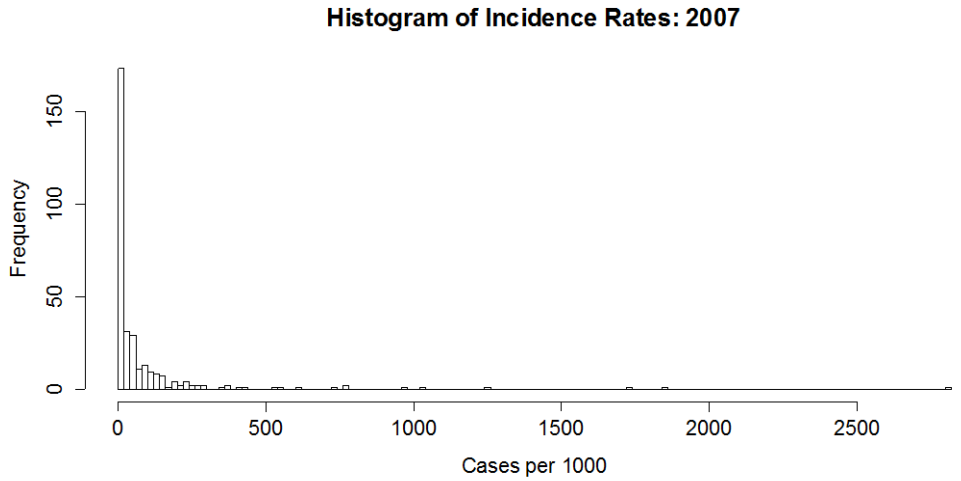
Partners: USAID, PAHO, Walter Reed Army Institute of Research, Latin America and Amazonia International Malaria Centers of Excellence (ICEMR)

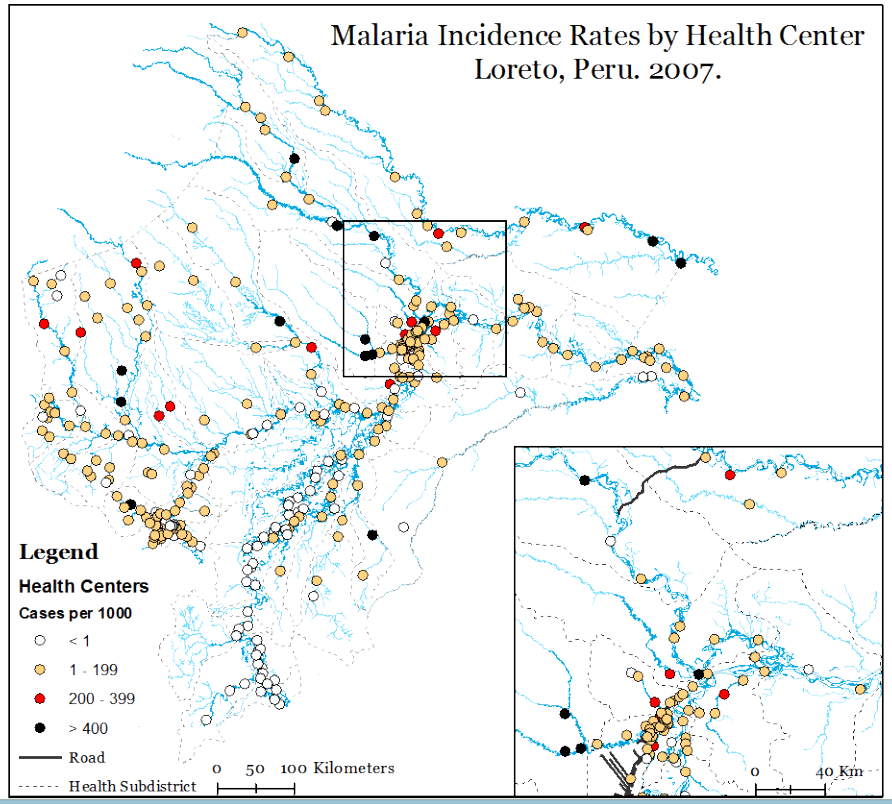
Sponsors: Bill and Melinda Gates Foundation, PATH

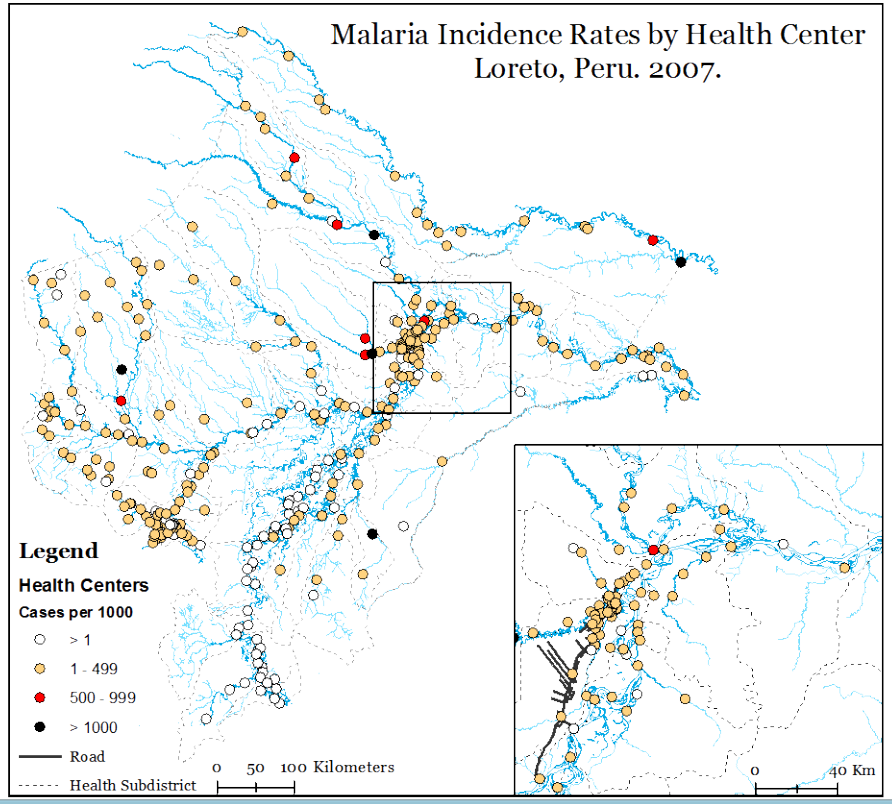
Next steps

- **Consolidation of grey literature and non-published data into peer-reviewed papers in the international literature**
- **Analysis of existing information to identify potential pilot sites**
- **Preparation of final report of the meeting to consolidate support from the Peruvian Ministry of Health**
- **Active search for funding for elimination projects**
- **Invitation to AMI Steering Committee members to be part of the MEWG Consulting Committee**

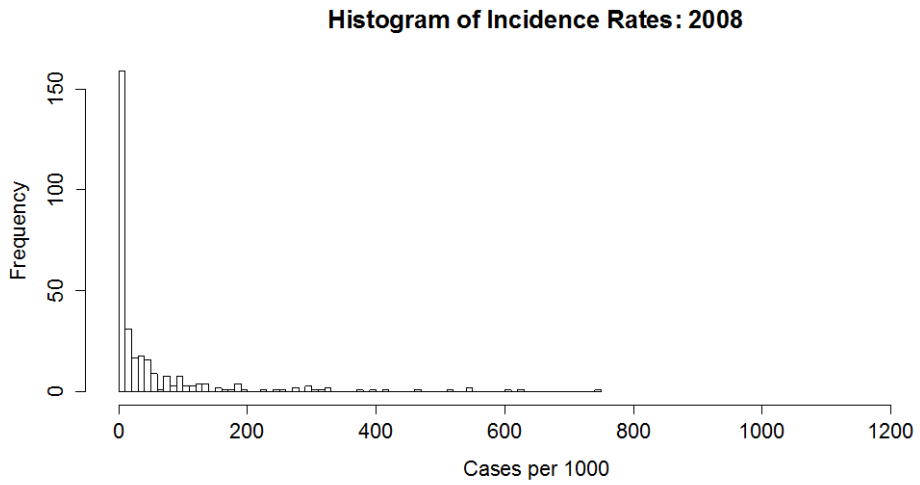
Human Malaria Reservoir Loreto - 2007

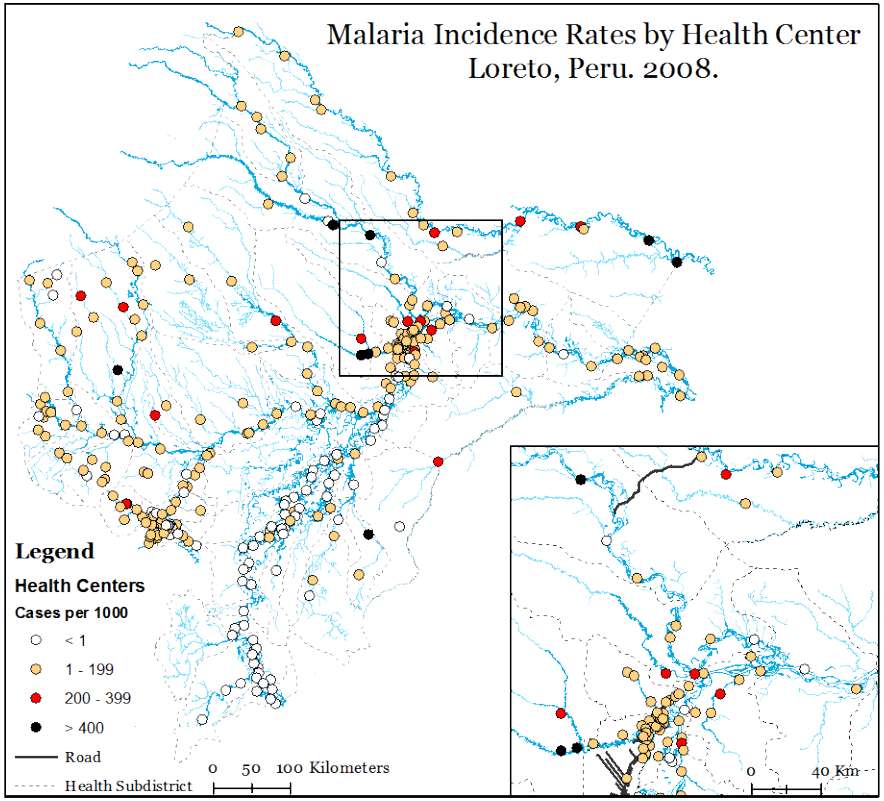


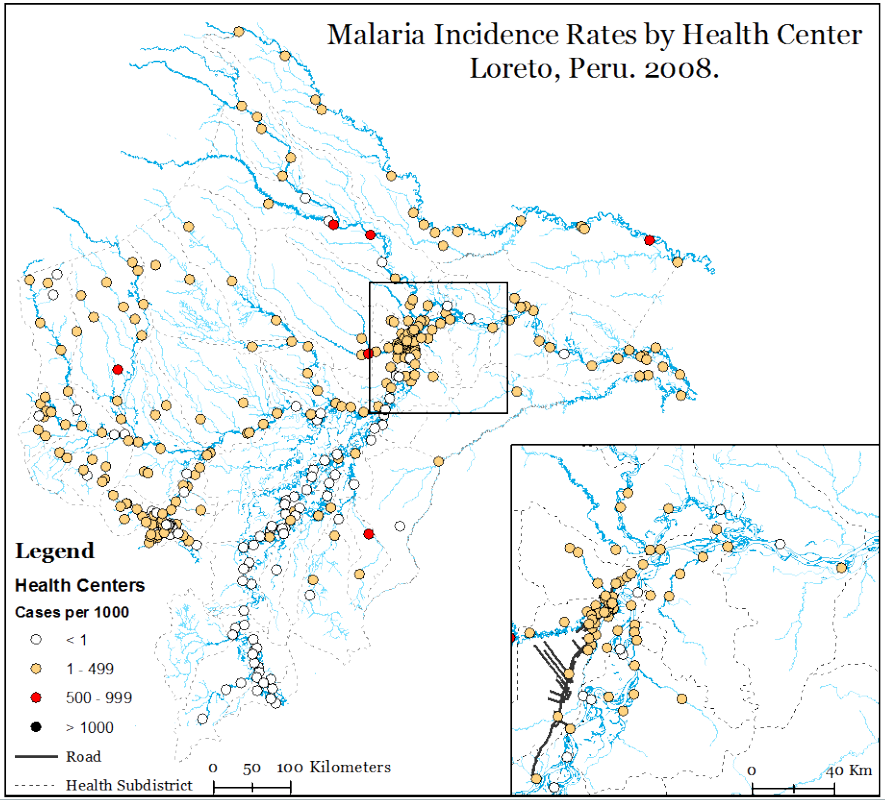




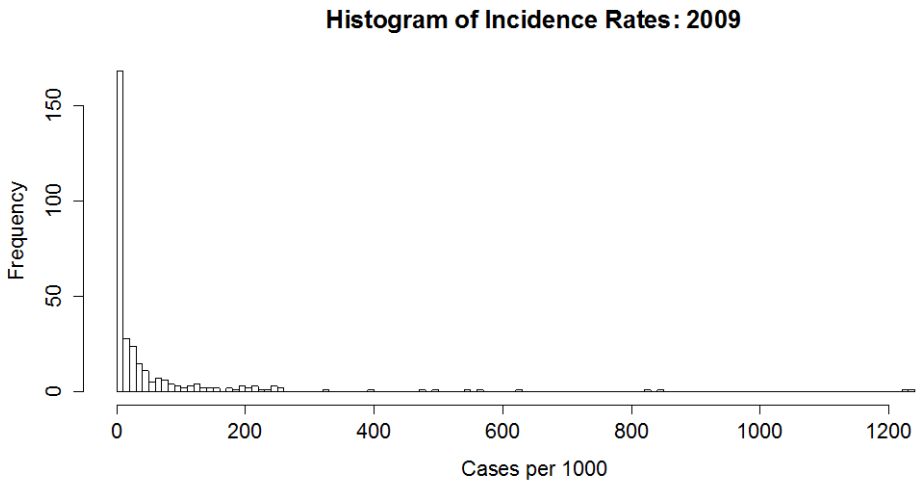
Human Malaria Reservoir Loreto - 2008

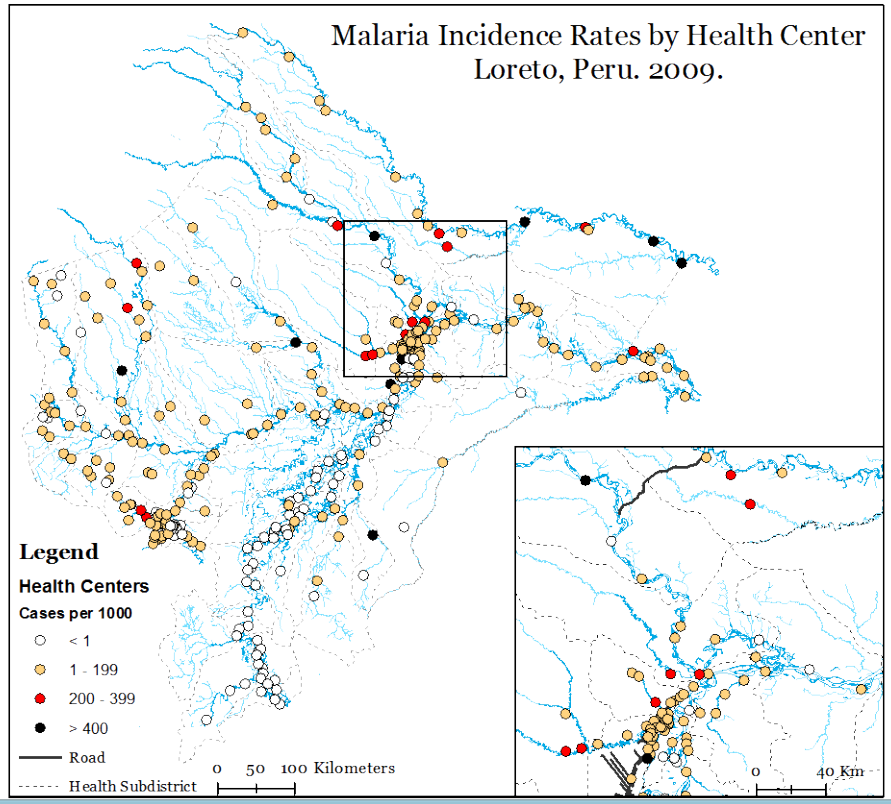


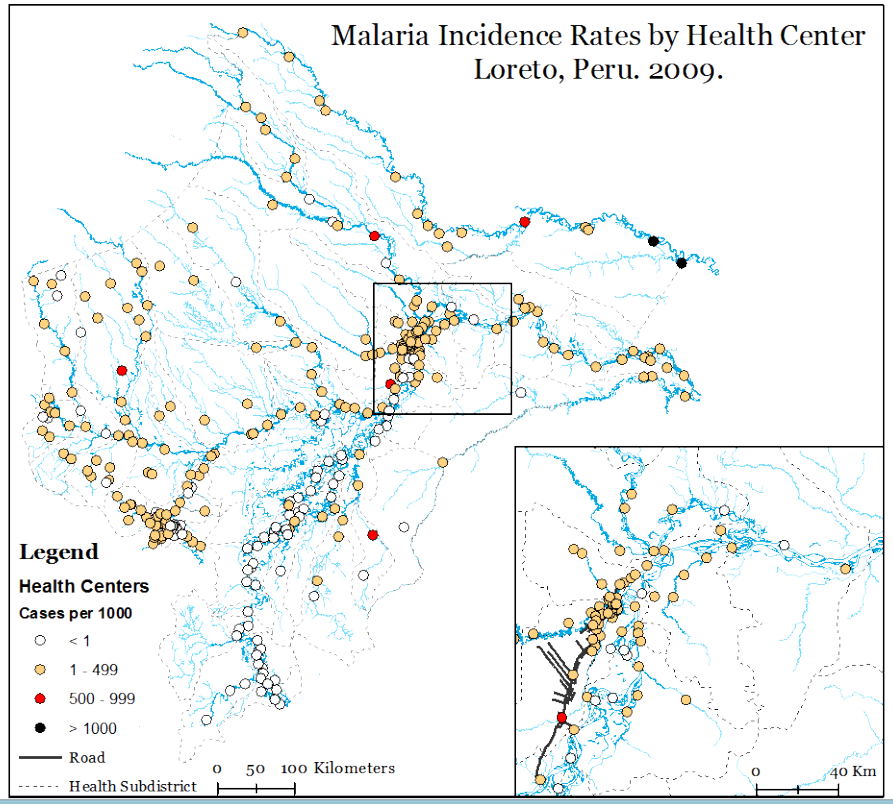




Human Malaria Reservoir Loreto - 2009








Every person deserves the chance to live a healthy, productive life.
(BMGF Vision)

Thank you for your attention

willy.lescano@med.navy.mil
wlescano@hotmail.com