# Development and Implementation of a Legislatively Mandated Healthcare-Associated Infection Prevention Program in Massachusetts

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# Disclosure

- **I have no potential conflicts of interest to disclose**

- **This following represents the personal views of the presenter and not necessarily the policies or positions of the Massachusetts Department of Public Health or any local, state, territorial, national or trans-national organizations or agencies.**

# Chapter 58 of the Acts of 2006
# Massachusetts Healthcare Reform
## Universal Coverage, with Individual Mandate

**In response to concern about the role of HAI in morbidity/mortality and cost, the Massachusetts legislature appropriated $1 million dollars to the Division of Health Care Quality to develop a "proactive statewide infection prevention and control program in licensed health care facilities"**

**Note: Level funding has continued for two fiscal years**

# Betsy Lehman Center for Patient Safety and Medical Error Reduction

- **Betsy Lehman, Boston Globe columnist, dies of chemotherapy overdose at Dana Farber Cancer Center in December 1994**
- **November 1999, the Institute of Medicine (IOM) issued "To Err is Human“**
- **2002 - legislation establishes Lehman Center**
- **January 2004 – Lehman Center inaugurated**
- **Advisory body = Massachusetts Coalition for the Prevention of Medical Errors (established 1996)**
- **Information provided to the Betsy Lehman Center is <u>protected and not subject to disclosure</u> under FOIA or subpoena**

# Initial Goals – 2006-2007

- Identify current infection control practices and surveillance activities in acute care hospitals
- Determine the current measurement and reporting of HAI-related quality measures (i.e. IHI, Leapfrog, NNIS, etc.)
- Assess current definitions utilized for specific HAI
- Assess how specific HAI rates are calculated, including risk adjustment
- Assess the utilization of electronic databases
- Develop cost estimates associated with HAI in the Commonwealth
- Expert Panel will make evidence based recommendations related to Optimal Infection Control Program Components to Lehman Center and MDPH
- Expert Panel will provide evidence based recommendations related to surveillance, prevention and reporting of specific HAIs to Lehman Center and MDPH

# Survey

- Hospital characteristics
- Surveillance activities
- Prevention activities
- Data capacity
- Reporting activities
- Infection control program characteristics
- Education for staff and interaction with community

# Expert Panel

- Multidisciplinary (ID/infection control specialists, hospital leaders, insurers, academics, professional organizations, consumers and advocates)
- 5 separate Task Groups
  - Role is to review, discuss and rank the current evidence related to the critical areas of focus
  - Each TG comprised of Expert Panel members and additional content experts (local and national)
  - TGs
    - Blood Stream and Surgical Site infections (BSI/SSI)
    - Optimal Infection Control Program Components
    - Ventilator-associated pneumonia (VAP)
    - MDROs
    - Public Reporting and Communication
- Result = 383 recommendations

# Mandatory Reporting

- **Regulations require acute care hospitals (n = 70 entities, 81 campuses) to report selected outcome and process measures to the National Healthcare Safety Network (NHSN).**
- **Reporting hospitals will provide three levels of access to the data, through granting of rights:**
  - **DPH will have access to data that it will prepare for public reporting**
  - **The Betsy Lehman Center will have access to data that are not quite ready for public reporting**
  - **Internal reporting with DPH oversight**
- **Legislation prescriptive of HAI and MRSA reporting is being held pending our outcome**

# Mandatory Reporting

- **Publicly Reported Elements**
  - **SSI for hip and knee replacement**
  - **BSI central venous catheters in ICUs (pathogens)**
- **Betsy Lehman Elements**
  - **BSI for central venous catheter in ICUs (skin contaminants)**
  - **SSI for vaginal and abdominal hysterectomy**
  - **SSI for CABG**
  - **VAP process measures**
  - **MRSA point prevalence**
  - **Health care worker influenza vaccine rates**
- **Elements for use in internal QA only**
  - **BSI central venous catheter outside ICUs (pathogens & skin contaminants)**
  - **VAP rates**
  - ***Clostridium difficile***

| HAI Measures Approved by Expert Panel | | | |
|---|---|---|---|
| **Outcome Measures** | **Reporting Level** | | |
| | **Public** [1] | **BLC** [2] | **Internal** [3] |
| ✓ CVC-BSI in ICUs – true pathogens (CDC criterion 1)* | ♦ | | |
| ✓ CVC-BSI in ICUs – skin contaminants (CDC criterion 2 and 3)* | | ♦ | |
| ✓ CVC-BSI outside of ICUs – true pathogens and skin contaminants (CDC criteria 1 and 2)* | | | ♦ |
| ✓ SSI resulting from hip arthroplasty | ♦ | | |
| ✓ SSI resulting from knee arthroplasty | ♦ | | |
| ✓ SSI resulting from hysterectomy (vaginal and abdominal) | | ♦ | |
| ✓ SSI resulting from coronary artery bypass graft | | ♦ | |
| ✓ Ventilator-Associated Pneumonia (VAP) | | | ♦ |
| Point prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) | | ♦ | |
| *Clostridium difficile*-associated disease (CDAD) | | | ♦ |
| **Process Measures** | | | |
| VAP prevention: Daily application of protocol-driven assessments for readiness to discontinue mechanical ventilation | | ♦ | |
| VAP prevention: Elevation of the head of the patient's bed | | ♦ | |
| ✓ Influenza vaccination of healthcare workers (new to NHSN for 2008) | | ♦ | |

✓ = measure in NHSN

# Timeline

- Health Care Reform Law passes – April 2006
- Expert Panel convened – November 2006
- Preliminary Expert Panel report – August 2007
- Final Expert Panel report – January 2008
- Regulations requiring reporting passed – February 2008
- All acute care facilities to have joined NHSN – April 1, 2008
- Data collection to begin – July 1, 2008
- Healthcare Quality and Cost Council Report due for web site – October 2008
- Six-month reporting data expected – March 2009

# Issues Encountered

- Most Massachusetts hospitals did not participate in NNIS to NHSN
- Some confusion and delay related to NHSN enrollment, mostly hospital IT issues
- NHSN requirements are not 100% consistent with Expert Panel's recommendations
  - NHSN has groupings of procedure codes that must be included for hip/knee replacements, which go beyond our focused attention on total hips and knees
  - NSHN expects both superficial and deep/organ space SSI's to be reported, while EP selected only deep/organ space.
  - Laparoscopic and laparoscopic-assisted hysterectomies included in NHSN
- Need to develop systems for direct electronic data entry capacity to avoid manual data entry into NHSN

# Issues Encountered

- More information is required by NHSN than needed to meet MDPH requirements
  - Data entry fields in NHSN more extensive than needed
  - Some information not readily accessible from existing electronic data sets
  - However, data elements are available to focus down on the measures selected
- Some data required by Massachusetts policy not collected by NHSN on denominators (e.g., race/ethnicity)
- Local data cleaning needs greater than originally anticipated (thanks to NYSDOH for advice)
- Pre-existing CABG surveillance system at the 14 facilities performing them in Massachusetts Data Analysis Center (Mass-DAC)
  - Currently not collecting infection data, but could be accommodated?

# Issues Encountered

- **Central line-associated BSI's:**
  - **Most hospitals able to start to collect device days; NHSN also requires total ICU bed days per month**
  - **For BSI "cases" (numerator), need to report on whether central line was permanent or temporary**
  - **NHSN requires "clinical sepsis" be reported in children < 1 year; these are children in which no blood culture is taken**
- **Surgical site infections (SSI's):**
  - **For denominators, patient-specific data are needed on all who undergo the selected procedures; in most hospitals, volume of cases/month will demand that electronic data be made available from OR. Sometimes a hybrid of admitting office and OR information will be needed.**

# Healthcare Worker Influenza vaccination

- **Hospitals must report rates to BLC for a pilot period (~1 year)**
- **Prevalence of vaccinated:**

$$\frac{\text{\# HCP who received current season's flu vaccine by March 30}}{\text{\# HCP working in the hospital as of March 30}} \times 100 = \text{\% of eligible HCP vaccinated}$$

- **Numerator: HCP who received current season's vaccine, in hospital or outside (self report)**
- **Denominator: HCP as defined by CDC (in effect, all who work in hospital, including students, trainees and volunteers)**
- **Submit rate annually to BLC, within 90 days after March 30**
- **Hospitals should monitor vaccination rates internally *throughout* flu season**
- **Issues with Using NHSN**
  - **Module not ready yet**
  - **Proposed data collection too extensive to be collected in most hospitals**

# Questions/Issues Raised
# HCW Influenza Vaccine

- **If hospital employee/payroll database is used for denominator, how will people who are not paid be accounted for? (e.g. students, volunteers)**
- **Consider alternative versions of denominator; e.g. all employees vs. all employees minus those with contraindications**
- **Validity of self-report of vaccination.**
- **What use, if any, can be made of vaccination records kept by Employee Health?**
- **During the pilot period, can we ask for a rate as of January 15, as well as March 30?**
- **Should rates be reported by hospital unit or employee category in addition to overall rate for the hospital?**
- **Can numerator data be categorized to indicate proportions receiving vaccine at hospital vs.'outside'?**

# NHSN and Mandatory Reporting of HAI How We Look at It

## PRO

- Free
- Robust development over 35 years NNIS to NHSN
- Standard definitions and data fields
- Allows for cross-jurisdictional comparisons
- Web-based
- Relatively easy to use

## CON

- Not designed for purpose
- Data control issues
- Designation of rights issues
- Incompatibilities between HAI reporting and NHSN requirements
- Hospital IT concerns
- Concern about server and help capacity

# Conclusions

- **Everyone now recognizes that public reporting will happen**
- **An “Expert Panel” process worked well to visit concerns and get everyone on board**
- **We are fortunate to have NHSN, but NHSN was not designed for this purpose**
- **It is good to have a report recipient agency with confidentiality protection**
- **It takes time to do it right**
- **No two hospitals in Massachusetts do things the same way, even within the same network**
- **Labor and IT resources are limiting factors**
- **Public and political expectations are not generally realistic**