

# United States National Malaria Surveillance System

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# Agenda

- **Present overview of US National Malaria Surveillance System (NMSS)**
- **Comment on attributes of a surveillance system**
- **Share some thoughts and considerations for surveillance systems**
- **Slow down my pace**

# Definition

**‘Public health surveillance is the ongoing, systematic collection, analysis, and interpretation of health data, essential to the planning, implementation and evaluation of public health practice, closely integrated with the dissemination of these data to those who need to know and linked to prevention and control.’**

# Malaria Surveillance System

- **Considerations**

- **Objectives**

- Public health authorities decision
- Detect trends
- Detect cases for case investigation
- Detect outbreaks

- **Simple**

- Appropriate for specific country or situation
- 'Best system is one that works.'

# Surveillance System Attributes

- **Simplicity**
- **Acceptability**
- **Usefulness**
- **Timeliness**
- **Representativeness**
- **Data quality**
- **Sensitivity**

MMWR, available at  
<http://stacks.cdc.gov/view/cdc/13376>

# Simplicity

- **Easiness to collect data and enter data into system**
- **Use of proper and friendly case definition**
- **Frequently data entered into systems by non-public health professionals**

# Acceptability

- **Stakeholders participation**
- **Easiness of data collection and use**

# Flexibility

- **Ability to evolve and accommodate changes in disease epidemiological profile**
- **Issues**
  - Use of innovative technology
  - Incorporation of new variables of interest



# Usefulness

- **Added value of the information**
- **Public health action guided and based on the information**

# Timeliness

- **Speed of data collection, analysis and reporting**
- **Interval of time from data collection to action**

# **US National Malaria Surveillance System (NMSS)**

## **Objectives**

- **Monitor the epidemiology of malaria, mainly imported**
- **Identify locally acquired cases of malaria, basis for control measures to avoid re-emergence in US**
- **Guide recommendations for prevention and treatment of malaria**
  - **Monitoring for prophylaxis and treatment failures**

# **Domestic Unit at Malaria Branch**

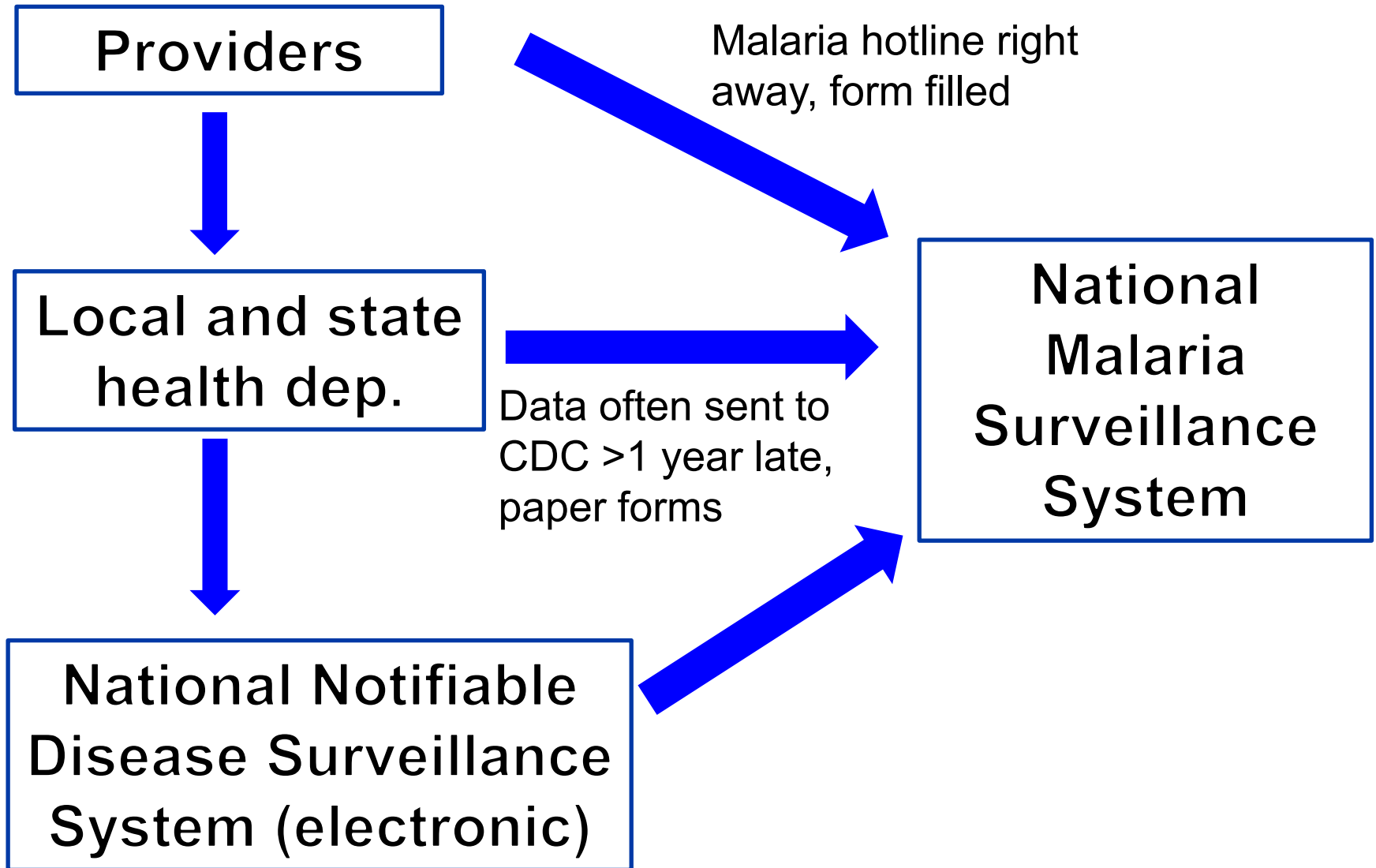
## **Tasks**

- **Malaria surveillance in US**
- **Monitoring for prophylaxis and treatment failures**
- **Review of malaria data from other countries for treatment recommendations for use in US**
  - **Chemoprophylaxis and treatment recommendations**

# **US National Malaria Surveillance System (NMSS)**

- **Oldest surveillance system at CDC**
- **In place since interruption of malaria local transmission in US**
- **Passive case detection**
  - **Reporting from local health departments to state health departments then to CDC**
  - **Additional direct report of cases to CDC from healthcare providers or laboratories**
    - **Malaria Hotline for case management**

# System Description



# Malaria Cases in US

- **Imported**
  - Vast majority
- **Locally acquired malaria**
  - Introduced (local transmission by mosquitoes)
  - Induced (needle-stick, transfusion, laboratory acquired, etc)
- **Congenital**
- **~ 50% of malaria cases hospitalized**
- **Average**
  - 1,600 cases per year
  - 4–6 deaths per year

# **US National Malaria Surveillance System (NMSS)**

- **Outbreak detection**
  - Initial suspicion by state and/or local health departments
  - Investigation and notification of CDC
  - Last documented outbreak in US in 2003, Florida
  - NMSS itself not timely enough to detect outbreak



# NMSS Data, 2012

- **1,687 cases**
  - 1,683 imported
  - 1 laboratory acquired
  - 1 nosocomial
  - 2 cryptic
- **Species**
  - 58% *P. falciparum*
  - 17% *P. vivax*
- **6 deaths**
- **Drug resistance molecular genotyping for 104 cases**

MMWR, available at  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6312a1.htm>

# Challenges

- **Low priority**
  - **Eliminated disease**
- **Limited funding**
- **Need for maintained awareness**
- **Similar to those faced by some AMI countries**

# Available Source of Information and Acknowledgments

- **Malaria Branch website**
  - [www.cdc.gov/malaria](http://www.cdc.gov/malaria)
- **CDC Malaria Map, available at**  
<http://www.cdc.gov/malaria/map/index.html>
- **CDC, Domestic Unit staff**
  - Kathrine Tan
  - Karen Cullen
  - Paul Arguin

**Thanks, Gracias, Dank u, Merci,  
Muito Obrigado!**





# National Malaria Surveillance Summary published in the MMWR

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*Centers for Disease Control and Prevention*

**MMWR**

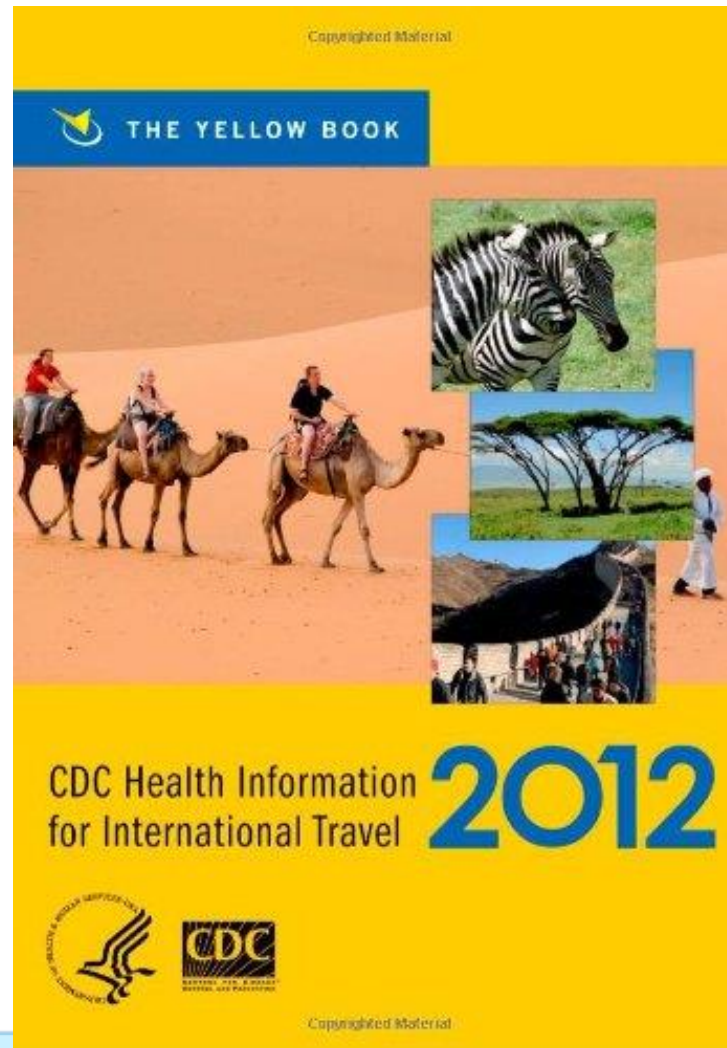
Surveillance Summaries / Vol. 60 / No. 3

Morbidity and Mortality Weekly Report

April 22, 2011

**Malaria Surveillance — United States, 2009**

# CDC “Yellow Book”



# CDC Malaria Map

<http://www.cdc.gov/malaria/map/index.html>

The screenshot shows the CDC Malaria Map Application running in a Windows Internet Explorer browser. The browser's address bar displays the URL <http://cdc-malaria.ncsa.uiuc.edu/index.php>. The application's header features the CDC logo, the title "CDC Malaria Map Application", and logos for NCSA and the University of Illinois. Navigation links for "Home", "Resources", and "Help" are present.

On the left side, there is a search interface with a text input field, a dropdown arrow, and a checkbox labeled "Search all populated places (~ 6 secs)". Below the search field are labels for "Country", "Province", and "City".

The central part of the page is a world map showing malaria prevalence by region. The map is color-coded: red for high prevalence (Africa, parts of Asia and South America), yellow for moderate prevalence (parts of Asia and South America), and green for low or no known prevalence (North America, Europe, Australia). The map includes a navigation control on the left with directional arrows and a zoom slider, and a scale bar in the bottom right corner showing 5000 km and 2000 mi. A "POWERED BY Google" logo is visible in the bottom left of the map area.

On the right side, there is an "Alternati" section with the text "Choose a scheme:" and a dropdown menu currently set to "Red, yell". Below this is a "Map Leg" section with a legend: a red square for "Malaria", a yellow square for "Malaria", and a green square for "No kno".

At the bottom right of the application, there is a link for "Contact Us / Feedback".

# Travelers' health brochure & bookmarks available for distribution

