



# NHSN: An Overview and Update

NIOSH Stakeholders Meeting

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# Objectives

- Brief description of CDC's National Healthcare Safety Network (NHSN)
- Update on healthcare facility participation in NHSN
- NHSN's current challenges and implications for adding new modules

## NHSN in Brief

- Used for surveillance and prevention of healthcare-associated infections and other adverse events among patients and healthcare personnel and for process-of-care measurement and improvement
- Technical design enables manual data entry into web-based application or electronic reporting in the form of electronic documents or messages
- Serves multiple uses and users: infection control, quality improvement, prevention research, state-level public reporting, and national surveillance
- Data collection from a sample of U.S. healthcare facilities enables valid estimation of events among patients and healthcare workers

# NHSN Components and Modules

## NHSN

### Component Patient Safety

- Events Modules
- *Device Associated*
  - *Procedure Assoc.*
  - *Medication Assoc.*
  - *High Risk Inpatient*
  - *Influenza Vaccination*
  - *MDRO and CDAD*

### Component Healthcare Personnel Safety

- Modules
- *Blood/Body Fluid Exposure*
  - *Vaccination*

### Component Biovigilance Modules

- *Hemovigilance*

### Component Research and Development

- eSurveillance*
- *HL7 CDA*
  - *HL7 Messages*
- Prevention research*

HL7 = Health Level Seven  
CDA = Clinical Document  
Architecture

MDRO = Multidrug-resistant  
organism

CDAD = *Clostridium difficile*  
associated disease

# NHSN Components and Modules

## NHSN

### Component Patient Safety

#### Events Modules

- Device Associated
- Procedure Assoc.
- Medication Assoc.
- High Risk Inpatient
- Influenza Vaccination
- MDRO and CDAD

### Device-Associated Events

- CLABSI – Central line-associated bloodstream infection
- VAP – Ventilator-associated pneumonia
- CAUTI – Catheter-associated urinary tract infection
- DI – Dialysis incident
- CLIP – Central Line Insertion Practices

# NHSN Components and Modules

NHSN

Component  
Patient Safety

Events Modules

- Device Associated
- **Procedure Assoc.**
- Medication Assoc.
- MDRO and CDAD
- High Risk Inpatient

Influenza Vaccination

Procedure-Associated Events

- SSI – Surgical site infection
- PPP – Post-procedure pneumonia

# NHSN Components and Modules

NHSN

Component  
Healthcare  
Personnel  
Safety

Modules

- Blood/Body Fluid Exposure
- Influenza Vaccination

Surveillance options

Exposures only

- Blood and body fluid exposure events
- Exposures and post-exposure management
- Blood and body fluid exposure events
  - Laboratory follow up tests
  - Post-exposure prophylaxis

# NHSN Components and Modules

NHSN

Component  
Healthcare  
Personnel  
Safety

Modules

- Blood/Body Fluid Exposure
- Influenza Vaccination

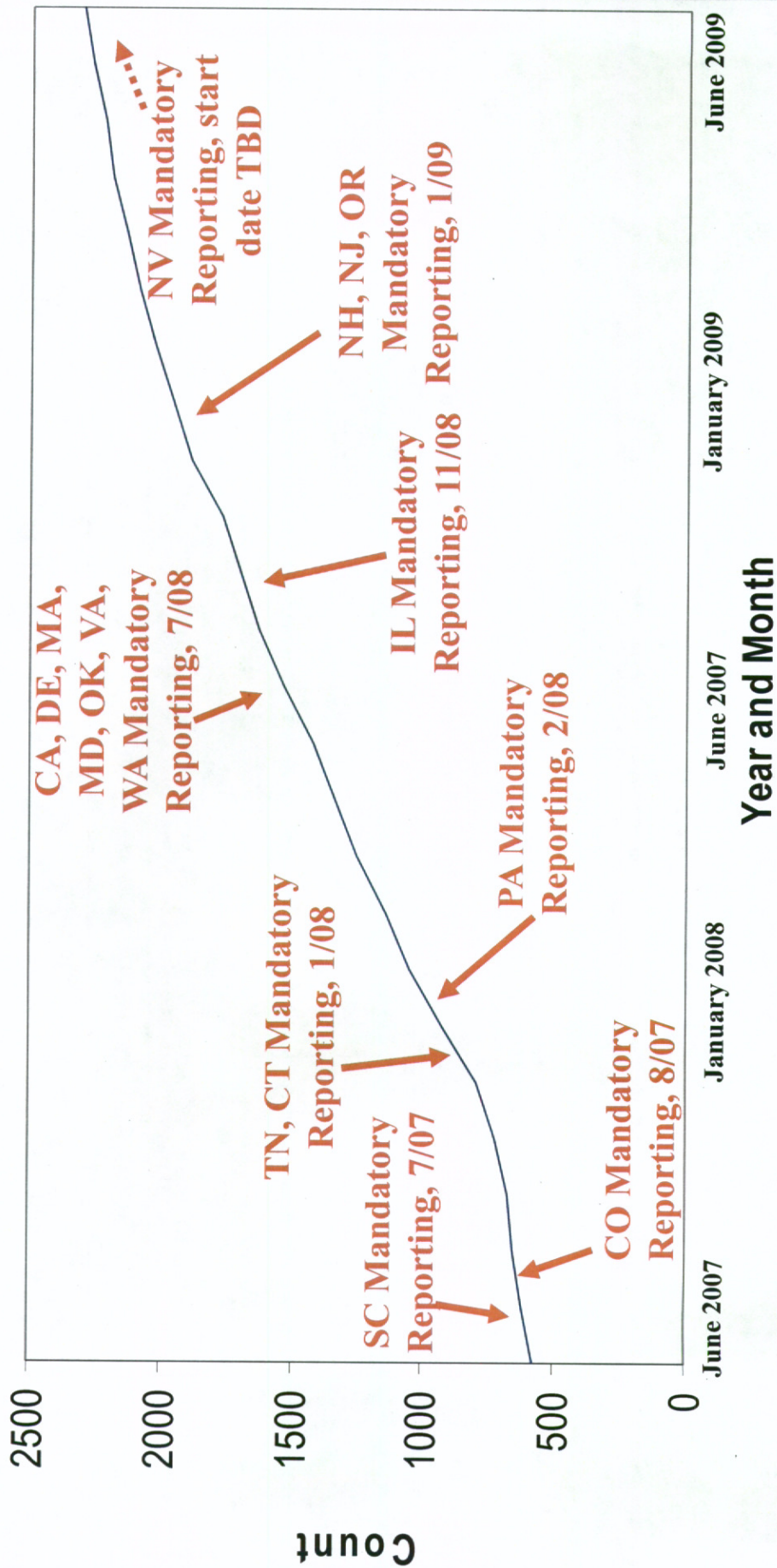
Surveillance options

- Individual vaccination records
- Individual antiviral prophylaxis
- Adverse events following vaccination or antiviral use
- Overall vaccination rates
  - > Occupation
  - > Healthcare service location
- Survey of vaccination program implementation



# Growth in NHSN Participation Due Mainly to Public Reporting Mandates

## Number of NHSN Facilities Enrolled By Month



# What and When States Using NHSN are Reporting (n=21)

NY SC CT CA MD OK VA OR  
 VT CO TN PA DE MA WA IL NH NJ WV NV TX



	2007	2008	2009	2010	2011
Central Line Associated Bloodstream Infection (CLABSI)		CA, CO, CT, DE, IL, MA, MD, NH, NJ, NV, NY, OK, OR, PA, SC, TN, TX, VA, VT, WA, WV			
Surgical Site Infection (SSI)			CO, MA, NH, NJ, NY, OR, PA, SC, TN, TX, VT		
Ventilator Associated Pneumonia (VAP)			NH, OK, PA, WA		
Cather Associated Urinary Tract Infection (UTI)			NJ, PA		
Dialysis events			CO		
Central Line Insertion Practices (CLIP)			CA, NH		
Multi-Drug Resistant Organism (MDRO)			NJ, other states are considering its use		
Healthcare Worker influenza vaccination			WV, other states are considering its use		

# Healthcare Facilities Participating in NHSN

November 2009

## Patient Safety Component

Hospitals	2350
Hemodialysis Centers	41
Outpatient Surgery	45
Skilled Nursing	1
Total	2437

## Healthcare Personnel Safety Component

Hospitals	26
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# New Challenges Arise from Possibility of a Federal Mandate for HAI Reporting

- Healthcare reform legislation (H.R. 3200) passed by U.S. House of Representatives on Nov. 7, 2009 includes mandatory use of NHSN for HAI reporting
- Legislation calls for HHS regulations within 1 year of enactment
- All U.S. hospitals and ambulatory surgery centers (ASCs) that provide CMS-covered services are to report HAI data within 2 years of enactment
- HHS Secretary shall promptly post at a public internet site the HAI data that hospitals and ASCs report

# Implications of H.R. 3200 for NHSN

- NHSN strategic planning and staff work shifts to federal mandate for HAI reporting and system changes needed for implementation
- Limited capacity at NHSN to take on development activities outside of mandatory HAI reporting
- Plans, timetable, and scope of expanding occupational health surveillance within NHSN must take constraints into account

# Summary

- Participation in NHSN has grown rapidly because of HAI reporting mandates
- NHSN's technical infrastructure provides an extensible platform for new modules
- Current capacity for adding new occupational health modules is constrained by rising demands on NHSN for HAI surveillance
- Careful planning, effective partnerships, and innovative solutions are needed to further develop NHSN's healthcare personnel safety component