



2010 Military Health System Conference

Public Health Surveillance and Measurement

Sharing Knowledge: Achieving Breakthrough Performance

COL Robert DeFraités, MC, US Army

26 January 2010



Armed Forces Health Surveillance Center



Briefing Outline

PURPOSE: To provide an orientation to military public health surveillance and the role of the Armed Forces Health Surveillance Center (AFHSC) and partner agencies

1. Purpose of Surveillance
2. Uses of Surveillance Data
3. Mission and Background of AFHSC
4. Case examples
5. Support for MHS strategic initiatives
6. Contact info

Military Public Health Surveillance



- Aim
 - demonstrate how surveillance activities support the following MHS strategic initiatives
 - #1 Medical Readiness-Improved mission readiness
 - #2 Population Health-Healthy and medically protected communities
 - Learning and Growth-Delivering information to enable better decisions

Purposes of Public Health Surveillance



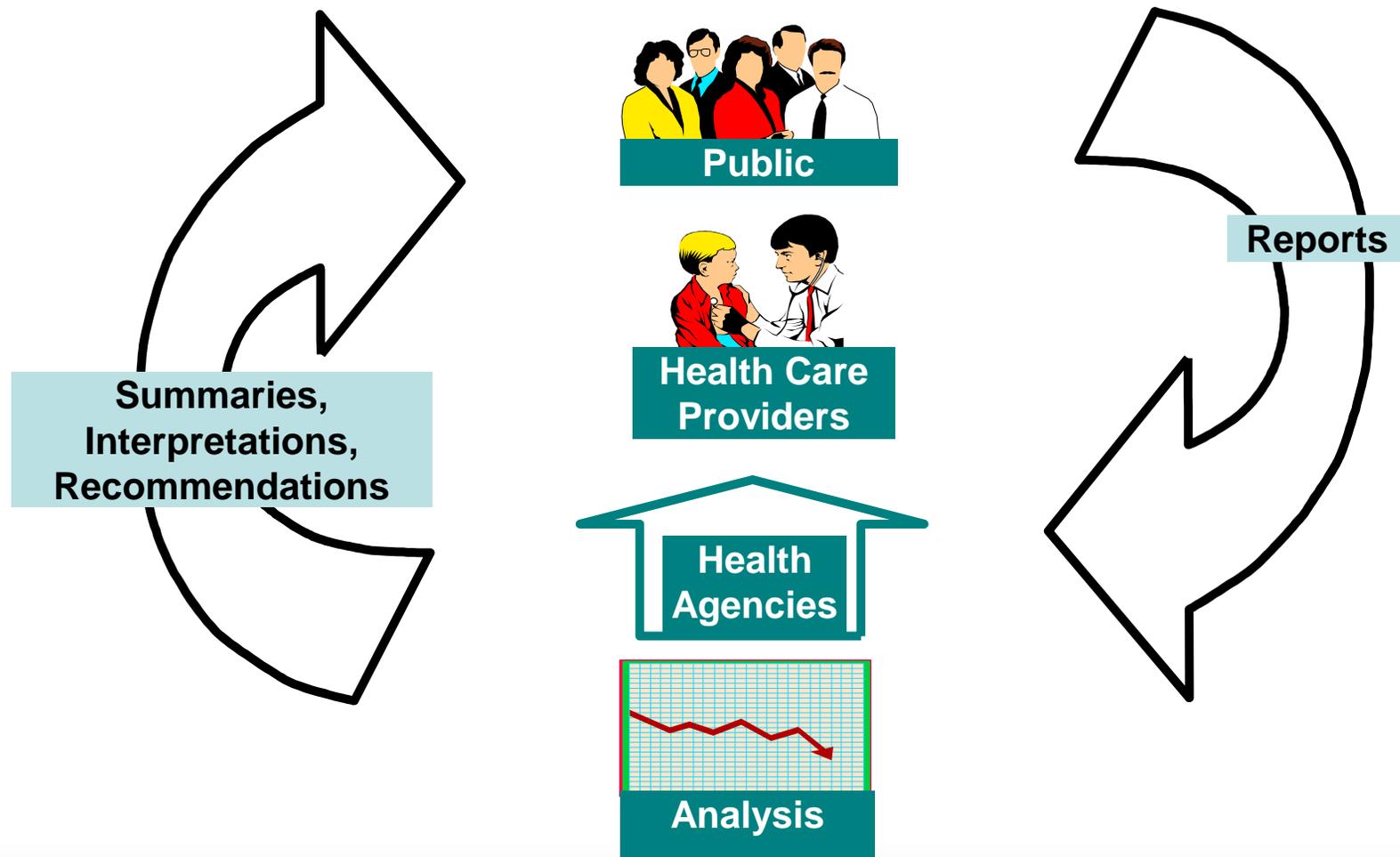
- **Assess public health status**
- **Define public health priorities**
- **Evaluate programs**
- **Stimulate research**

Source: Epidemiology Program Office, CDC, accessed 10 Jan 10

Public Health Surveillance



The Surveillance “Information Loop”



Uses of Public Health Surveillance



- **Estimate magnitude of the problem**
- **Determine geographic distribution of illness**
- **Portray the natural history of a disease**
- **Detect epidemics/define a problem**
- **Generate hypotheses, stimulate research**
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- **Detect changes in health practices**
- **Facilitate planning**

AFHSC Mission



- To promote, maintain, and enhance the health of military and military-associated populations by providing *relevant, timely, actionable, and comprehensive* health surveillance information and support to US military and military-associated populations
 - Acquire, analyze and interpret, recommend, and disseminate information
 - Develop, refine and improve standardized surveillance methods
 - Serve as focal point for sharing health surveillance products, expertise and information

Armed Forces Health Surveillance Center



Military: 13+2 PHS

Civilians: 4

Contract: 54



DIRECTOR
Armed Forces Health Surveillance Center

Science Advisor

Liaisons
DHHS
WHO

Dep Dir, AFHSC/
Director, GEIS

AFHSC HQ
 > Chief of Staff
 ○ DCSRM
 ○ DCSOPS
 Chief, Information Officer

Chief, Data and Analysis

Chief, Communications, Standards, & Training

Chief, GEIS Operations

Data Management

Epidemiology/ Analysis

Operations & Communications

Standards & Training

AI/PI Surveillance

GEIS Core

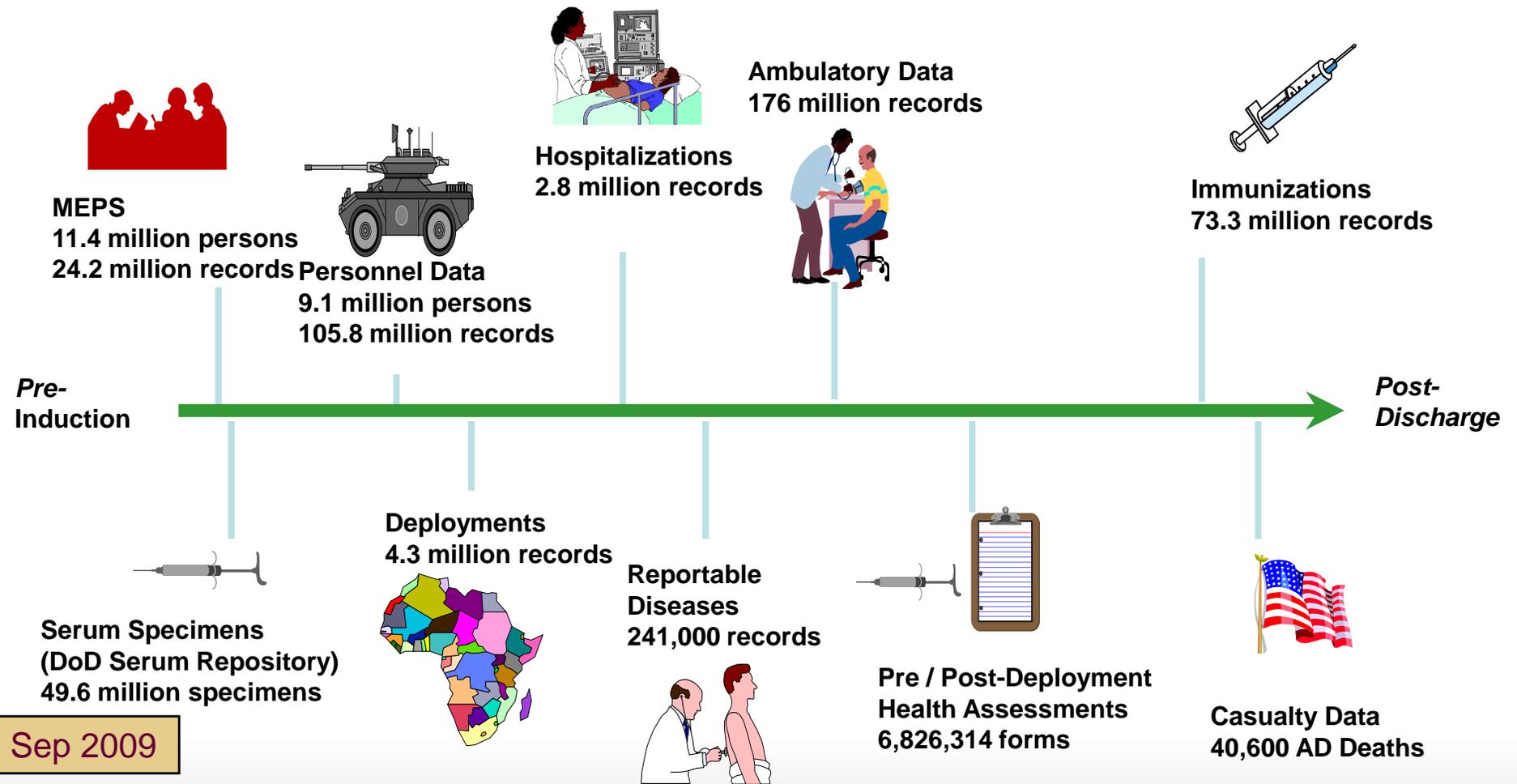
DoD Serum Repository

Defense Medical Surveillance System



Longitudinal Database

Focus: Active Duty & Reserve Component



Medical Surveillance Monthly Report



www.afhsc.mil

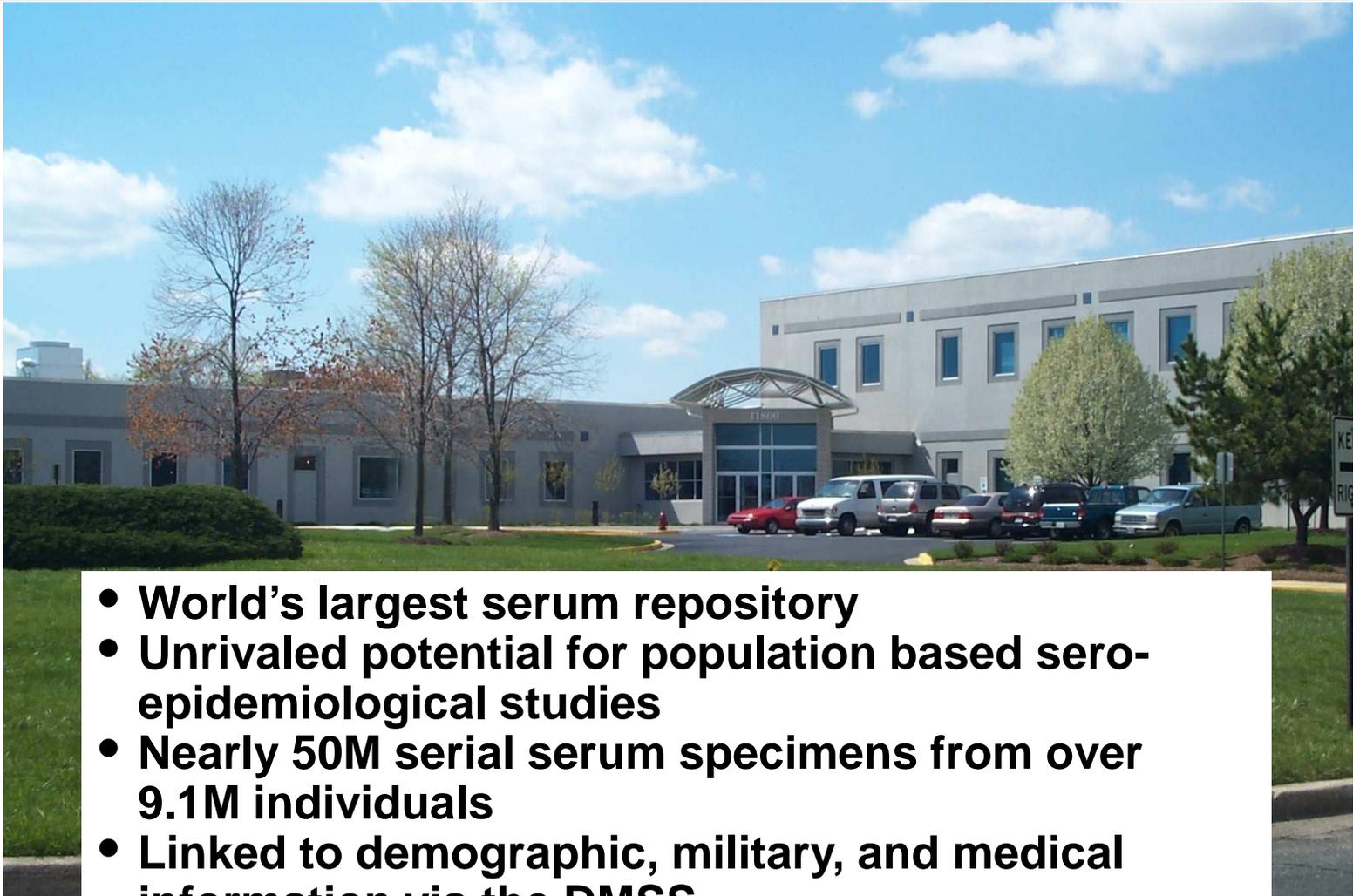
Longitudinal surveillance, analysis and reporting regarding health and fitness of Service members



Medical Surveillance
Monthly Report

- **Timely information on current force health topics**
- **More than 120 issues available online**
- **Sent monthly to over 2,000 subscribers**
- **A reference for standard DoD health surveillance case definitions**

DOD Serum Repository

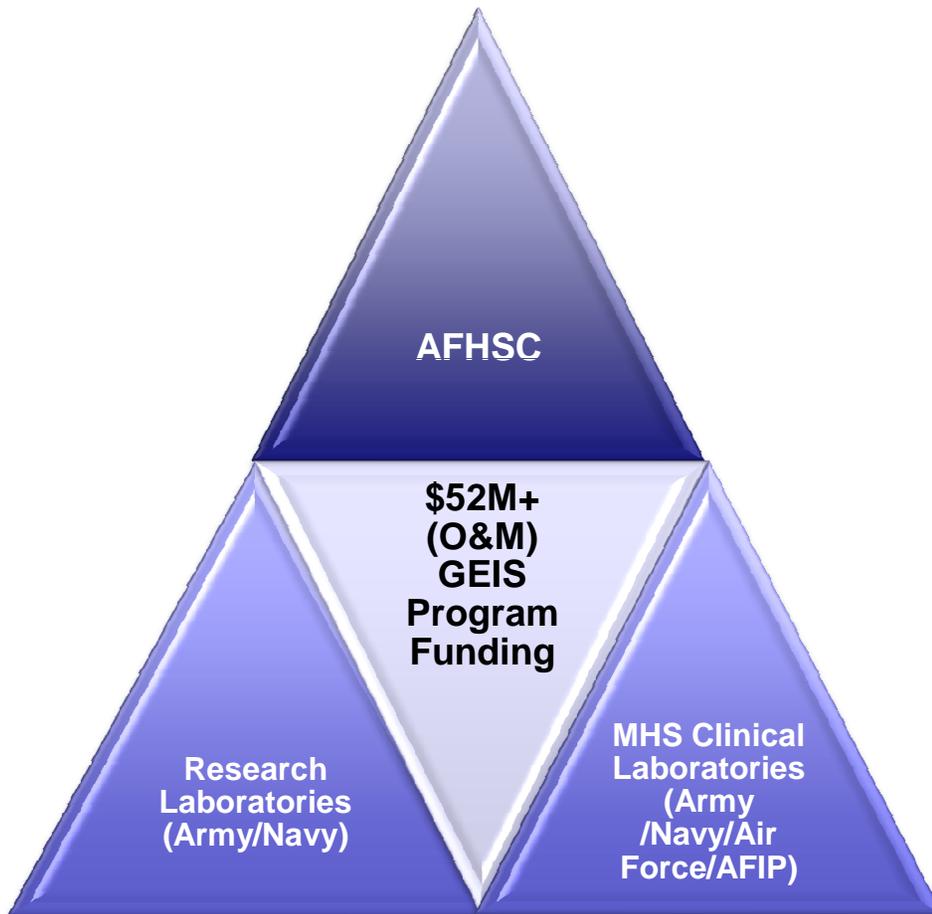


- **World's largest serum repository**
- **Unrivaled potential for population based sero-epidemiological studies**
- **Nearly 50M serial serum specimens from over 9.1M individuals**
- **Linked to demographic, military, and medical information via the DMSS**

Global Emerging Infectious Disease Laboratory Surveillance Capability



Leveraging existing infrastructure-DOD partner network



- AFHSC, through GEIS funding, leverages laboratory capabilities through partners in MHS and some external agencies
- Surveillance supported at Army and Navy research laboratories in CONUS (WRAIR, USAMRIID, NMRC/NHRC) and OCONUS (3 Navy/2 Army)
- Clinical reference and MTF laboratories throughout MHS support surveillance (mission permitting)

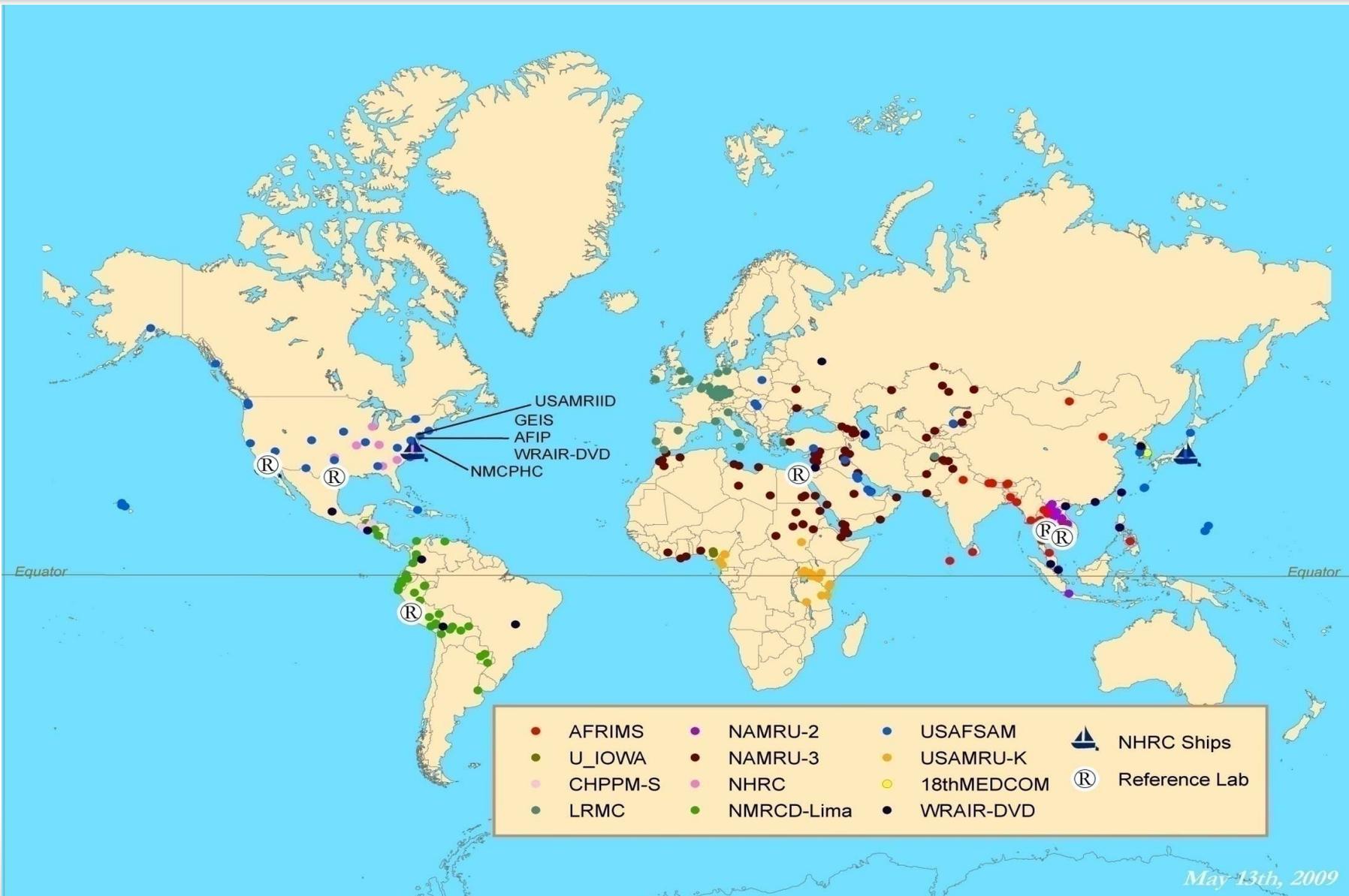
AFHSC and Partners



A world map with a green landmass background, highlighting various locations of AFHSC and its partners. The map includes several callouts with photos and logos:

- AFIP**: Aerial view of a large building complex and the AFIP logo.
- WRAIR/NMRC**: Aerial view of a large building complex.
- HQ, AFHSC**: A photograph of a modern, multi-story building.
- USACHPPM**: Logo for the United States Army Center for Health Policy and Management, with the tagline "Readiness thru Health".
- Navy Hub**: A circular logo for the Naval Health Research Center, with the tagline "Advancing Through Research and Innovation".
- Air Force Hub**: A circular logo for the United States Air Force School of Aerospace Medicine.
- Peru**: A photograph of a building.
- Germany**: A photograph of a building.
- Egypt**: A photograph of a building.
- Kenya**: A photograph of a building.
- Indonesia**: A photograph of a building.
- Thailand**: A photograph of a building.
- Korea**: A photograph of a building.

DoD Lab Network Flu Surveillance 2009



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Discovery of New Flu (pH1N1)

“First two cases in California”-Naval Health Research Center



■ Case 1:

10 yo male asthmatic, San Diego

Onset 3/30/09, NMCS D clinic visit 4/1/09

Influenza A “unsubtypable” at NHRC

Confirmed at CDC

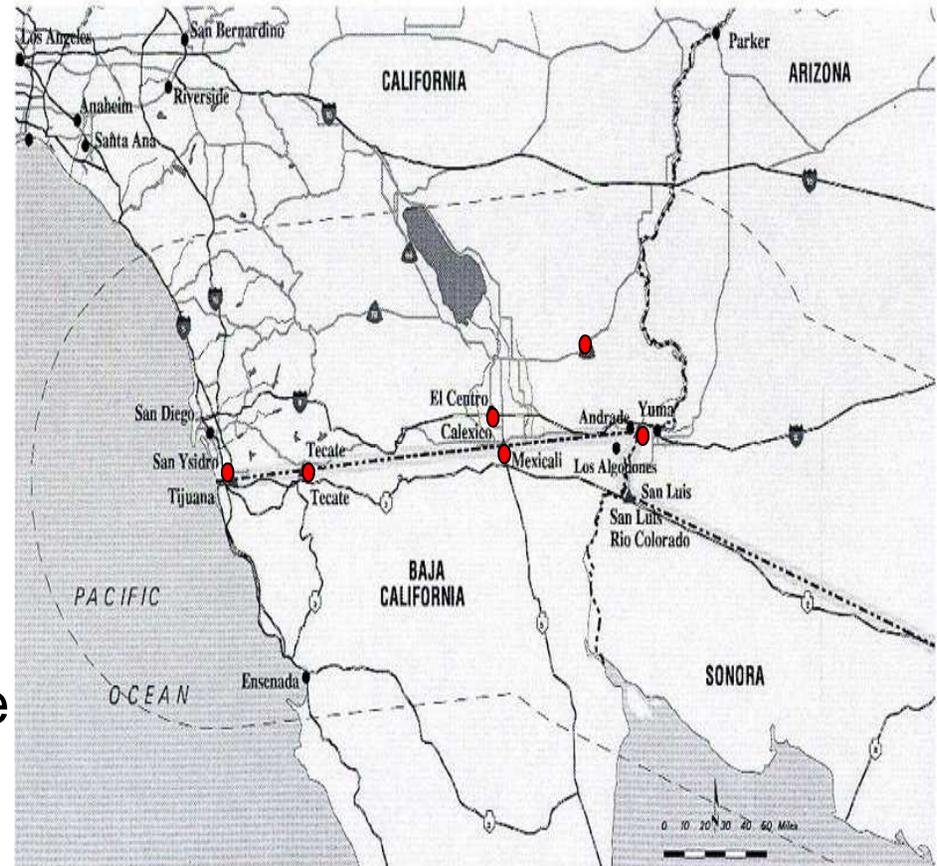
■ Case 2:

■ 9 yo female, Imperial Co., CA

■ Onset 3/27/09: influenza-like illness Clinic visit 3/30/09

■ Identified at NHRC as swine flu virus

■ Confirmed at CDC



US-Mexico International Border
100 km border region
State boundary
Interstate/Major highway
State highway

Source: Barton-Aschman & La Empresa, 1997

Figure 2.3
Border Region - Zone 1

Source: CDR Patrick Blair, Naval Health Research Center, FHP 2009 Conference (19 Aug 09)

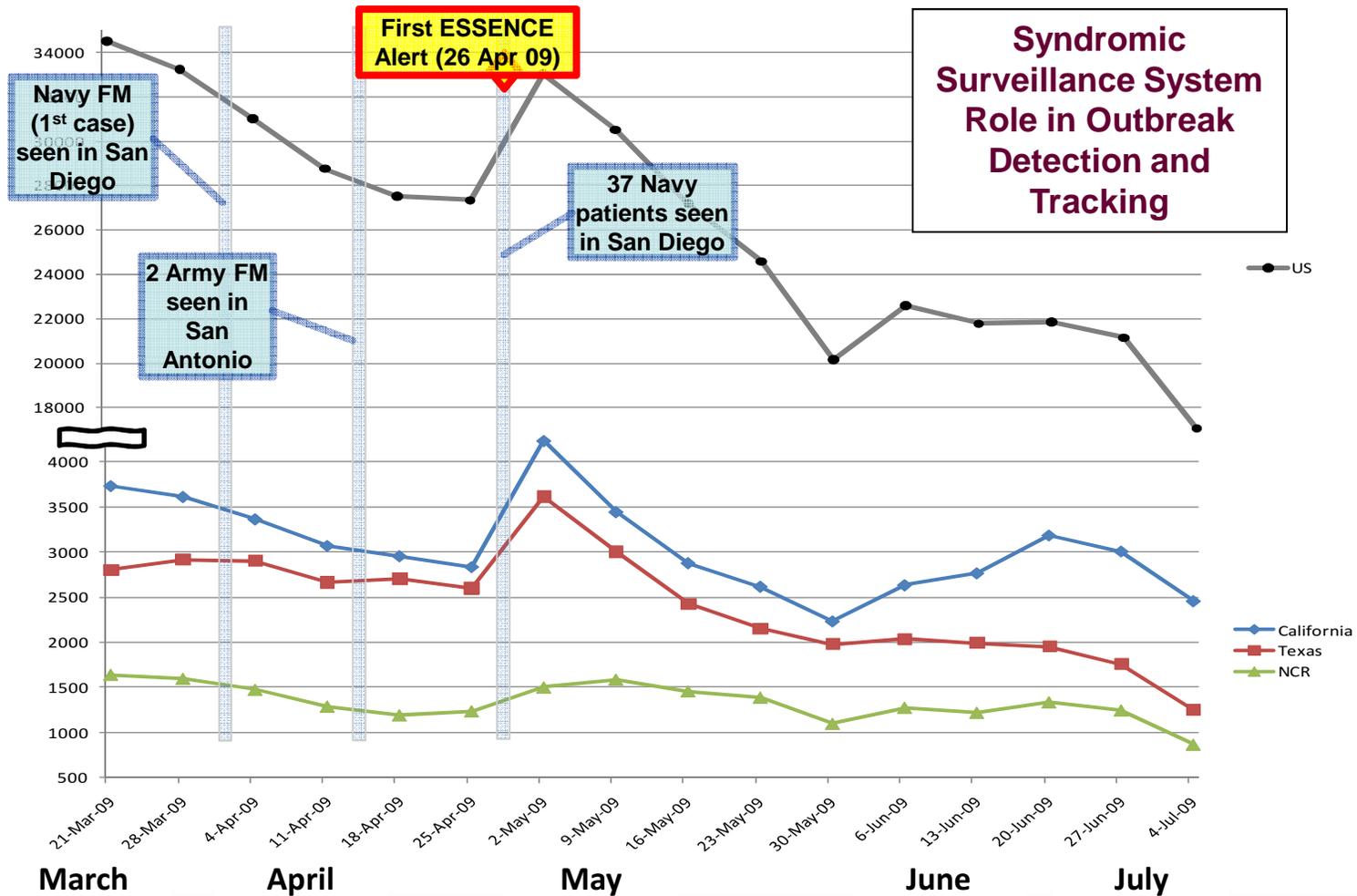
Discovery of New Flu (pH1N1)

NHRC Laboratory makes history—or, at least People Magazine



People & Rolston, M., (2009). 25 Most Intriguing People 2009, *People Magazine: The Best and Worst of 2009*, 72(26), 86

Tracking Pandemic Flu (pH1N1)



2009

March

April

May

June

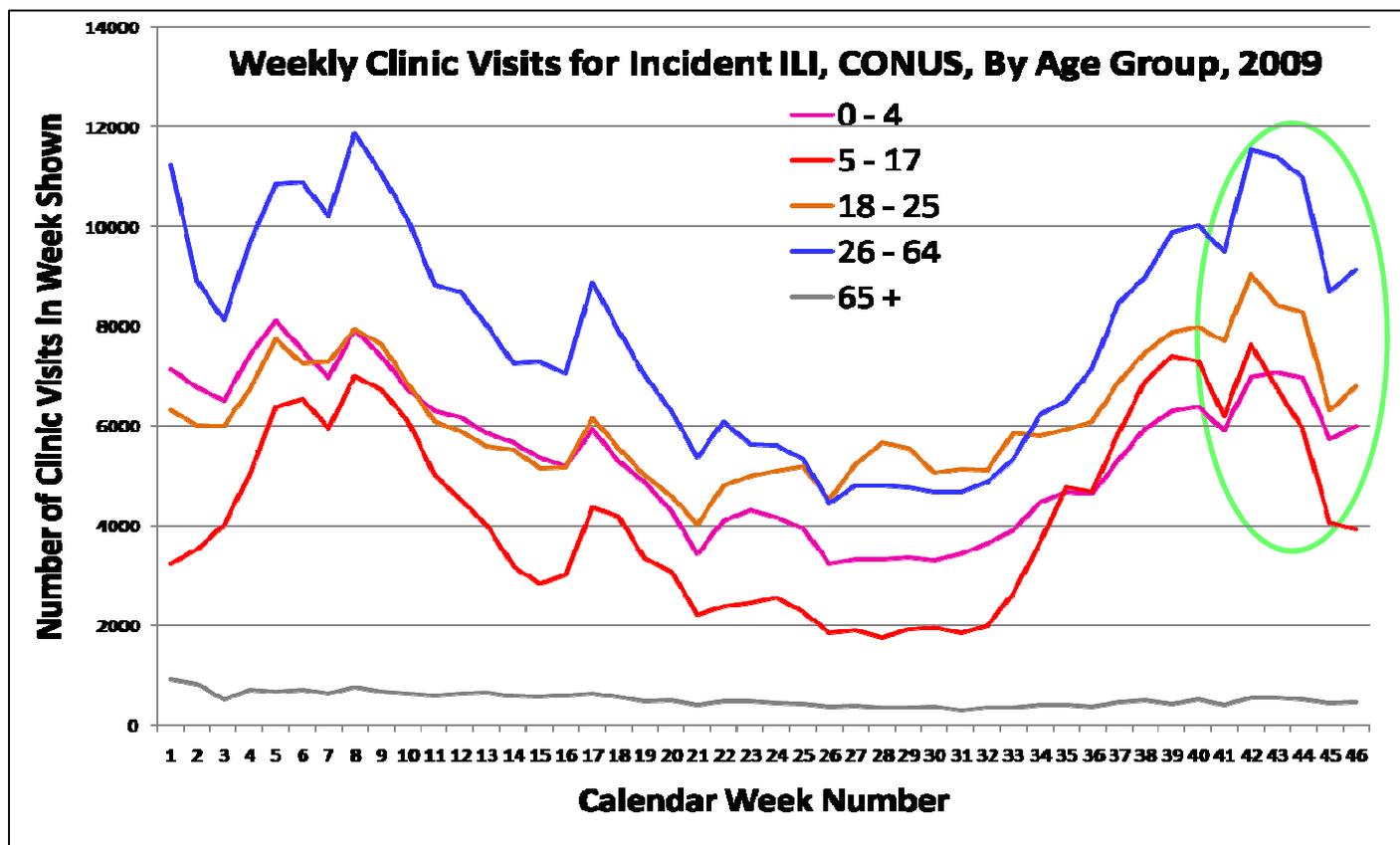
July

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Tracking Pandemic Flu (pH1N1)



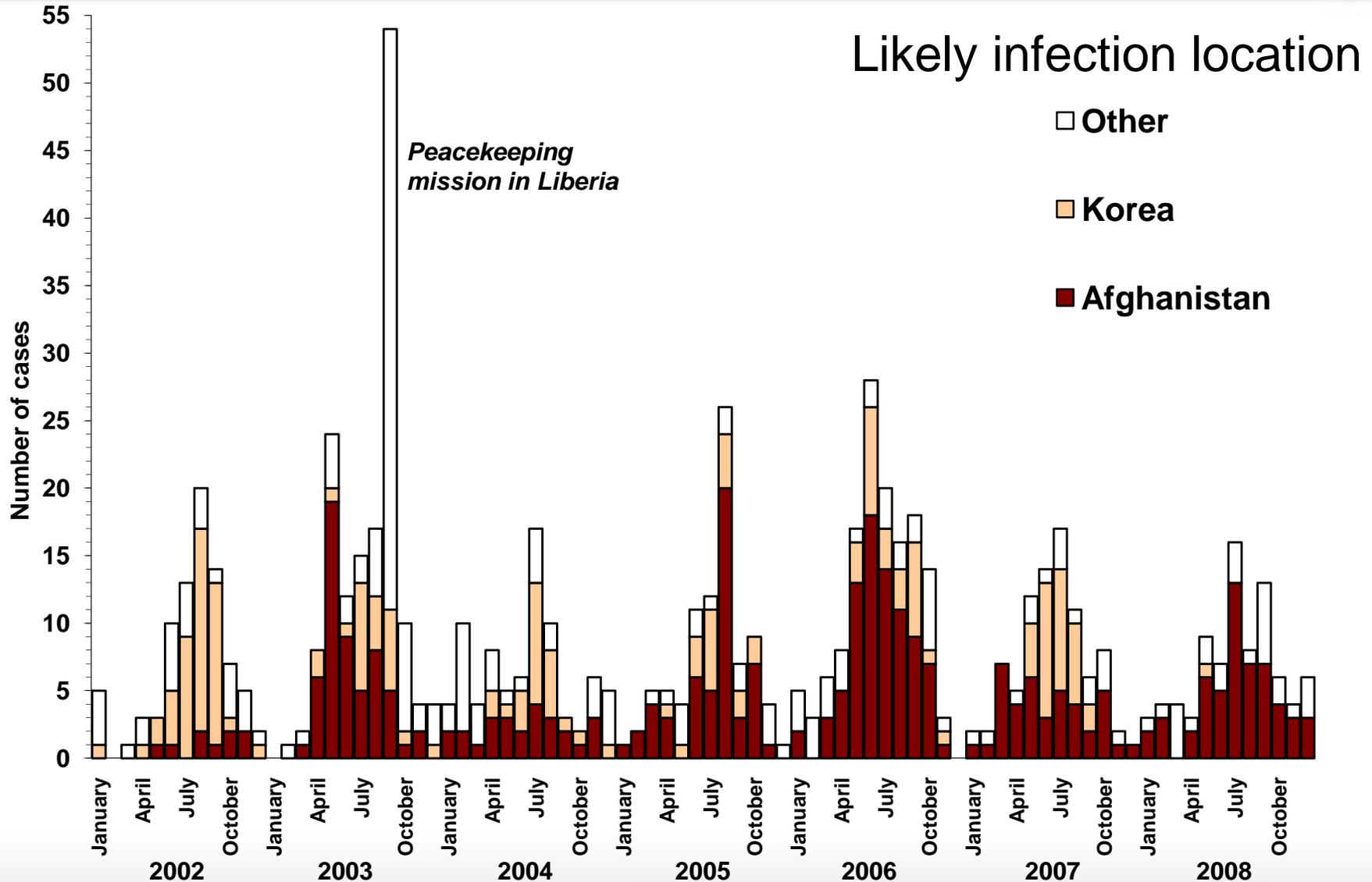
- Increases in ALL age groups, except those 65+ yo (Weeks 32-42)
- Greatest increases in ILI visits among 5 – 17 yo (school-aged)
- Leveling off and decreasing in Nov 09 (Weeks 43-46)

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US Military Malaria Cases Jan 02-Dec 08



2010 MHS Conference

Source: MSMR Vol 16, No. 1 Jan 09, AFHSC

Uses of Public Health Surveillance

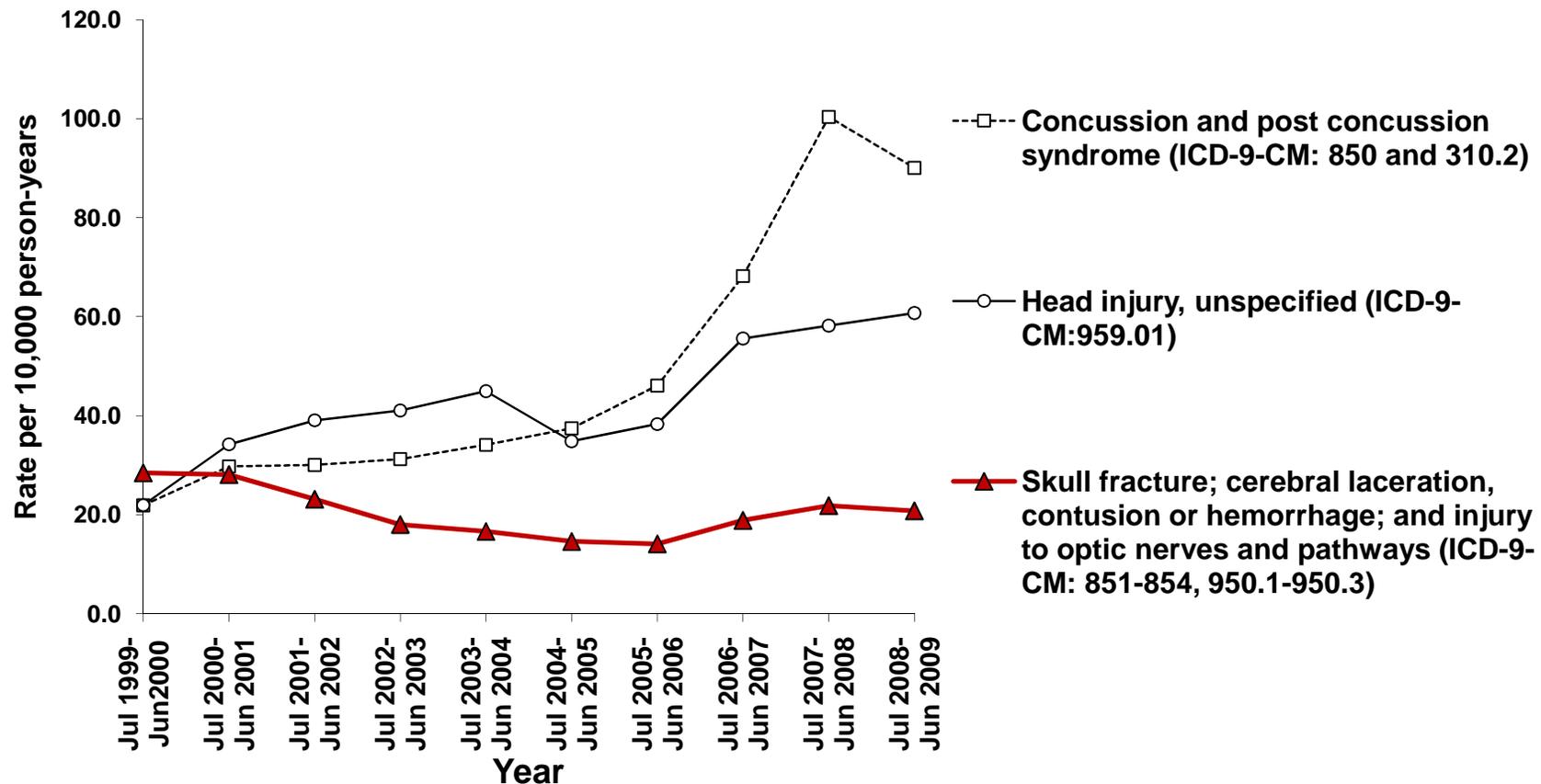


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Traumatic Brain Injury (TBI) trends



Incidence rates for selected categories of traumatic brain injury (TBI) indicator codes, active component, U.S. Armed Forces, Jul 99-Jun 09



Uses of Public Health Surveillance

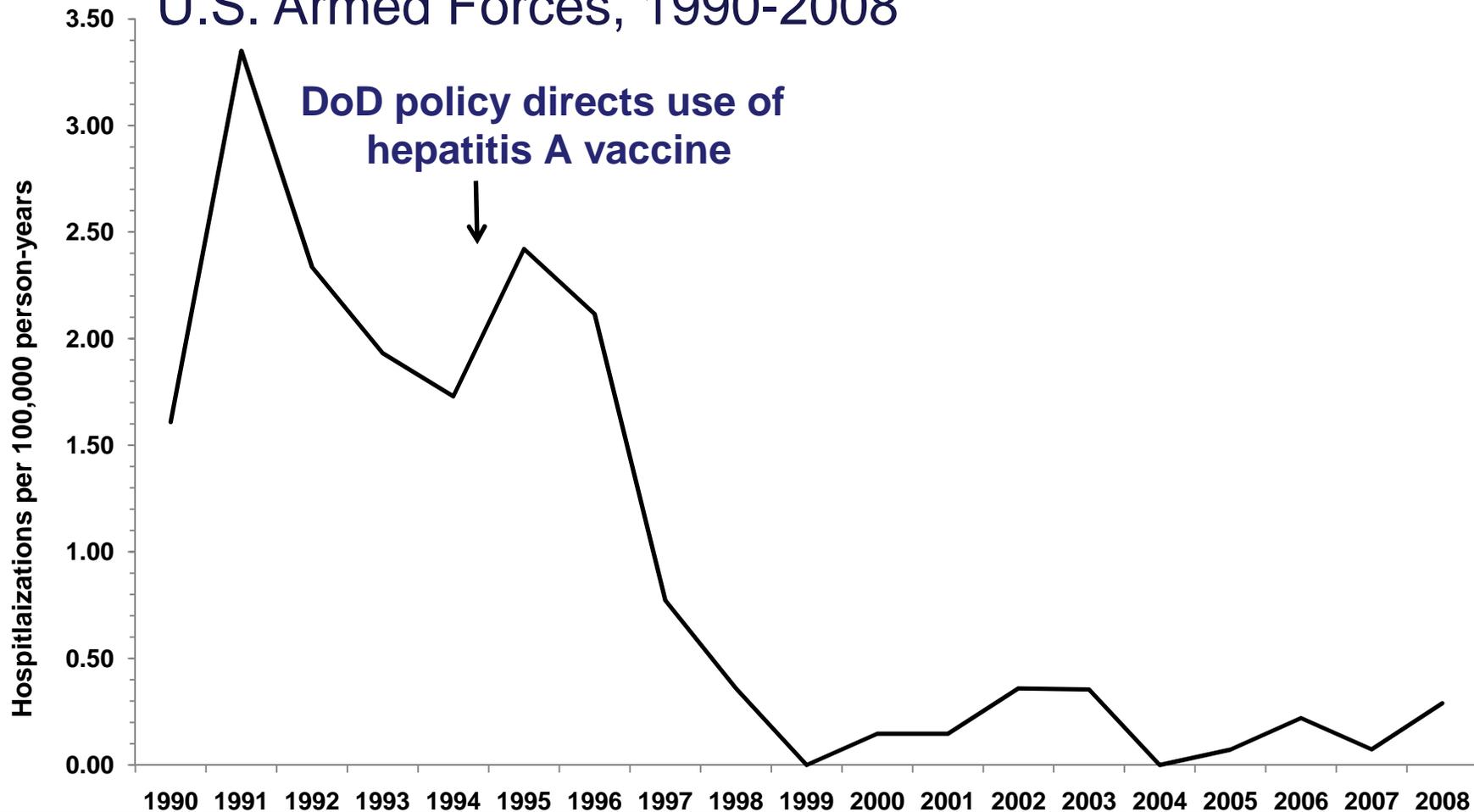


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Hospitalizations for Hepatitis A



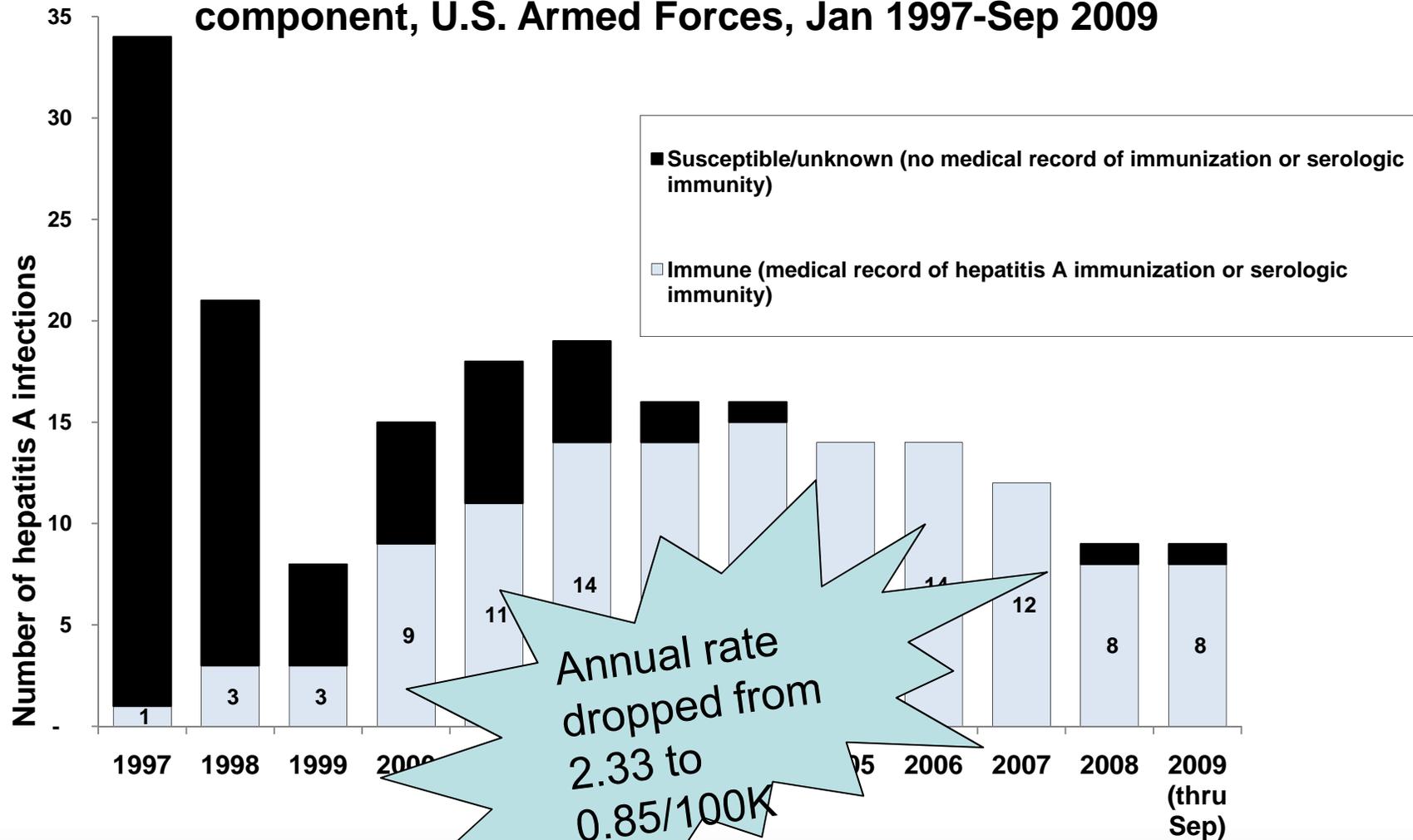
Trend of hospitalizations for hepatitis A, active component, U.S. Armed Forces, 1990-2008



Reduction in Military Hepatitis A



Hepatitis A infections by immunization status, active component, U.S. Armed Forces, Jan 1997-Sep 2009



Uses of Public Health Surveillance

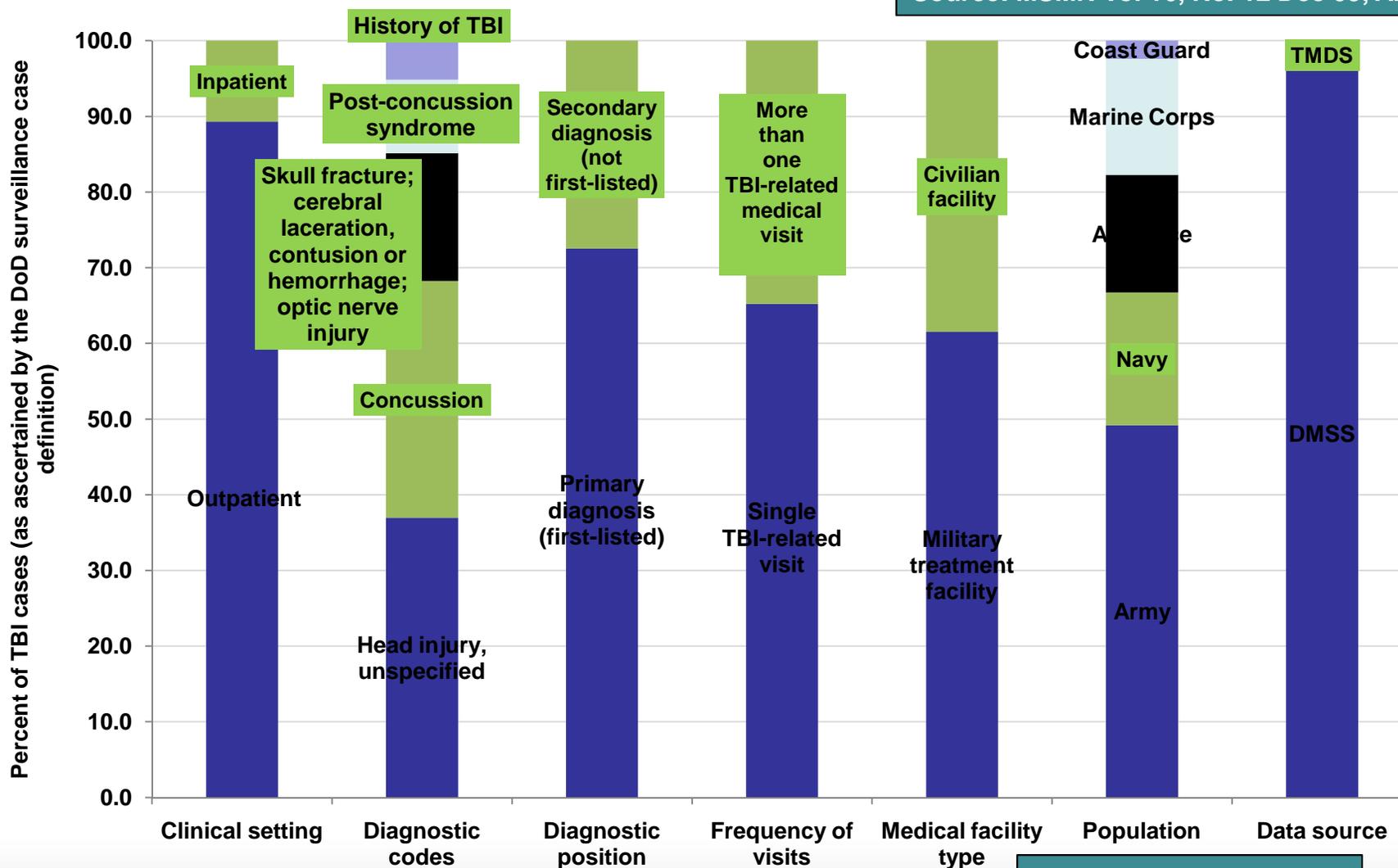


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Traumatic brain injury (TBI) Cases, US military, by defining factors



Source: MSMR Vol 16, No. 12 Dec 09, AFHSC



July 1999-June 2009

Military Public Health Surveillance



- Supports MHS Strategic Initiatives
 - #1 Medical Readiness-Improved Mission Readiness
 - #2 Population Health-Healthy and medically protected communities
 - Learning and Growth-Delivering information to enable better decisions

Contact



COL Robert F. DeFraités, MC

Director

Armed Forces Health Surveillance Center

2900 Linden Lane, Suite 110

Silver Spring, MD 20910

301-319-3240

DSN 285-

Robert.defraites@us.army.mil



www.afhsc.mil