North Carolina Statewide Program for Infection Control and Prevention (SPICE)

Karen K. Hoffmann, RN, MS, CIC, FSHEA
U School of Medicine, Chapel Hill, NC

Objectives
- Describe how and why SPICE was created.
- List the components of SPICE.
- Review the successes of SPICE.

Healthcare-Associated Infections: Impact
- 1.7 million infections per year
- 1 out of 20 hospital patients will acquire HAI
- 98,987 deaths due to HAI
  - Pneumonia 35,967
  - Bloodstream 30,665
  - Urinary tract 13,088
  - SSI 8,205
  - Other 11,062
- 6th leading cause of death (after heart disease, cancer, stroke, chronic lower respiratory diseases, and accidents)¹

¹ National Center for Health Statistics, 2004
### Cost Estimates for Healthcare-Associated Infections (HAIs)

<table>
<thead>
<tr>
<th>HAI</th>
<th>Cost per HAI + SE</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilator-associated pneumonia</td>
<td>25,072 ± 4,132</td>
<td>8,682-31,316</td>
</tr>
<tr>
<td>Healthcare-associated bloodstream infections</td>
<td>23,242 ± 5,184</td>
<td>6,908-37,260</td>
</tr>
<tr>
<td>Surgical site infections</td>
<td>10,443 ± 3,249</td>
<td>2,527-29,367</td>
</tr>
<tr>
<td>Catheter-associated urinary tract infections</td>
<td>758 ± 41</td>
<td>728-810</td>
</tr>
</tbody>
</table>

Costs based on literature review 1985-2005; adjusted to US 1995 dollars

### Challenges for Infection Prevention in the 21st Century

- Changing population of hospital patients
- Growing frequency of antimicrobial-resistant and emerging pathogens
- Lack of compliance with hand hygiene and other infection preventive measures (e.g., endoscope)
- Limited infection prevention resources
- Implementation of guidelines/standards, bundles and new technology demonstrated to reduce HAIs
- CMS non-reimbursement for HAIs

### Challenges for Infection Prevention in the 21st Century

- Public reporting of HAIs (30 states reporting; CMS released rule on Hospital Inpatient Prospective Payment FY2011 and will require CABSI reporting through NHSN January 1, 2011 and SSI, January 2, 2010)
- Health insurance reimbursement and employee incentive payments tied to quality goals
- State and federal laws legislating care issues
  - Influenza immunization for staff (mandatory flu vaccine for HCWs in NC?)
  - MRSA screening of patients and staff
- Greater emphasis on infection prevention by TJC, CMS
**History of SPICE**

- SPICE is a University-based program initiated in 1981 with a grant from NC Department of Human Resources to assist hospitals manage TB patients.
- In 1993-1994, SPICE expanded its services to prevent HAIs in all HCFs.
- Since 2002 there has been an erosion of funds related to hurricane-recovery costs and poor State revenues.

**Statewide Program for Infection Control and Prevention (SPICE)**

SPICE is charged with investigating and controlling healthcare-associated infections in hospitals, long-term care facilities, and other medical facilities in the state.
Long-term role in aiding all NC HCFs and serving the needs of IPs in the State.

**Financial Partners**

The Statewide Program for Infection Control and Epidemiology (SPICE) is:
- located at UNC School of Medicine at the University of North Carolina at Chapel Hill.
- funded by the State of North Carolina.
- the Area Health Education Centers (AHECs) provides travel support.
SPICE Finances

“Show me the money!”

- Currently receive $145,340 annually from the State and yearly expenses are $229,979 for an operating deficit of $84,639
- Thus, we sought other funding sources and was granted an ARRA Grant to prevent HAIs ($73,879) but funding expires December 2011
- New funding from State CMS Citation to do IC consultation and educational videos for 2 years.

SPICE Staffing

- **William A. Rutala**, Ph.D., M.P.H., C.I.C. 15%
  Director, Professor
- **Debby Pyatt** 100%
  Program Coordinator
- **David J. Weber**, M.D., M.P.H. 5%
  Infectious Diseases Consultant
- ______ ______, RN., C.I.C. 100%
  Nurse Consultant

HAI Activities offered by SPICE

- Outbreak Assistance
- Consultation
- Education Courses and workshops
- Research
- Special Projects
SPICE Outbreak Assistance

ONSITE ASSISTANCE MIGHT INCLUDE:
...CONSULTATION
...LAB TESTING AND ANALYSIS (PFGE)
...PATIENT MANAGEMENT AND CARE
...ISOLATION AND PRECAUTIONS
...OCCUPATIONAL HEALTH EXPOSURE FOLLOW-UP

FREE TO ALL NC HEALTHCARE FACILITIES

Highlights of SPICE Investigations

- Pseudo-outbreak of Rhodotorula Infections via bronchoscopy
- Cataract surgery outbreak involving phacoemulsifier machine
- Transparent Dressings associated with higher rates of bacteremia
- Hepatitis B transmission in Nursing Homes associated with shared Glucometers

SPICE CONSULTATION SERVICES

- Telephonic/email or Onsite:
  sample policies and procedures
  resources and references
  environmental rounds
Educational Services from SPICE

- Workshop - per request from facilities (AHEC, Assns.)
- Newsletters
- SPICE Website
- Annual Offered Courses:
  - Hospital: Part One and Part Two (5 days)
  - (99%-157/159 NC Hospitals includes military, VA, psychiatric)
  - LTCFs (2 and 1/2 days) twice yearly
  - Ambulatory NC Healthcare Facilities - (6 hours)
  - CBIC Review – (10 hours)

http://www.unc.edu/depts/spice/

SPICE Website

Resources web links
- Influenza (Flu) sample plan for LTCFS
- APIC-NC (Chapter home page)
- NC Sample Isolation Signs (download and print sign)
- CA-NSA Algorithm
- CDC's National Healthcare Safety Network (NHSN)
- SPICE Resource Center on The Joint Commission Surveys
- Guidelines and Recommendations
- Report of the Month - North Carolina Guidelines for Control of
  Antibiotic Resistant Organisms, Specifically MRSA and VRE
- Disinfection and Sterilization website - by William A. Rutala, Ph.D.
- Frequently Asked Questions
SPICE Basic Hospital Courses

- Infection Control Part II: The Infection Preventionist as an Environmentalist - to broaden IP knowledge of the interface between specific hospital areas and infection control. The course includes information on sterilization, disinfection, antibiotic utilization, infections in high-risk groups, and epidemic situations.

Other Courses provided by SPICE

- Infection Control in Long-Term Care Facilities (LTCFs) - (Nursing Homes and Assisted Living) - to provide participants with current and practical information for the recognition and management of common infection prevention issues in non-acute care facilities.
- CBIC Review – (with APIC NC) intended for Infection Preventionists who are preparing for the Certification Board for Infection Control (CBIC) certification exam

Services Provided to HCFs by SPICE

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Consultant</th>
<th>Onsite Invest</th>
<th>Course (Part)</th>
<th>Workshops</th>
<th>Newsletters</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-99</td>
<td>6257</td>
<td>38</td>
<td>38 (1444)</td>
<td>179</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>00-09</td>
<td>6122</td>
<td>25</td>
<td>47 (2703)</td>
<td>173</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>90-09</td>
<td>12379</td>
<td>83</td>
<td>85 (4147)</td>
<td>352</td>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>
Review of Pertinent North Carolina Laws Concerning Infection Control

A person who violates any provision of these laws or rules adopted by the Health Commission or a local board of health shall be guilty of a misdemeanor.

Objective:
Knowledge to not violate laws and be compliant with regulatory and practice guidelines.

North Carolina Administrative Code (Law)
10A NCAC 41A.0206

- Requires that each health care organization that performs invasive procedures shall implement a written infection control policy, designate a staff member to direct infection control activities and the designated staff member shall have successfully completed a course in infection control approved by the State Health Department.

- The rule was drafted after look back investigations revealed infection control practices were severely lacking to meet general infection control standards of practice in outpatient settings, including out-patient settings.

HIV Transmission to 6 Patients in a Dental Practice, U.S.

- Procedures performed by dentist after his AIDS diagnosis
- No other confirmed exposures to HIV
- HIV strain similar to dentist and to each other

Statewide Program for Infection Control and Prevention

- Continue 1-week courses to train IP in hospitals and facilitate certification (99%-157/159 NC Hospitals includes military, VA, psychiatric)
- Continue consultative services
- Facilitate implementation of guidelines/bundles and aid hospitals in reporting HAIs to NHSN
- Support requested for SPICE via legislature ($500K/y) for 3-4 IPs in West, Piedmont and East NC

10A NCAC .0207 HIV and Hepatitis B Infected Health Care Workers

- Federal government required all states to adopt HIV and HBV-infected HCW rules, per CDC approval
- Process to review the operative and infection control practices of HCWs who perform or assist in surgery, dental procedures and vaginal deliveries and know themselves to be infected with HIV and/or hepatitis B
- These HCWs must report themselves to the Chief, NC Communicable Disease Control Section

(Effective 1992)
Investigation will be made to assess the operative and infection control techniques and clinical condition of HCW by an appointed ad hoc committee.

Licensing Board and State Dept. of Public Health will, if deemed appropriate, limit practice or impose other work restrictions (double gloving), determine if look back investigation or notification of patients is needed.

**Background North Carolina Infection Control Law**


- Part of public health codes/laws of the NC State Dept. of Environment and Natural Resources (Department of Health and Human Services Communicable Disease Branch, Epidemiology Section).

- Rule to protect public health

**Background North Carolina Infection Control Law**

- The Infection control educational component was later transferred to the Statewide Program for Infection Control and Epidemiology (SPICE) at UNC-Chapel Hill in 1999.
The purpose of the Infection Control Curriculum is to provide a standard approved curriculum to meet the requirements of 10A North Carolina Administrative Code 41A.0206 (10A NCAC 41A.0206) Infection Control in Health Care Settings rule (law).

Effective July 1, 2000, approved courses will use the North Carolina SPICE Infection Control Curriculum for Outpatient Settings and must be registered with the Statewide Program for Infection Control and Epidemiology.

SIGNIFICANT CHANGES TO RULE, effective 01/01/10 (highlighted in red)

Excerpt from Subchapter 41A: Communicable Disease Control
(a) The following definitions shall apply throughout this Rule:
   (1) "Health care organization" means hospital; clinic; physician, dentist, podiatrist, optometrist, or chiropractic office; home care agency; nursing home; local health department; community health center; mental health facility; hospice; ambulatory surgical facility; urgent care center; emergency room; Home Health Agency; Ambulatory Surgery; Emergency Medical Service (EMS) agency; pharmacies where a health practitioner offers clinical services; or any other organization that provides clinical care.
   (2) "Invasive procedure" means entry into tissues, cavities, or organs of repair of traumatic injuries. The term includes the use of needles to puncture skin, vaginal and cesarean deliveries, surgery, and dental procedures during which bleeding occurs or the potential for bleeding exists.
   (3) "Non-contiguous" means not physically connected.

10A NCAC 41A .0206 Infection Control Health Care Settings

Rule requires all health care organizations that do invasive procedures of any type to require the use of universal precautions
   ■ adopt a written infection control policy
   ■ conduct a training program for HCWs
   ■ monitor compliance with infection control requirements
   ■ designate one on-site staff member for each non-contiguous (or free-standing) facility to be trained in infection control by completing a state approved course
The infection control policy and training need not be separate from those required by the OSHA Blood borne Pathogens Standard, but care must be taken to include the features required by NC:
- Sterilization and disinfection – policy must include the schedule for maintenance and microbiologic monitoring (to be done weekly)
- Sanitation of rooms and equipment - including cleaning procedures, agents, and schedules

10A North Carolina Administrative Code
41A.0206

- Statewide Program for Infection Control and Epidemiology (SPICE)
- Approved Curriculum for .0206 Infection Control Courses for Dental, Home Health and Hospice, and Out-Patient Settings
- Approved Online Courses available through NC AHECs to Meet the Requirements of the Rule

SPICE SPECIAL PROJECTS
Public Health and Institutional Task Force for Prevention of HAIs (PHITFORCE)

- Ad hoc committee composed of:
  - NC SHEA members who are serving as Hospital Epidemiologist
  - APIC NC Past President
  - Communicable Disease Chief
  - SPICE Associate Director – Chair

Mission: to develop consensus for the prevention of HAI in NC HCFS.
Thank you!