

Proposal for Guidelines for the Investigation of Malaria Reemergence Epidemics

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Outline

- ❑ **Background and rationale**
- ❑ **Objectives**
- ❑ **Methodology**
- ❑ **Outline of guidelines**
- ❑ **Publication timeline**
- ❑ **Collaborative discussion**

***P. falciparum* Outbreak in Peru**

- ❑ **Recent epidemic of *P. falciparum* in Peru**
- ❑ **Activities performed in 2011–2012**
 - Collection of whole blood for PCR/genotyping
 - Case interviews/contact interviews
 - Treatment of contacts
 - Mosquito collection
 - Identification and treatment of breeding sites
 - Outdoor and indoor spraying
 - Health worker training
 - Community sensitization

Challenges from Peru Outbreak

- ❑ **Organization of investigation and response**
 - Multiple government and non-government organizations involved
 - Differing opinions on how to proceed with investigation
 - Literature search of little utility in guiding the response in this setting

Existing Guidelines

- ❑ **Locally Acquired Mosquito-Transmitted Malaria: A Guide for Investigations in the United States**
- ❑ **Morbidity and Mortality Weekly Report (MMWR) 2006; 55(13): 1-9**

Existing Guidelines

❑ Overview of guidelines

- Summarized cases of locally acquired malaria in U.S. after elimination achieved
- Outlined steps for investigating malaria outbreaks
- Discussed outbreak control methods
- Highlighted communication with healthcare providers

❑ Limitations

- Specifically written about U.S. outbreaks
- Less applicable to diverse international setting
- Further evolution of science

Motivation for New Guidelines

- ❑ **Global declines in malaria /potential for elimination in many regions**
- ❑ **Malaria reemergence events in multiple locations worldwide**
- ❑ **Expansion of technologies available to aid in outbreak investigation and response**
- ❑ **No formal guidelines on investigating and responding to reemergence outside of the United States**

Moving Forward

- ❑ **Proposed development of formal guidelines on malaria reemergence in international settings**
- ❑ **Preparation**
 - Centers for Disease Control and Prevention (CDC)
 - US Agency for International Development (USAID)
- ❑ **Collaboration**
 - Pan-American Health Organization (PAHO)
 - Naval Medical Research Unit (NAMRU)
 - Other Amazon Malaria Initiative (AMI) partners

Objectives

- ❑ **Develop evidence-based guidelines on investigating malaria outbreaks in previously malaria-free or particular species-free zones**
- ❑ **Review the evidence for responding to malaria reemergence events in different parts of the world**
- ❑ **Publish in forum able to be utilized in diverse settings/regions**

Methodology

- ❑ **Perform literature review of recent malaria epidemics, outbreaks, and reemergence events**
- ❑ **Analyze methods used to investigate such outbreaks in terms of utility of information produced and cost**
- ❑ **Review responses utilized in each case in terms of cost and ability to decrease transmission**
- ❑ **Interview experts in the fields of malaria laboratory science, entomology, and malaria epidemic response**

Outline of Guidelines

□ Background

- Overview of recent malaria reemergence epidemics
 - Peru, Jamaica, Greece, South pacific, India
- Review of current literature
- Rationale for new guidelines

Outline of Guidelines

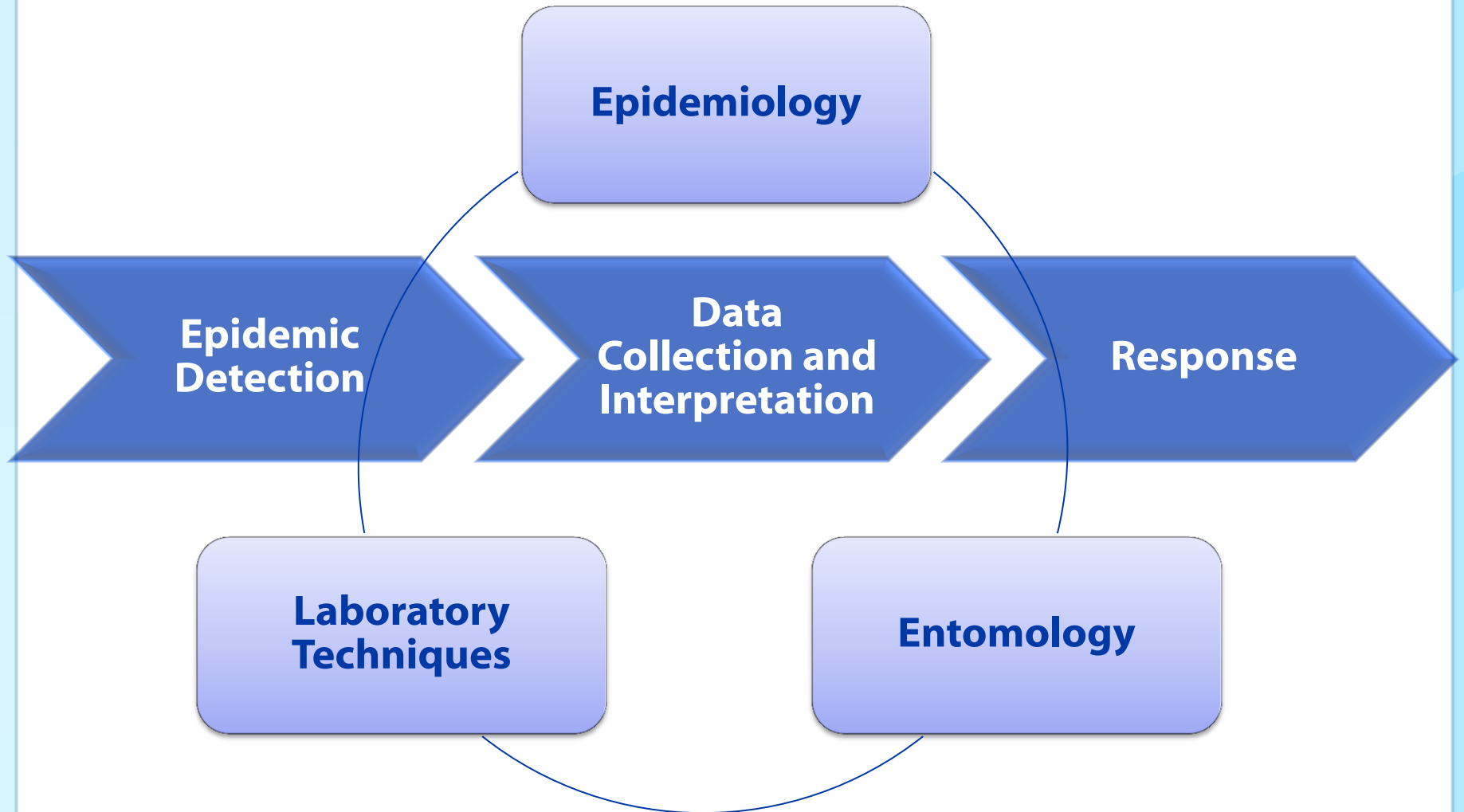
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graph LR; A[Epidemic Detection] --> B[Data Collection and Interpretation]; B --> C[Response]
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**Epidemic
Detection**

**Data
Collection and
Interpretation**

Response

Outline of Guidelines



Outline of Guidelines

□ Epidemic Detection

- Methods of surveillance
- Timeliness of surveillance system
- Laboratory requirements
- Communication between healthcare community and public health infrastructure
- Recognizing contextual risks

Outline of Guidelines

□ Data Collection and Interpretation

- Increasing surveillance
 - Use of reference labs for confirmation
 - Collection of blood for future analysis
- Establishing case definition for purpose of outbreak investigation
- Descriptive epidemiology
- Analytic epidemiology
 - Case-control or cohort studies
- Contextual analysis

Outline of Guidelines

□ **Laboratory Considerations**

- Case confirmation
 - Species determination
- Genetic analysis for source
- Genetic analysis for resistance

Outline of Guidelines

□ Entomology Considerations

- Changes in circulating vector
- Source analysis
- Resistance analysis
- Vector control

Outline of Guidelines

□ **Response options**

- Updating treatment guidelines
- Active case detection/test and treat methods
- Vector control/updating policy
- Directed spraying
- Bed net distribution

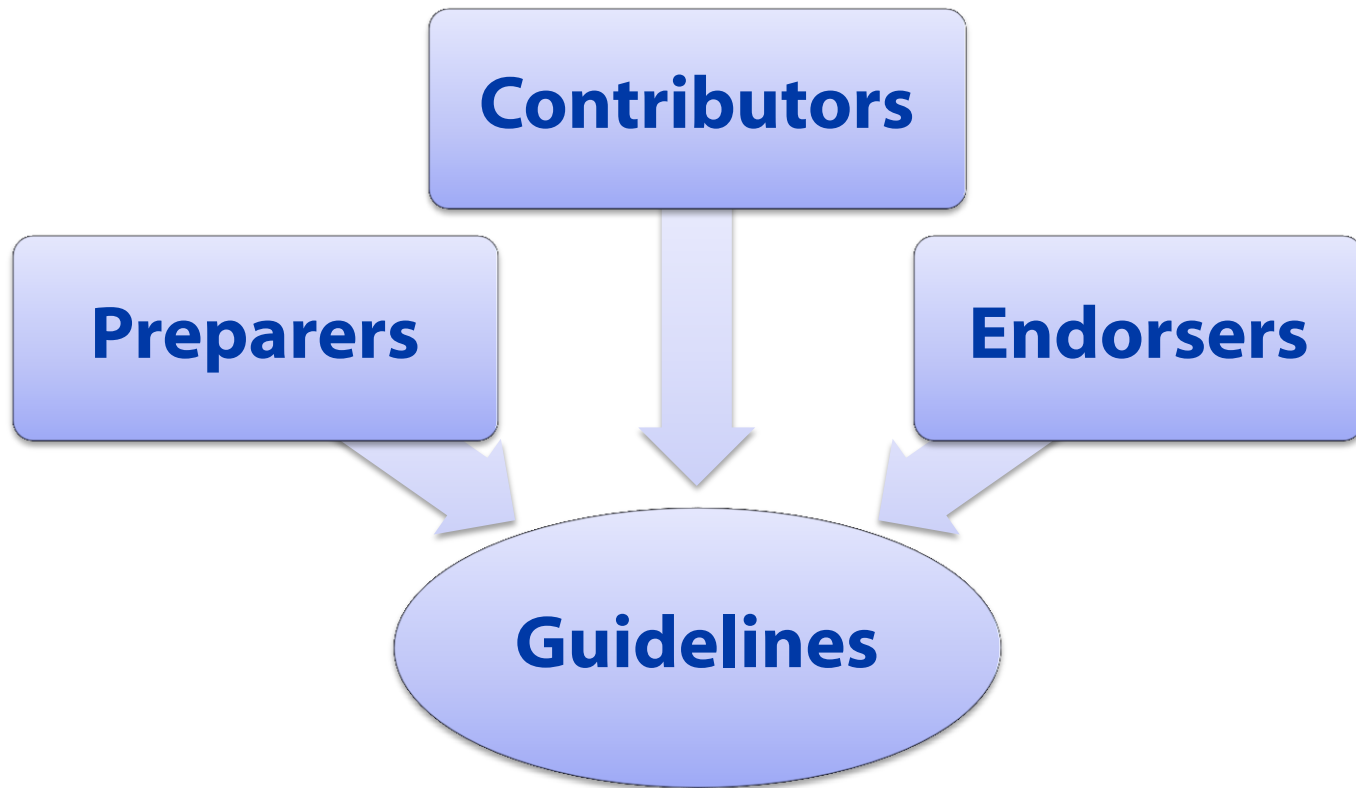
□ **Role of collaboration**

□ **Importance of health communication**

Manuscript Preparation

- **MMWR Reports and Recommendations**
 - Advantages
 - Standard forum for publishing guidelines
 - Well-respected source
 - Free and accessible to international community
 - Challenges and requirements
 - Detailed specifics on methodology
 - Partner organization approvals in advance
 - Time-consuming clearance proces

Manuscript Preparation



Current Status

- ❑ **Initial outline of topics**
- ❑ **Identification of potential publishing venue**
 - Confirmed interest
- ❑ **Preliminary compilation of resources/subject matter experts**
- ❑ **Collaborator/stakeholder input**

Timeline

March 2012

- Meetings with potential partners/collaborators

April 2012

- Literature reviews and interviews

**May – July
2012**

- Preparation of draft of guidelines
- Circulation and revision of drafts

**Aug – Sept
2012**

- Endorsements from collaborating organizations
- Submission for publication

Gracias

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

QUESTIONS??



Discussion questions

- ❑ What are some experiences with epidemics in other regions?**
- ❑ Is current laboratory/surveillance capacity sufficient to detect reemergence?**
- ❑ If we were to create guidelines in this area, which topics are most important to include?**
 - Most controversial**
 - Most in need of clarification**

