



South Carolina Antibiotic Resistance Strategic Plan Report to the Legislature

January 15, 2007

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South Carolina Antibiotic Resistance Strategic Plan

January 12, 2007

Part I. Introduction and Background:

Antibiotic resistance (AR) rates are rising as the inevitable result of antibiotic use and misuse. Soon after penicillin was introduced in the 1940's, it was discovered that bacteria have the amazing ability to alter their genetic makeup and become immune to antibiotics. Significant increases in antibiotic resistance rates to old and new drugs, including multiple drugs, threaten to return us to the "pre-antibiotic" era. Increasing rates of antibiotic resistance is a serious and rapidly emerging local, national, and global public health problem. Resistant bacteria are also of great concern in veterinary medicine.

According to the Centers for Disease Control and Prevention (CDC), each year almost two million patients in the U.S. acquire hospital-associated infections, resulting in about 90,000 deaths. More than 70% of the bacteria causing these infections are resistant to at least one of the drugs commonly used for their treatment.

Numerous studies and reports tell us that state, federal, and global resources and funding for antibiotic resistance are minimal and do not match the magnitude of the public health threat. More surveillance, epidemiologic investigations, and evaluation of outcomes are needed. Effective strategies to prevent the emergence and spread of antibiotic resistance in South Carolina communities and health care facilities are essential.

In the U.S., studies show that drug resistant infections drive up health care costs as a result of more hospital admissions, longer hospital stays, increased risk of death, and the use of more toxic and more expensive antibiotics. Diseases such as ear infections, skin infections, pneumonia, blood stream infections, and tuberculosis are now harder to treat. For each individual with an infection, this "global pandemic of anti-microbial resistance" complicates treatment and increases the risk for serious disease and death.

During the past 15 years, there has been a substantial increase in drug resistant *Streptococcus pneumoniae* (DRSP). DRSP is responsible for most cases of pneumonia, meningitis, and middle ear infections and is increasingly resistant to penicillin therapy and to newer drugs. In the U.S. alone, DRSP causes about 125,000 hospitalizations due to pneumonia each year. The increase in resistance is clearly related to the over prescribing of antibiotics.

What contributes to antibiotic resistance? The failure to recognize the consequences of inappropriate antibiotic use as well as the inability to control antibiotic use in the private and hospital settings leads to overuse and unneeded use. This results in antibiotic resistance in many types of bacteria.

In the outpatient setting, common upper respiratory infections account for 70% - 80% of all antibiotics prescribed. Most of these infections are viral; and antibiotics do not kill viruses and may actually be harmful to the patient by promoting resistance when some bacteria are present. However, patients often pressure health care providers to prescribe antibiotics for many respiratory infections. Misusing antibiotics for many respiratory infections promotes resistance. Misuse also occurs when people take only part of their antibiotic prescription or share someone else's prescription, thereby exposing bacteria to enough antibiotics to promote resistance, but not to kill them.

In health care facilities, there is often little oversight of antibiotic use. Antibiotic "stewardship" programs to preserve certain "last resort" antibiotics by restricting their use can help but are

difficult to implement. Consultation with Infectious Disease specialists for appropriate treatment decisions may not be sought, or even readily available in some areas. In healthcare facilities, infection control professionals and resources for prevention of infections are limited.

Consequences of antibiotic resistance: The direct and indirect costs of AR occur on many levels and are significant. Infections due to antibiotic resistant bacteria may lead to poor medical outcomes because of inappropriate or delayed appropriate treatment. This occurs because of the increased complexity of antibiotic treatment or the unavailability of antibiotics that have activity against resistant bacteria. For example, there is a clear association between antibiotic resistance in *Staphylococcus aureus*, enterococci, and gram-negative bacilli, and increased rates of death, severe disease, length of hospitalization, and cost of health care.

One study showed that persons with antibiotic-resistant *Staphylococcus aureus* infections had an almost 3 ½ times greater risk of death than patients who had infection with drug sensitive *S. aureus* infection. Such situations resulted in excess hospital charges of \$14,000 per patient. In another study, patients with antibiotic-resistant *Staphylococcus aureus* infections had eleven times greater risk of death than patients who did not have infection. The excess hospital charges in these cases were \$41,000 per patient.

Another U.S. study of vancomycin-resistant *Enterococcus* (VRE) found that bloodstream infection was associated with a longer average hospital stay of 18.1 days and increased hospital costs of \$27,190, and mortality was 29% higher than in infections from vancomycin susceptible *Enterococcus*.

An understanding of contributing factors to the growing AR problem, including human behaviors, can guide us in developing effective strategies to address the problem.

Can new antibiotics be developed to solve the problem? In the past, as bacteria developed resistance, newer antibiotics were developed to take the place of the older, ineffective ones. In a recent review of the 506 drugs in development by the largest pharmaceutical and biotechnology companies, only six (6) were antibiotics. Development of new antibiotics is hampered by the economic incentive for companies to focus on developing more profitable chronic disease drugs. Antibiotics are less profitable because they are only prescribed for short periods and bacteria may develop resistance after a short period of use. Pharmaceutical companies have also reduced antimicrobial resistance studies, thereby seriously limiting the availability of critical surveillance data. So preserving the effectiveness of existing antibiotics is critical.

Specific Antibiotic Resistance Problems

The antibiotic resistant bacteria listed below illustrate the reasons for the alarm in the public health and the medical community, and the need for the measures proposed in this Antibiotic Resistance Strategic Plan. There are numerous other resistant bacteria, but this list represents the broad challenge to address surveillance, education, prevention, and control strategies.

- Methicillin Resistant *Staphylococcus aureus* (MRSA)
 - MRSA-HA (hospital acquired – recent exposure to medical care, surgery, medical devices)
 - MRSA-CA (community acquired – usually found in persons without recent exposure to medical care, surgery, medical devices but is now also being seen frequently in hospitals)
 - VISA/ VRSA (hospital acquired— a type of MRSA that is partially or completely resistant to vancomycin, the last line of defense against MRSA)
- Drug resistant *Streptococcus pneumoniae* (DRSP)

- Extended spectrum beta lactamase (ESBL)-producing gram negative strains of bacteria—these bacteria contain a protein that inhibits effectiveness of some antibiotics
- *Clostridium difficile*
- Vancomycin resistant enterococcus (VRE)
- Tuberculosis- multi-drug resistant

MRSA - Methicillin Resistant *Staphylococcus aureus*: A Public Health Challenge:

Health care associated infections have been an infection control challenge in health care facilities for almost 50 years. The recent dramatic rise in the rates of infection with Methicillin resistant *Staphylococcus aureus* (MRSA) in the hospital setting have resulted in a decreased ability to treat these infections appropriately and have placed a strain on the limited infection control resources in hospitals. Also, 10 cases of MRSA that were fully resistant to vancomycin (VRSA), and many cases of MRSA that is partially resistant to vancomycin (VISA) have been reported in the U.S. Since vancomycin is one of the few remaining treatment options, prevention of VRSA and VISA is a priority.

Community acquired MRSA (CA-MRSA): In the late 1990's a new, more virulent strain of Methicillin resistant *Staphylococcus aureus* (MRSA) emerged in communities across the U.S. and the world. Individuals with community acquired MRSA (CA-MRSA) do not have the traditional risk factors as those individuals who acquire MRSA in the hospital (hospital acquired or HA-MRSA). Cases of young, previously healthy children and adults infected with CA-MRSA are reported with increasing frequency. The new community strains are more virulent, and have a different pattern of drug resistance. They can cause severe disease and death within hours of presenting for healthcare in otherwise healthy children and adults. CA-MRSA is on the rise in certain specific populations such as children, in Alaskan Natives, and Native Americans. Incidence rates that are 3 to 7 times higher among African American children age 0 –19 have been documented in Tennessee. Outbreaks have occurred in prison, jails, sports teams, neonatal nurseries, and maternity wards in hospitals, military personnel and extended families in SC as well as the rest of US. Some infection control and treatment guidance exists, but much is unknown about the best method of treatment of CA-MRSA. Dr. J. Todd Weber, CDC Office of Antimicrobial Resistance, writes that information on proven reproducible prevention strategies and methods are lacking and that additional surveillance and epidemiological and clinical studies are necessary. Public demand is growing for DHEC to assist in managing these outbreaks. The medical community is reporting an increase in hard-to-treat skin and soft tissue infections and outbreaks within families. Complications are rising and more and more children are having incision and drainage of CA-MRSA skin abscesses while under anesthesia. Resources are needed to address this community challenge.

South Carolina: Summary of Current Public Health Antibiotic Resistance Prevention Efforts

In 1997, the South Carolina Department of Health and Environmental Control (DHEC) brought together concerned citizens to discuss the problem of antibiotic resistance. Out of that meeting, and armed with new guidance from the CDC, the South Carolina Careful Antibiotic Use (CAUse) Taskforce was formed. This effort began without federal funding, but in the 3rd year DHEC began to receive CDC funding to help continue SC CAUse, a version of the national CDC Get Smart: Know When Antibiotics Work campaign. The Taskforce implemented two primary initiatives to achieve the goal of reducing inappropriate use of antibiotics and ultimately slowing or reversing the increasing rate of DRSP.

- First, health care providers were targeted to receive education on the new diagnostic and treatment guidelines for the treatment of common upper respiratory infections to reduce overuse of antibiotics.

- The second initiative targeted parents of young children to educate them about appropriate use of antibiotics and that antibiotics don't work for viral infections. They were encouraged to discuss with their doctor the idea that "Sometimes the best medicine is no medicine". Funding for the CAUse educational efforts will be discontinued at the end of 2007.

A sentinel laboratory survey project to determine the rates of antibiotic resistant *Streptococcus pneumoniae* (DRSP) was included in the CAUse program. Also, a federally funded surveillance project for DRSP showed that resistance rates rose from 34.5% of isolates in 1998 to 50.5% in 2004. In 2005-06, the rate declined to 45.5%. The CAUse education efforts and the use of a new type of vaccine that protects children from infection with *Streptococcus pneumoniae* have most likely play a role in a decline in the rates of DRSP. Similar results have been identified in other states and countries. Federal funding for the laboratory surveillance project has ended.

Another project was a collaborative effort between DHEC and Dr. Mike Dickson at the USC School of Pharmacy. The purpose was to determine if physician-prescribing practices were changing to reflect the new treatment guideline for common upper respiratory infections. In order to determine changes in prescribing practices, a cost-effective evaluation tool for regular periodic examination of trends in antibiotic use in South Carolina was developed, tested, and implemented successfully. The evaluation tool was developed using a The Medicaid claims database but can be adapted to other databases. The use of a database approach to monitoring trends was adopted because it is less costly than collecting original data, and a large volume of data can be obtained in a relatively short time period. Among other trends, the data reveal an increase in the percentage of providers that do not prescribe antibiotics for viral upper respiratory diagnoses from 1997 (63%) to 2004 (70%). This is a clear success of the CAUse educational effort.

The database also has other potential uses for evaluating AR in South Carolina. For example, a recent evaluation of diagnoses for skin and soft tissue infections, where the majority of infections are caused by MRSA, shows a significant increase in incidence rates from 2000 to 2005. Charges associated with these infections and the treatment antibiotics for 2004 2005 is 11.8 million dollars.

South Carolina: Summary of Future Public Health Antibiotic Resistance Prevention Efforts

In 2006, DHEC received a small CDC grant to assess the knowledge of selected farmers about appropriate antibiotic use in their cattle. If CDC funds are approved for the next phase of the project, an educational campaign will begin to educate farmers about careful antibiotic use. The project is based on the CDC "Get Smart on the Farm" campaign.

The Hospital Infections Disclosure Act (HIDA) was enacted in SC in 2006. The act requires hospitals to report hospital-acquired infections and certain infection control processes to DHEC. Seventy-percent of bacterial infections in hospitals are resistant to at least one of the drugs commonly used for treatment. Therefore, the Antibiotic Resistance Strategic planning process will seek opportunities to link the two efforts to build on existing resources and prevent duplication of efforts.

The Institute for Healthcare Improvement (IHI): The 100,000 Lives Campaign: is a voluntary program with the goal of significantly reducing MRSA infection by reliably implementing the five components of care recommended by their How-to Guide. Many hospitals around the country are participating. This project has been successful in reducing MRSA rates in participating hospitals by introducing the five components or "bundles" of interventions. Resistance rates in targeted Intensive Care Units in some hospitals have been reduced by as much as 75% and 90%, followed by significant rate reductions in non-ICU units. The program has been

so successful that the effort has been renamed the 5 Million Lives Campaign. Efforts to encourage and support SC Hospitals to implement this program should be considered when developing the SC strategies.

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Part II. Strategies and Action Steps to Reduce Antibiotic Resistance:

This strategic plan identifies the initial actions needed to address Antibiotic Resistance in South Carolina. The Antibiotic Resistance Strategic Planning Committee determined that in order to develop a comprehensive effective strategy, there is an immediate need to establish a statewide collaborative process. Developing a comprehensive strategic plan requires the involvement and support of leaders in government, communities, healthcare, public health, academia, and research. The key professional groups needed for an effective collaboration include physicians, other health care providers, pharmacists, nurses, microbiologist, epidemiologists, and hospital administrators and leaders. Resources will be needed to implement a strategic plan.

In 2007, DHEC will work with the Planning Committee established in the Proviso and others to organize the South Carolina Antibiotic Resistance Coalition. DHEC will also seek input from the legislature and submit periodic progress reports regarding the Action Steps described below.

Committee Recommendations to the Legislature:

The Committee respectfully asks that the Legislature support the recommendation to create a South Carolina Antibiotic Resistance Coalition. Antibiotic resistance is a critical problem and the collaborative efforts of all are considered essential to effectively address the problem. The committee will begin work to create a Coalition and will report back to the Legislature. At that time, the committee will define the type of support needed for the Coalition to work, and we hope that the Legislature will consider providing financial and operational support along with that of other Coalition members to make it successful.

Goals: Reduce Rates of Antibiotic Resistance in South Carolina Through Action to:

- Prevent infection
- Prevent transmission
- Diagnose and treat infection effectively
- Use antimicrobials wisely

Strategies

- Define and develop infrastructure, leadership, and collaborations needed to support statewide efforts
- Define economic impact and conduct periodic evaluation of economic impact of interventions.
- Define and implement a comprehensive surveillance plan for antibiotic resistance
- Identify prevention and control measures and action plan to promote these measures
- Define educational goals and action plan
- Define communication action plan

A. Define and develop infrastructure, leadership, and collaborations needed to support statewide efforts in order to assure coordinated and effective use of South Carolina resources

Action Step A. 1. Establish a statewide Antibiotic Resistance Coalition (ARC), possibly modeled on the SC Cancer Coalition

- Identify sponsoring groups and individuals willing to help lead the state's prevention and control efforts. Members from multiple professions, political and governmental leaders, and healthcare settings will be included.
- The responsibility of the ARC will be to:
 - Review and revise this Antibiotic Resistance (AR) Strategic Plan
 - Identify human and financial resources to achieve the goals and objectives
 - Provide ongoing evaluation of strategies and activities and revise as needed
 - Identify and sustain communication efforts to support goals and strategies in SC
 - Assure a collaborative process and provide a structure and environment to sustain it

Action Step A. 2. Convene a statewide symposium (Fall/ Winter 07-08)

- Key professionals and leadership from professional associations, healthcare and pharmaceutical industry, clinical, infection control, lab, pharmacy, public health, consumers, and SC government will be invited
- This symposium will help kick off the Antibiotic Resistance Campaign and will support the above Coalition.

Action Step A. 3. Invite existing groups (e.g. SC Infectious Disease Society, Carolinas Antibiotic Stewardship Effort, Association of Professionals in Infection Control, existing groups participating in the ARC) already working on issues to work on collaborative efforts with SC DHEC to achieve common goals that will:

- Identify key educational venues & methods
- Build consensus on strategies for prevention and control
- Permit sharing of data on surveillance and economic impact of AR

B. Define economic impact and conduct periodic evaluation of economic impact of interventions

Action Step B. 1. Monitor healthcare costs and trends and disseminate this information to the ARC and to stakeholders. This information will aid in the planning process to decrease AR in SC

- Identify appropriate economic indicators. The sources of these indicators may include:
 - i. Hospital Discharge data obtained from the Office of Research and Statistics
 - ii. Pharmacy Prescribing and Cost Data obtained from Dr. Mike Dickson's AR prescribing practices data model (USC School of Pharmacy)
- Identify methods for assessing costs of AR and cost/benefit of interventions (e.g. collaborate with School of Public Health, etc.)
 - i. Collaborate with School of Public Health

Action Step B. 2. Disseminate periodic reports containing SC resistance data, interventions undertaken and economic impact of interventions to stakeholders and policy makers

- This report will be sent to legislature, hospital CEOs and CFOs, medical associations and other stakeholders.

C. Define and implement a comprehensive surveillance plan for antibiotic resistance

A surveillance plan to determine the extent of antibiotic-resistant bacteria of health significance in SC will require collaboration with Public Health and Healthcare facilities. The AR Coalition will be an important tool to ensure collaboration and effective surveillance.

Action Step C.1:

Public Health will continue current reporting on rates of invasive disease due to drug-resistant invasive *S. pneumoniae* (DRSP) and vancomycin-intermediate and resistant-*Staphylococcus aureus* (VISA/ VRSA)

Action Step C.2: Nationally, current surveillance funding is focused on nine sentinel states, not including SC. In the absence of federal funding to conduct labor-intensive surveillance, Public Health will develop a plan to identify cost effective measures to conduct surveillance for MRSA, *Clostridium difficile* and vancomycin-resistant enterococcus (VRE) and other resistant pathogens. A plan will be implemented in 2008.

Action Step C.3. Public Health will continue to look for funds to renew the project with the USC School of Medicine Microbiology Lab and the participating hospitals so that the DRSP Sentinel Lab Surveillance project does not have to be discontinued even though federal funds for this project are no longer available.

Action Step C. 4. Public Health will continue to implement Electronic Lab Reporting (ELR) into the Carolinas Health Electronic Surveillance System (CHESS) and evaluate the possibilities of obtaining surveillance data from CHESS

- Monitor surveillance data, and establish and disseminate ELR data reports using CHESS reports on resistant *S. pneumoniae* from labs and hospitals to SC DHEC. This is a new system still in development, with new hospitals joining the system over the next year. Because limited demographic data and no clinical data are available with the ELR system, it will not be possible with the ELR alone to determine outcomes associated with infections due to antibiotic resistant bacteria (See Action Step C.5). However, patterns of antibiotic resistance for reported bacteria (antibiogram data) will be available and the usefulness of this data for surveillance will be assessed as the system progresses. Another resistant reportable infections, for which ELR may be useful, is *C. difficile*. This effort will require staff time to plan, develop and implement this effort.

Action Step C..5. The growing epidemic of MRSA must be monitored. DHEC will assess a system that uses automatic collection of routine gathered electronic data to minimize cost. Specifically, we would link ELR reports of MRSA to their hospital visits in the SC Hospital Discharge Data Base at the Office of Research and Statistics to get a complete picture.

Action Step C. 6. Public Health will consider using the CDC's National Healthcare Safety Network (NHSN) to report MRSA. In light of the increasing problem of community associated MRSA, SC DHEC will begin surveillance of invasive MRSA from all labs. As more hospitals sign onto the ELR system and as they adopt the NHSN system, opportunities will be sought to link clinical and lab data will allow improved data results. This process is being evaluated and the outcome for linking is still uncertain.

Action Step C.7. Continue DHEC Public Health Laboratory Surveillance in disease outbreaks. The DHEC Public Health Laboratory does not have the funding to perform antibiotic susceptibility testing on bacteria associated with outbreaks. However, they do

have the capacity to perform limited numbers of special tests on bacteria to help identify whether similar strains of bacteria are causing different outbreaks. In addition, bacterial isolates can be submitted to CDC laboratories upon request if the epidemiological information indicates an unusual strain, an outbreak situation, or an unusual susceptibility pattern (VISA/VRSA).

Action Step C.8. DHEC Public Health Laboratory and Epidemiology staff will collaborate on a Lab newsletter to provide hospital laboratories with educational and reference resources for appropriate Antibiotic Resistance Laboratory Testing.

Action Step C. 9. Define and implement plans to promote the systematic collection and dissemination of local and facility specific AR anti-biograms. This information will include antibiotic resistance patterns in specific types of bacteria (antibiograms) and rates of AR. This information will help guide clinicians in healthcare facilities and the community in providing effective clinical and pharmaceutical treatment. Recommendations are evolving and sometimes controversial or based on limited science. Hospitals may approach choose to address this issue from a variety of ways. The AR Coalition will need to focus on developing effective strategies to support health care facilities in this effort. Surveillance for AR bacteria will include the following:

- *Staphylococcus aureus*
 - MRSA-CA
 - MRSA-HA
 - VISA/ VRSA
- *Streptococcus pneumoniae* (DRSP)
- ESBL Producing Gram Neg.
- *Clostridium difficile*
- Vancomycin resistant enterococcus (VRE)

Action Step C. 10. Identify current initiatives and evolving recommendations that will impact surveillance in Healthcare facilities and assure that communication and training opportunities are available to promote the use of effective surveillance tools.

- AR Coalition should evaluate recommendations on active surveillance programs and promote communication and training to include cost-benefits.
- Assure coordination with the requirements of the Hospital Infections Disclosure Act (HIDA) to prevent duplication of reporting requirements.

Action Step C. 11. Identify and monitor trends and emerging patterns of antibiotic resistance in bacteria that have a significant health impact. This effort will assure rapid recognition of new strains and resistance patterns.

- AR Coalition can promote resources, education, training, and tools to assist facilities with this challenge, especially for rural hospital with limited resources.

D. Identify prevention and control measures and promote them in the community and in healthcare facilities.

Action Step. D. 1. Public Health will promote training and communication on the use of the new CDC Hospital Infection Control Practices Advisory Committee Infection Control and Antibiotic Resistance Guidelines in Healthcare facilities and other references and resources.

- This effort will include the use of the revised DHEC Antibiotic Resistant Organism Guidelines for Healthcare Facilities

- DHEC has established a committee with Hospital Infection Control Professionals and Infections Disease Physicians to revise the guidelines. Work will begin in April 2007 with a target date of September 30, 2007 for completion.
- This effort would benefit from the resources and support available for the AR Coalition.

Action Step D. 2. Public Health will provide training to Hospital and Long Term Care Infection Control Professional on the revised DHEC Antibiotic Resistant Organism guidelines.

- DHEC will provide training on the new guidelines in October and November 2007.

Action Step D. 3. Public Health will consider recommending that mandatory hospital reporting of Infection Control Process Measures, as provided for in the Hospital Infections Disclosure Act (HIDA), should include specific Antibiotic Resistance prevention and control process measures.

- DHEC will present this topic to the AR Coalition and if appropriate to the HIDA Advisory Committee for consideration.

Action Step D. 4. The AR Coalition will be asked to consider promoting education and training on effective Antibiotic Stewardship Programs in each facility and provide resources to support rural hospitals.

Action Steps D. 5. AR Coalition will be asked to develop activities to promote and support the Institute for Healthcare Improvement's 5 Million Lives Campaign.

Action Step D. 6. AR Coalition and Public Health will promote the CDC 12 Steps Campaign to Prevent Antimicrobial Resistance in Hospitals, Long Term Care, Dialysis, and other settings.

E. Define educational goals and communication action plan

- Assure leadership from Public Health for coordination, surveillance, and population based prevention and education.
Assure private sector and business stakeholders are engaged and contributing (e.g. subject area expertise, leadership in collaboration, funding for education and prevention).

Action Step E. 1. AR Coalition to consider educational needs in South Carolina and target specific strategies toward the goal of reducing rates.

Action Step E. 2 DHEC will develop 2007 plans for the SC CAUse Campaign. Federal funds will not be available after 2007 to continue the efforts.

- Current DHEC activities are limited to that described below. DHEC will pursue continuing educational efforts through the opportunity to work with the AR Coalition to develop plans and resources to continue provider and public education and evaluation efforts.
- Develop plan for continuing Public Health resources to provide leadership in the AR Coalition and to focus on Antibiotic Resistance education and PH surveillance after federal funds are no longer available.

Action Step E.3. Public Health will provide healthcare personnel with education regarding treatment and prescribing guidelines and challenges through Health Alerts, DHEC Website, mailings, conference presentations.

Action Step E.4. Public Health will provide physicians with information on cumulative SC rates, and their own patterns of anti-microbial prescribing data, to be obtained from the work of Dr. Mike Dickson at USC School of Pharmacy. The impact of this information on trends in prescribing practices will be evaluated

Action Step E.5. AR Coalition will evaluate educational tools, resources, and incentives for provider education to include physicians, nurses, microbiologists, pharmacists, others

- Identify and review available tools for provider education
- Consider “Train the Trainer” programs
- Consider promoting CDC Antibiotic Resistance programs specifically designed for Medical Students and Residents.
- Consider role of licensing requirements for infection control and antibiotic resistance training.

Action Step E. 6. Provider/ Public / Community Education (from CDC grant activities)

- DHEC will maintain and distribute the supply of the CAUse Education Materials and promote the use of these materials at state and local conferences.
- DHEC staff will attend at least one medical conference in SC in 2007 to promote patient education materials at the point of care.
- DHEC will insert the CAUse Materials order forms into the Annual Health Care Provider Antibiotic Resistance Education mailing by December 2007.
- DHEC will conduct the CAUse Children's Library Project to bring awareness to the Community. Approximately 200 copies of the children's book, *The Little Elephant with the Big Earache*, by Dr. Charlotte Cowan and published by the Hippocratic Press will be purchased and distributed to County Libraries around the state. The recommendations in the book, and the parents insert, are consistent with the "Guidelines for the Diagnosis and Management of Acute Otitis Media" released by the AAP/AAFP in March 2004. The Guide offers clear suggestions about what to do and when to call for help with a sick child. For each county, the local newspaper, TV, radio stations will be notified that the gift will be presented to the Library. CAUse will encourage the media to publicize that the books are available for parents to check out and why Careful Antibiotic Use (CAUse) is important.
- Distribute educational materials to parents along with the Annual School and Childcare Exclusion List at the beginning of each year.
- Continue distributing educational materials by the local health department public health nurse at the Newborn Home Visit
- Develop and distribute educational materials for Living with MRSA guidance and for prevention in high-risk populations such as prisons, sports teams.
- Discuss media campaign strategies and resources with the AR Coalition.

III. Antibiotic Resistance Strategic Plan Committee – January 12, 2007

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Infectious Disease Society of America (IDSA)

<http://www.idsociety.org/>

IDSA Practice Guidelines

http://www.idsociety.org/Content/NavigationMenu/Practice_Guidelines/Standards_Practice_Guidelines_Statements/Standards_Practice_Guidelines_and_Statements.htm

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/drugresistance/>

CDC: Interagency Action Plan: A Public Health Action Plan to Combat Antimicrobial Resistance:

<http://www.cdc.gov/drugresistance/actionplan/index.htm>

CDC: Get Smart: Know When Antibiotics Work

<http://www.cdc.gov/drugresistance/community/>

CDC: Campaign to Prevent Antimicrobial Resistance in Healthcare Settings

<http://www.cdc.gov/drugresistance/healthcare/default.htm>

CDC 12-Steps to Reduce Antimicrobial Resistance educational materials.

http://bookstore.phf.org/index.php?cPath=69_54

CDC: Manual for the Laboratory Identification and Antimicrobial Susceptibility Testing of Bacterial Pathogens of Public Health Importance in the Developing World.

<http://www.cdc.gov/drugresistance/manual.htm>

Healthy People 2010 Objectives

Infectious Disease 14-18 through 14-20

<http://www.healthypeople.gov/hpscripts/KeywordResult.asp?n346=346&Submit=Submit>

Institute for Health Care Improvement

5 Million Lives Campaign to Reduce Methicillin resistant *Staphylococcus aureus*

<http://www.ihc.org/IHI/Programs/Campaign/Campaign.htm?TabId=2>

Society for Hospital Epidemiology of America

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