

Collaborative Approaches to Decreasing Healthcare-Associated Infections

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Costs

- ▶ Morbidity
 - 1.7 Million infections per year (estimate 2002)
- ▶ Mortality
 - 99,000 deaths per year (estimate 2002)
- ▶ Financial
 - \$28–45 Billion per year (estimate 2007)
- ▶ Personal–Societal Costs

Consumer Movement

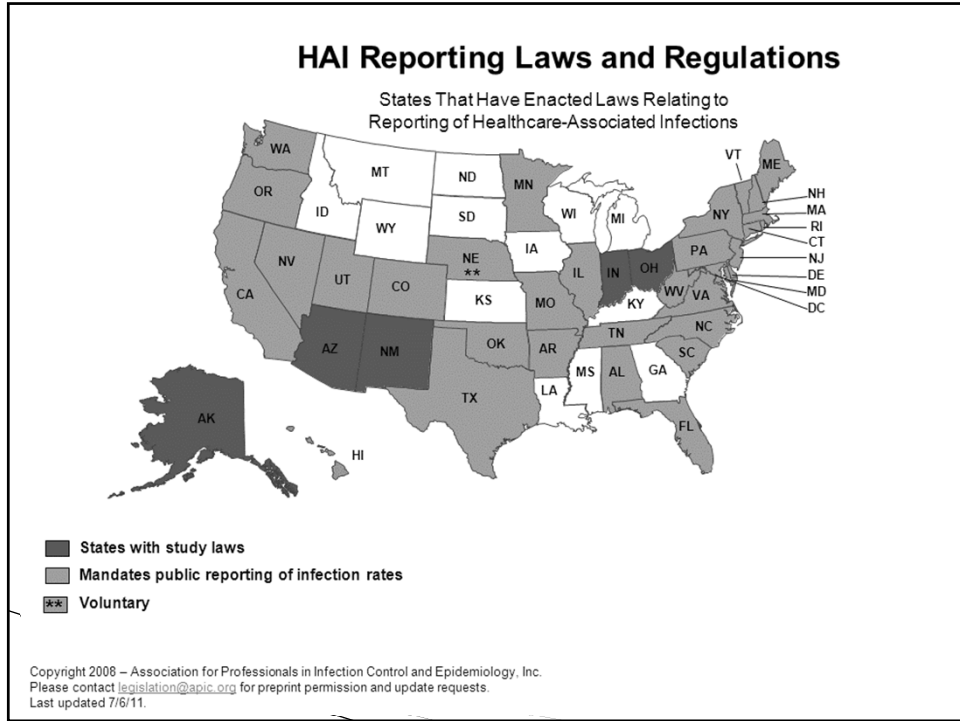
- ▶ Hospital “Disclosure Act”
 - Assumed hospitals knew their infection rates
- ▶ Patients’ rights to information
- ▶ Internet age – ready access to all types of medical information
- ▶ Increased involvement in decision making

Status of Mandatory Reporting Legislation, July 2004

■ Enacted legislation



Source: APIC.



NYS – Public Health Law 2819

- ▶ Signed by the Governor in July 2005
- ▶ NYS was the 7th state to pass public reporting legislation
- ▶ 3 of 7 states had begun collecting data
- ▶ All 3 used different reporting systems, definitions, indicators, and methods

Key Elements in NYS Legislation

- ▶ Pilot phase to develop the reporting system
- ▶ Time to train hospitals in use of the system
- ▶ NYSDOH to develop standardized definitions, methods of surveillance and reporting
- ▶ NYSDOH to audit and validate hospitals' infection data
- ▶ Consultation with technical advisors to risk-adjust data
- ▶ Dependent upon funding, grants to hospitals for infection prevention and control

National Healthcare Safety Network

- ▶ Most facilities used CDC definitions
- ▶ 10 percent of New York hospitals were using NHSN
- ▶ Standard definitions, surveillance and risk adjustment
- ▶ Information is actionable:
 - Immediate use by the facility to monitor infections, generate reports, and provide information by unit or service
 - Data can be compared to national rates
 - Data can be shared/used to monitor quality improvement efforts

NHSN

- ▶ Health care facilities in networks that cross state jurisdictions could use the system to share data; collaborate on quality improvement, prevention and patient safety initiatives; and evaluate effectiveness.
- ▶ NHSN can be used for an array of infection surveillance and quality improvement activities and is not limited to those mandated by NYSDOH.
- ▶ A separate system would not have to be established, and the costs associated with development and maintenance would be averted.

Risk Adjustment for Risk Factors – Not Under Control of HCF

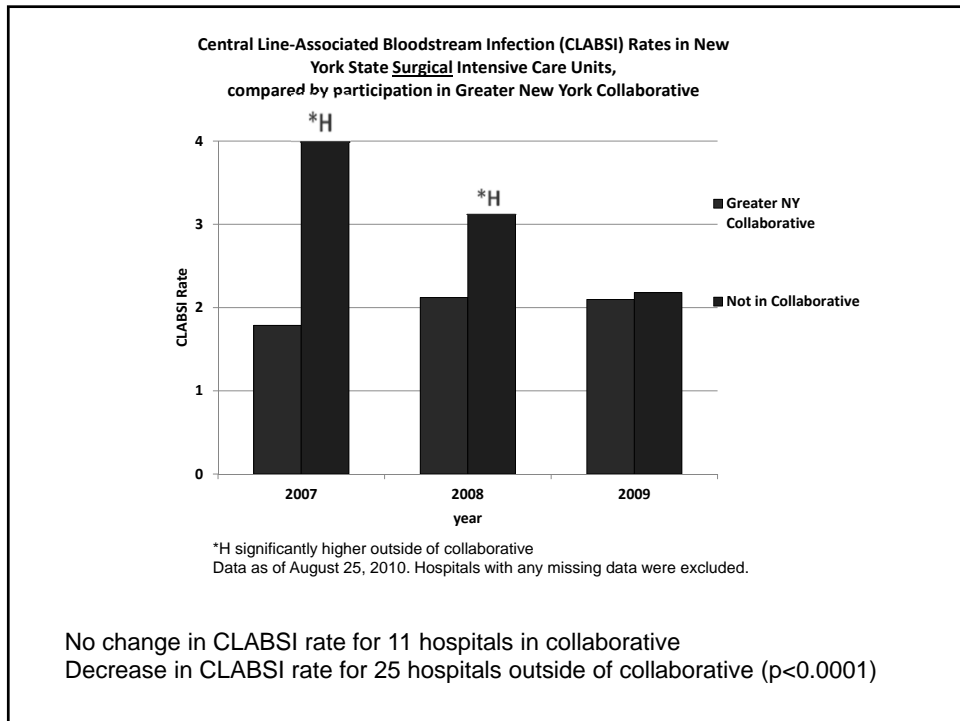
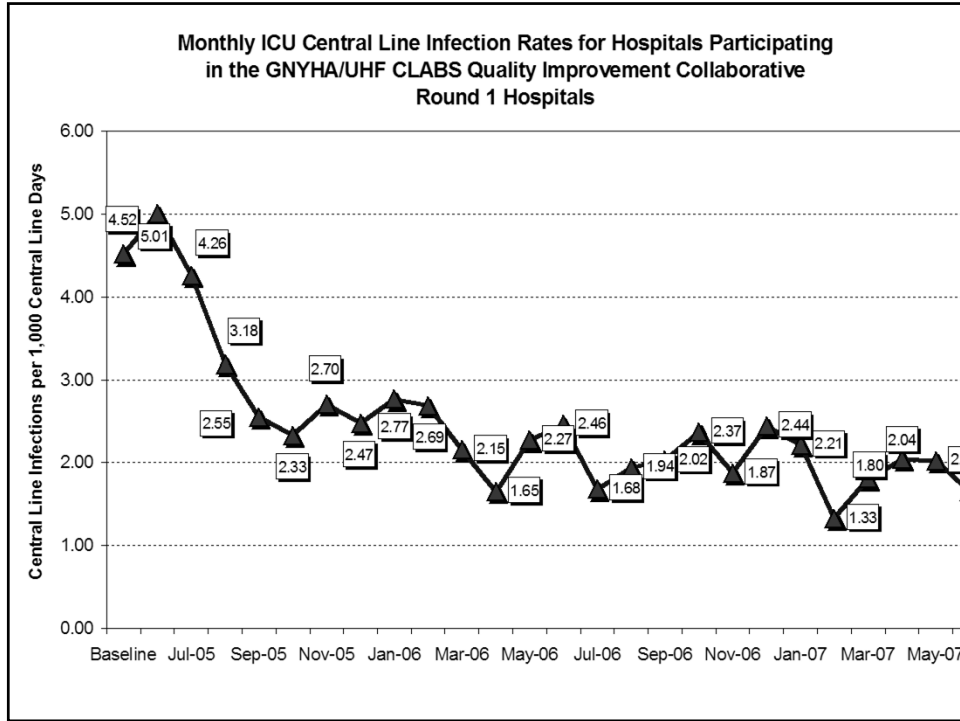


Identify Risk Factors for Potential Prevention – Under Control of HCF



CLABSI Prevention Collaborative

- ◆ Initially driven by pending legislation for mandatory, public reporting of HAI rates
- ◆ Greater New York Hospital Association requested NYSDOH participation
 - Increased credibility
 - Increased likelihood of commitment from CEOs
 - Set the framework for collaboration
 - Between health care facilities
 - Between regulatory agency and facilities
 - Organizational skills and resources of hospital association

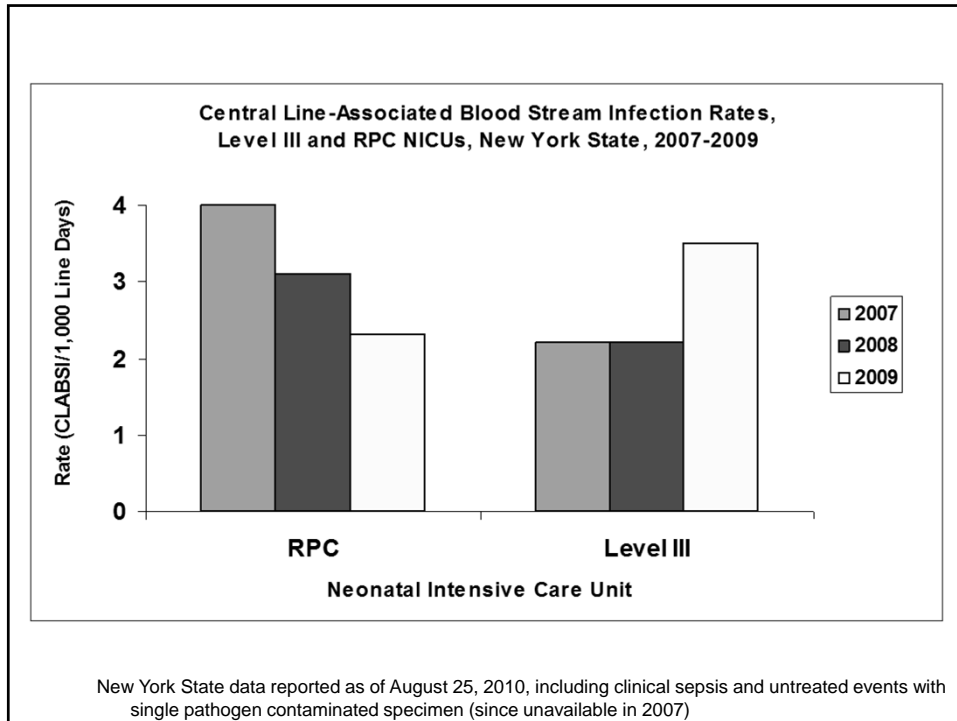


Cost Savings

- ▶ 18% decrease in CLABSI in Adult/Pediatric ICUs between 2007 and 2009
- ▶ Using the 2007 consumer price index (CPI) for inpatient hospital services, savings estimated to be between \$1.7 million and \$7.0 million
- ▶ Scott RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention, 2009.

Primary Bloodstream Infection Rates by Type of NICU, New York State 2007–2009

Location	2007	2008			2009		
	SIR	Obs	Exp	SIR (95% CI)	Obs	Exp	SIR (95% CI)
Level 2/3 NICU - CLABSI	1.0	40	33.9	1.18 (0.84, 1.61)	25	33.7	0.74 (0.48, 1.09)
Level 2/3 NICU - UCABSI	1.0	10	21.1	0.47 (0.23, 0.87)	14	19.8	0.71 (0.39, 1.19)
Level 3 NICU - CLABSI	1.0	23	23.3	0.99 (0.63, 1.48)	40	27.0	1.48 (1.06, 2.02)
Level 3 NICU - UCABSI	1.0	10	22.2	0.45 (0.22, 0.83)	19	21.2	0.90 (0.54, 1.40)
RPC NICU - CLABSI	1.0	142	172.2	0.82 (0.69, 0.97)	111	184.4	0.60 (0.50, 0.72)
RPC NICU - UCABSI	1.0	33	44.4	0.74 (0.51, 1.04)	25	52.9	0.47 (0.31, 0.70)
Neonatal TOTAL	1.0	258	317.1	0.81 (0.72, 0.92)	234	339	0.69 (0.60 - 0.78)



Cost Savings – NICU CL/UCBSIs

- ▶ Overall, 31% decrease in CLABSI/UCABSI in Neonatal ICUs between 2007 and 2009
- ▶ Using the 2007 consumer price index (CPI) for inpatient hospital services, savings estimated to be between \$765,000 and \$3.1 million
- ▶ Scott RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention, 2009.



DOH New York State Department of Health
Hospital-Acquired Infection Reporting Program



Clostridium difficile Infection Prevention Project

Clostridium difficile (CDI)



- ▶ Approaches MRSA as the most common cause of HAIs in the United States
- ▶ Number of hospitalized patients with CDI more than doubled between 2000 and 2005
- ▶ Emergence of the BI/NAP/027 strain increased severity and mortality
- ▶ Between 1999 and 2004, CDI mortality rates quadrupled from 5.7 to 23.7 deaths/million population

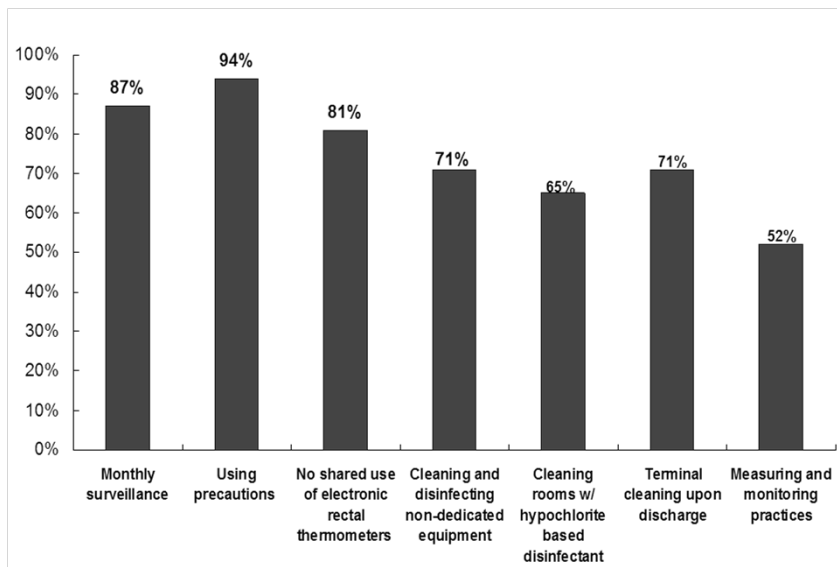
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Loo VG, Poirier L, Miller MA, et al. *N Engl J Med* 2005; 353:2442-2449.
Pepin J, Valiquette L, Cossette B. *CMAJ* 2005; 173:1037-1042.
Muto CA, Pokrywka M, Shutt K, et al. *Infect Control Hosp Epidemiol* 2005; 26:273-280.

Participation

- ▶ 47 hospitals
 - 35 hospitals contributed sufficient data
 - 21 (60%) major teaching
 - 13 (37%) non-major teaching
 - 1 (3%) non-teaching
- ▶ March 2008 – December 2010

Baseline Practices

n = 31



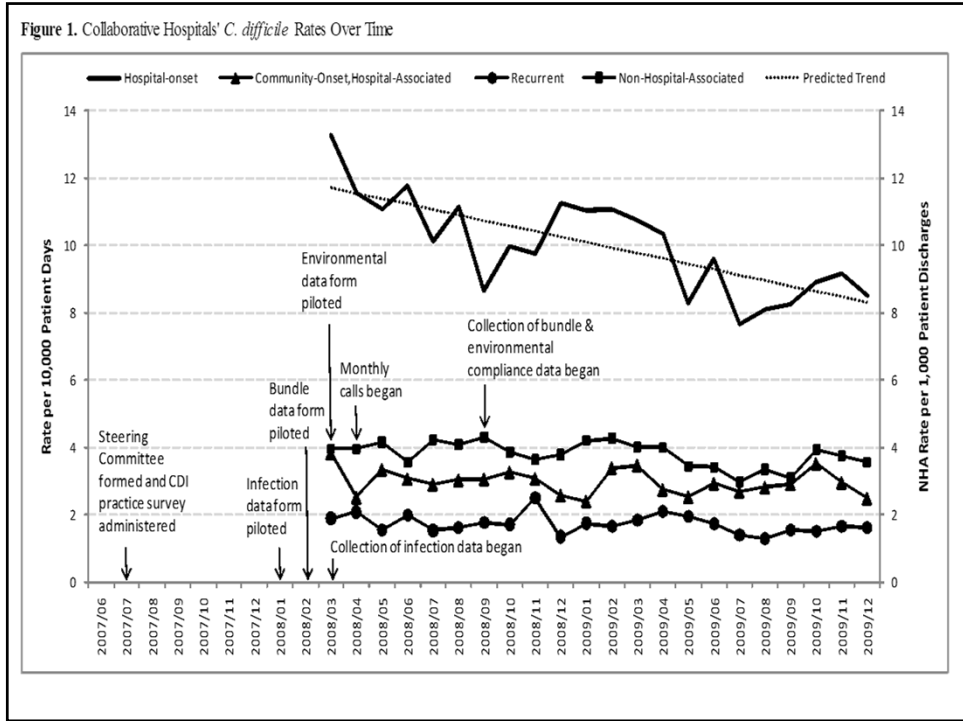
Collaborative Model Prevention Bundle

- ▶ Hand hygiene (washing with soap and water for *C. difficile*)
- ▶ Contact precautions
- ▶ Sign placement
- ▶ PPE readily available / used
- ▶ Dedicated rectal thermometers
- ▶ Patient placement prioritization
 - private room then cohorting then shared
- ▶ Bathroom if not in private room
 - No sharing – use of commode/bedpan
- ▶ Transport precautions
- ▶ Environmental cleaning
 - hypochlorite-based disinfectant
 - daily and terminal cleaning procedures

CDI Classification/Surveillance Definitions

CDI Classification	Definition
Hospital-Onset, Hospital-Associated (abbreviated as “Hospital-Onset”)	Patients with onset of diarrhea ^a and diagnosis of CDI more than 48 hours after hospital admission or within 48 hours after hospital discharge
Non-Hospital-Associated	Patients who had not been in the reporting hospital within the preceding four weeks and were admitted with a CDI diagnosis, or developed diarrhea within 48 hours of admission
Community-Onset, Hospital-Associated	Patients discharged from the hospital without a diagnosis of CDI, subsequently readmitted within four weeks, and diagnosed with CDI within 48 hours of admission
Recurrent	Patients with an episode of CDI that occurred within eight weeks of a previous episode of CDI that resolved with or without therapy

a. Unformed stool taking the shape of the container



Collaborative Model Lessons Learned

- ▶ Teach
- ▶ Teamwork
- ▶ Monitor and enforce practices
- ▶ Problem-solve
- ▶ Share and spread best practices
- ▶ Cost-effective

Collaboration is key

Prevention Target

- ▶ Identify a significant problem in your area
 - Organism
 - Type of infection (UTI, SSI, etc.)
 - Practice issue
 - Communication between facilities regarding MDROs
 - Discharge planning ensuring appropriate follow-up and care
- ▶ Frequency – Higher rates than elsewhere
- ▶ Severity – Increase hospitalizations, LOS, mortality
- ▶ Areas for improvement – prevention strategies

Planning

- ▶ Identify community leaders
- ▶ Involves multiple disciplines
- ▶ Every voice at the table is equal
- ▶ Focus is on implementation not just policy
 - Identify possible strategies
 - Feasible
 - Practical

Implementation

- ▶ Takes a commitment of resources from the top down
 - CEOs have to sign a commitment agreement for participation
- ◆ Kick-off meeting with teams
 - ◆ All who will be involved
- ◆ Ownership from the bottom up
 - ◆ Each discipline has to take responsibility for their role
- ◆ Develop tools
 - ◆ Making the right thing to do, the easy thing to do
 - ◆ Incorporate tools in day-to-day operations
- ▶ Participatory calls are invaluable
 - ◆ Learn from the collaborative community

Evaluation

- ▶ Epidemiologic principles
 - Ensure that the data elements are measurable, accurate and actionable
 - Assist in design of tools
 - Extract essential information
 - Can be analyzed systematically
 - Role in analysis of the data
 - Interpretation
 - Control use of the data – for good, not evil

Feedback is critical

- ▶ Timely
- ▶ Actionable
- ▶ Multiple purposes and levels
 - Monitor progress
 - Implementation (process measures)
 - Outcome (infection measures)
 - Evaluate the measures (are you measuring what you thought)
 - Levels: Facility, Collaborative, and if public reporting, Statewide

Prevention Projects

- ▶ CLABSI - GNYHA
- ▶ VAP - HANYS
- ▶ *Clostridium difficile* - GNYHA
- ▶ Regional Perinatal Centers (CLABSIs in NICUs)
- ▶ MRSA infection versus transmission - Continuum
- ▶ MRSA infection versus transmission - North Shore
- ▶ CLABSI - outside ICU settings - University of Rochester
- ▶ Chlorhexidine bathing on BSIs in ICU patients - Westchester Medical Center
- ▶ MDRO colonization and infection in ICU patients - HHC
- ▶ Antimicrobial Stewardship Pilot Project in Hospitals and affiliated Nursing homes

Montana Reporting

2011 and beyond

CMS IPPS–Hospital–Acquired Conditions (HACs) for Medicare

- ▶ Identify HACs
 - High cost or high volume or both
 - Previously resulted in assignment of the case to a DRG that had a higher payment when present as a secondary diagnosis
 - Could reasonably have been prevented through the application of evidence–based guidelines
 - Hospitals would no longer receive higher payment

Hospital–Acquired Conditions

- ▶ Infection related HACs adopted in FY 2009
 - **Catheter associated urinary tract infections**
 - **Vascular catheter associated infections**
 - **Mediastinitis after coronary artery bypass graft**
- ▶ New infection–related HACs for FY 2012
 - **SSI following certain orthopedic procedures**
 - **SSI following bariatric surgery for obesity**

Quality Measure Reporting

- ▶ Hospital IQR measure set
- ▶ In order to receive enhanced (full) payment, hospitals need to report quality measures (pay for reporting)
- ▶ Infection outcome measures
 - CLABSIs – 2011
 - Central line-associated bloodstream infections
 - SSIs – 2012
 - Colon surgical site infections
 - Abdominal hysterectomy surgical site infections

More to come.....

Topic	FY 2014 and 2015 Payment Determination: Adopted Healthcare-Associated Infection Measures (CDC/NHSN)
	• Surgical Site Infection*
	• Catheter Associated Urinary Tract Infection**
	• Clostridium Difficile***
	• Healthcare Provider Influenza Vaccination***
	• MRSA Bacteremia***

* Measures adopted for FY 2014 payment determination in the FY 2011 IPPS/LTCH PPS final rule.

** Measure adopted for FY 2014 payment determination in this final rule.

*** Measures adopted for FY 2015 payment determination in this final rule.

http://www.ofr.gov/OFRUpload/OFRData/2011-19719_PI.pdf

Wrap-Up

- ▶ HAI surveillance, prevention and control has become a national priority
 - 29 states have mandatory, public reporting
 - CMS has required reporting of CLABSI, Colon SSIs, Abdominal Hysterectomy SSIs and more on the way

Lessons to be Learned

- ▶ How to ensure valid, reliable, electronic capture and import of data
- ▶ Improve upon risk adjustment – especially for risks that cannot be controlled by facility
- ▶ Assessment of prevention strategies across settings
- ▶ Identify risk factors and opportunities for prevention

Will it be worthwhile?

- ▶ It is up to you to make the effort worthwhile
 - Bad data is worse than no data
 - Data should be meaningful and useful
 - Time and labor intensive
- ▶ Doing it right takes a level of commitment from the top but is performed by individuals --- in facilities, localities, states, and the nation.

**Future of Prevention
Is In Your Hands**