

Update on *Salmonella* Saintpaul Multistate Outbreak—South Carolina Perspective

Summarized by Julie Schlegel, MSP
Foodborne Epidemiologist

Division of Acute Disease Epidemiology

Between April 1 and August 28, 2008, 1,442 persons infected with genetically identical *Salmonella* Saintpaul were identified in 43 states, the District of Columbia and Canada. These cases were identified because clinical laboratories in all states send *Salmonella* strains from ill persons to their state public health laboratories for molecular characterization.

The multistate *Salmonella* Saintpaul outbreak investigation has been a collaborative effort

(Continued on page 2)

Back to School Appointments? Think MRSA!

Michelle L. Myer, MSN, RN, APRN, CPNP
Epidemiology Nurse Consultant
Division of Acute Disease Epidemiology

As so many parents and healthcare providers learned last fall, community-acquired Methicillin-resistant *Staph. aureus* (CA-MRSA) skin and soft tissue infections (SSTIs) are increasing in the school setting, especially among athletes.

In the Fall and Winter of 2007, DHEC Regional Epi staff investigated 3 outbreaks of MRSA among high school football players. MRSA may be easily spread among athletes via shared equipment, towels, hygiene items, and direct contact, especially among wrestlers.

(Continued on page 5)

2008 Recommendations of the Advisory Committee on Immunization Practices (ACIP) Regarding Influenza Vaccine and Antiviral Agents

Summary by Chasisty Springs, MSPH
Influenza Epidemiologist

Division of Acute Disease Epidemiology

In the August 8, 2008, edition of the MMWR, the Advisory Committee on Immunization Practices (ACIP) issued several updated recommendations for this flu season:

- Beginning with the 2008-2009 influenza season, **annual immunization of all children 5-18 years of age is recommended.** Annual immunization of all children aged 5-18 years should begin in September or as soon as vaccine is available for the 2008-09 influenza season, if feasible. Annual immunization of all children aged 5-18 years of age should begin no later than during the 2009-10 influenza season.
- Annual immunization of all children aged 6 months through 4 years (59 months) of age and older children with conditions**

(Continued on page 12)

INSIDE THIS ISSUE

Multistate <i>Salmonella</i> Outbreak	Page 1
Back to School—Think MRSA!	Page 1
ACIP Flu Vaccine Recommendations	Page 1
Spotlight on <i>Salmonella</i>	Page 3
School & Childcare Exclusion Updates	Page 4
Ask an Epi: Hepatitis A Vaccine for Hepatitis A Post-Exposure Prophylaxis	Page 6
SC 2007-2008 Flu Season Update	Page 8
MRSA Management Mini-Poster	Page 10
HIDA: Hospital Infection Disclosure Act	Page 11
By the Numbers	Page 14

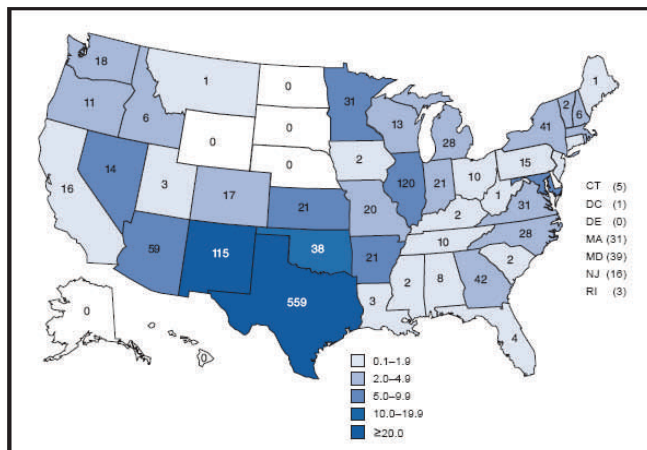
Update on *Salmonella* Saintpaul Multistate Outbreak—South Carolina Perspective

(Continued from page 1)

between states, the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), Health Canada and the Indian Health Service.

An initial epidemiologic investigation in New Mexico and Texas comparing foods eaten by persons who were ill in May to foods eaten by well persons identified consumption of raw tomatoes as strongly linked to the illness. This was a strong epidemiologic association, and tomatoes from that time period remained under investigation. After the public warning concerning tomatoes on June 7, cases continued to occur, though at a lower rate. A similar but much larger, nationwide study comparing persons who were ill in June to well persons found that ill persons were more likely to have recently consumed raw tomatoes, raw jalapeño peppers, and raw cilantro. These items were commonly, though not always, consumed together, so the study could not determine which item(s) caused the illnesses.

FIGURE 1. Number* and incidence rate† of laboratory-confirmed cases of *Salmonella* Saintpaul (outbreak strain), by state — United States, 2008§



* N = 1,442.

† Per 1 million population.

§ As of August 25, 2008.

Source: August 29, 2008 MMWR.

After the first case-control study was conducted, clusters of infection were detected that were associated with specific restaurants. Most clusters involved fewer than five ill persons. As of July 1, three clusters had been investigated. In one,

illnesses were linked to consuming an item containing raw tomatoes and raw jalapeño peppers. In the other two, illnesses were linked to an item containing raw jalapeño peppers but not the other suspect items.

More recently, three additional clusters were investigated. Detailed investigations of these clusters indicate that jalapeño peppers did not explain all illnesses. In two of these investigations, illnesses were linked to an item containing raw serrano peppers and raw tomatoes, but not jalapeño peppers. In the third, illnesses were linked to an item that contained raw jalapeños and tomatoes. Other clusters are still under active investigation. These epidemiological studies indicate that more than one food vehicle is involved in this outbreak. No one food item can explain the entire outbreak. Although rare, there have been outbreaks in the past in which more than one food source has been implicated.

Only six people infected with this strain of *Salmonella* Saintpaul were identified in the country from April through June of 2007. The previous rarity of this strain and the distribution of illnesses in all U.S. regions suggest that the implicated food is distributed throughout much of the country. Because many persons with *Salmonella* illness do not have a stool specimen tested, it is likely that many more illnesses have occurred than those reported.

In South Carolina, there have been two confirmed cases of *Salmonella* Saintpaul with the outbreak strain. One case had consumed food at a North Carolina restaurant that had a cluster of cases related to the outbreak. The second case sought medical care six weeks after onset of illness and could not recall specific food items consumed. However, DHEC characterizes each isolate of *Salmonella* sent to the DHEC Bureau of Laboratories (BOL) as part of routine surveillance to determine if cases are part of state or national outbreaks.

At present, information indicates that jalapeño and serrano peppers grown, harvested, or packed in Mexico are the cause of some clusters and are

(Continued on page 3)

Update on *Salmonella* Saintpaul Multistate Outbreak—South Carolina Perspective

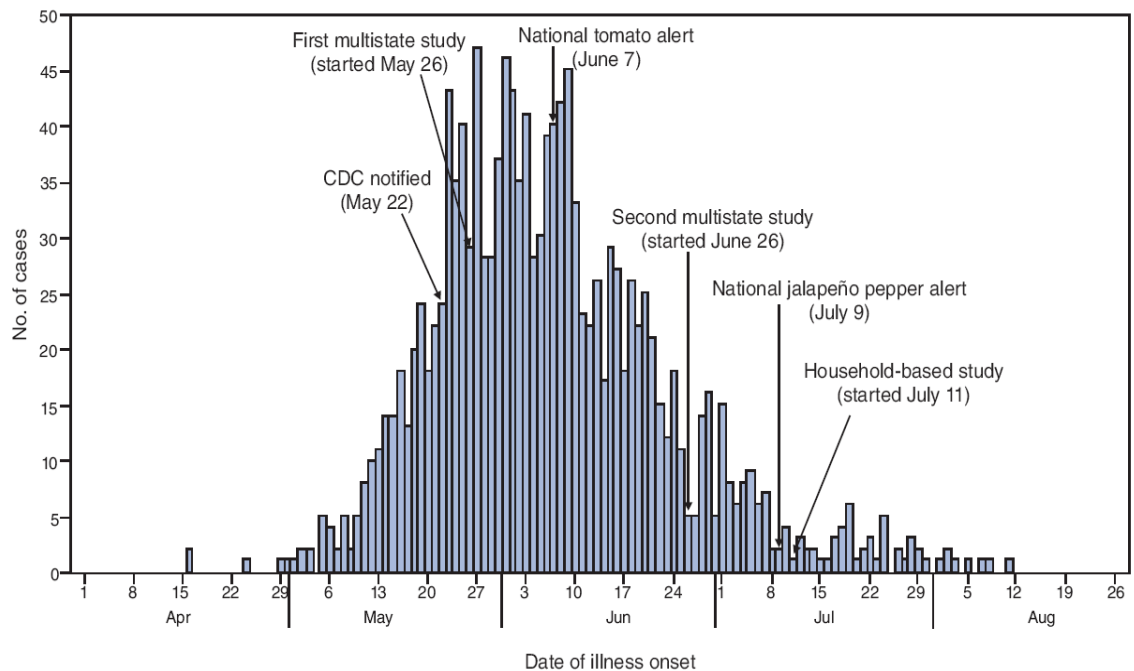
(Continued from page 2)

major food vehicles for the outbreak. Although tomatoes currently on the market are safe, raw tomatoes consumed early in the outbreak are still under investigation. The outbreak strain *Salmonella* Saintpaul has been isolated twice from jalapeño peppers and once from serrano peppers.

These foods were sampled as the result of traceback investigations based on the epidemiologic investigations of clusters.

The CDC is continuing to collect data on cases of *Salmonella* Saintpaul and further updates may be forthcoming.

FIGURE 2. Number of laboratory-confirmed cases (n = 1,414) of *Salmonella* Saintpaul (outbreak strain), by date of illness onset — United States, 2008*



* Includes cases with onset information received as of August 25, 2008. Some illness onset dates (n = 366) were estimated by subtracting 3 days from the specimen date. Illness that began during July 29–August 25 might not yet be reported.

Sources:

<http://www.cdc.gov/salmonella/saintpaul/>,
<http://www.cdc.gov/mmwr/PDF/wk/mm5734.pdf>

Spotlight on Salmonella

Julie Schlegel, MSP, Foodborne Epidemiologist
 Division of Acute Disease Epidemiology

The Centers for Disease Control and Prevention (CDC) estimate that approximately 40,000 cases of salmonellosis are reported annually in the United States. In South Carolina, physicians, laboratories and other partners report approximately 1200 cases of salmonellosis to DHEC each year. Because many milder cases are not diagnosed or reported, the actual number of salmonella infections may be 30 or more times greater.

Salmonella bacteria live in the intestinal tracts of humans and other animals, including birds and reptiles. Salmonella infections are usually transmitted to humans by eating foods

contaminated with animal feces. Salmonella-contaminated foods are typically of animal origin, such as poultry, beef, milk, or eggs; other foods have also been implicated in Salmonella outbreaks, as have the unwashed hands of infected food handlers.

There are several key facets to Salmonella surveillance and response in SC:

- Surveillance data are evaluated for an increase in reports in given population or geographic area. This may identify potential outbreaks.

(Continued on page 15)

Back to School: Changes in the School and Childcare Exclusion Lists

Michelle L. Myer, MSN, RN, APRN, CPNP
Epidemiology Nurse Consultant
Division of Acute Disease Epidemiology

Each January, DHEC is required to publish lists of those health conditions that would exclude children and staff from school or out-of-home child care settings. These Exclusion Lists, which also address attendance for individuals exposed to certain communicable illnesses or attending school or child care centers with on-going outbreaks, are available on the DHEC Bureau of Disease Control's Web site, at: <http://www.scdhec.gov/health/disease/exclusion.htm>.

As a reminder, the **School Exclusion List** applies to most students in grades 1-12. The Childcare Exclusion List applies to:

- All children in out-of-home child care,
- Children in 3-, 4-, or 5-year-old kindergarten, and
- Medically fragile students in grades 1-12.

For the purposes of school exclusion, "**medically fragile students**" are those with special healthcare needs or developmental delays who require close assistance with feeding or other personal hygiene activities by which communicable illnesses may easily be spread.

The 2008-2009 School and Childcare Exclusion Lists were **revised in January 2008, with changes effective July 1, 2008**. Revisions were based primarily on evolving literature on spread of methicillin-resistant *Staph. aureas* (MRSA) and other strep and staph infections in the school and child care setting.

Some changes and clarifications include:

- Content of medical and parent notes has been specified, to indicate the information needed by school and childcare centers to re-admit children.
- Exclusion criteria for child care employees and children in child care have been placed side-by-side for easier reference.
- Exclusion is required for *Campylobacter*, until diarrheal symptoms are resolved.
- School children with prolonged symptoms following completion of appropriate antimicrobial therapy for specified diarrheal illnesses (*Campylobacter*, *Giardia*, *Salmonella* or *Shigella*), may be readmitted if cleared by the student's physician. Negative culture requirements are still in place for children in child care with *E. coli*, *Salmonella* or *Shigella* infections.
- Diarrheal exclusion criteria differ for elementary-aged children (first through ^{fifth} grades) and for older students in sixth through twelfth grades. Older students with diarrhea, unless caused by *E. coli*, *Salmonella* or *Shigella*, do not have to be excluded unless they are thought to be contributing to the spread of illness in the school.
- Exclusion is not required for students in sixth through twelfth grades with *Tinea capitis* or *Tinea corporis* unless they are thought to be contributing to the spread of illness in the school.
- A great deal of detail has been added to the exclusion and readmission criteria for *Staph* and *Strep* skin infections to reflect updates in epidemiology of these infections in the community. Antimicrobial therapy is not required for non-draining lesions, but children may not be re-admitted until lesions are showing signs of healing.
- Exclusion is required for unimmunized children exposed to varicella (Chickenpox) from day 10 to day 21 after the onset of rash in the person to whom they were exposed. In an outbreak, exclusion would persist until day 21 after rash onset in the last person with varicella in the affected school. DHEC should be consulted in cases where exclusion would be prolonged during outbreaks, especially outbreaks involving break-through cases of post-vaccine varicella. For the 2008-2009 school year, the varicella exclusion requirement applies to

(Continued on page 5)

Back to School Appointments? Think MRSA!

(Continued from page 1)

Guidance for the Public and Schools

DHEC has posted, and continues to update, a webpage on MRSA, with guidance for parents, students, teachers, coaches and administrators. www.scdhec.gov/mrsa.htm. Our staff has worked closely with school districts, via the SC Association of School Nurses (SCASN), and with private and parochial school via the SC Association of Independent Schools (SCISA.) Providers may refer their patients with questions about CA-MRSA to this site, or to the CDC's pages on MRSA:

Guidance for Healthcare Providers

DHEC is particularly interested in assuring prompt and appropriate treatment of skin and soft tissue infection, up to 50% of which may be resistant

Changes in the School & Childcare Exclusion Lists

(Continued from page 4)

those students covered by the Varicella immunization requirement for school admission, or kindergarten through eighth graders.

- Due to the resurgence of measles in the U.S., exclusion is now required for exposed unimmunized students for 21 days after onset of rash in the last case of measles in the affected school or community.

DHEC has also revised its parent brochures, which may help clarify when children may need to be excluded from school or out-of-home child care. These brochures also address appropriate, judicious use of antibiotics. Parent brochures, which can be printed on legal paper for distribution to families, are found on the Exclusion List Web site: <http://www.scdhec.gov/health/disease/exclusion.htm>.

The Division of Acute Disease Epidemiology would appreciate feedback from healthcare providers about the School or Childcare Exclusion Lists. The list will be revised at the end of January 2009 for the 2009-2010 school year. Contact us at Exclusion@dhec.sc.gov.

Staph. To this end, the SC DHEC Division of Acute Disease Epidemiology, working with experts in infectious disease from the USC school of Medicine, has developed a "Think MRSA" mini-poster for clinicians. A greatly reduced size version of the mini-poster is included in this issue of the Epi Notes (page 10). 8.5x11" and 11x17" version are available from DHEC's MRSA page: www.scdhec.gov/mrsa.htm

The recommendations found in the mini-poster are summarized from those developed by the Centers for Disease Control and Prevention, the American Medical Association, and the Infectious Diseases Society of America.

"Outpatient Management of Skin and Soft Tissue Infections in the Era of Community-associated MRSA" provides guidance for empirical management of SSTIs when CA-MRSA is a consideration. Management options described include incision and drainage (I&D) of purulent, fluctuant or draining lesions, or lesions which can be aspirated. It describes empirical antibiotic treatment of cellulitis and other lesions without abscess. The poster provides guidance for antimicrobial selection, and addresses special considerations for children. There is also guidance addressing the role of decolonization in patients who have had repeated active infections.

Reporting of CA-MRSA

1. Clinical labs are required to report MRSA blood stream infections.
2. MRSA skin and soft tissue infections are not reportable to DHEC unless they appear as part of a cluster or outbreak of illness.
3. **Outbreaks**, or suspected outbreaks of CA-MRSA skin and soft-tissue infections are reportable to DHEC immediately by phone.
4. **Individual cases** of CA-MRSA occur commonly in all settings in the community and are not reportable.

Ask an Epi: New Recommendations for Post-Exposure Prophylaxis for Hepatitis A

Eric R. Brenner, MD
 Medical Epidemiologist
 Division of Acute Disease Epidemiology

1. What are the new guidelines for post-exposure prophylaxis for Hepatitis A?

For decades, it has been common practice to use immune globulin (IG) for post-exposure prophylaxis (PEP) of hepatitis A. However, last fall, the U.S. Public Health Service Advisory Committee on Immunization Practices (ACIP) recommended that hepatitis A vaccine could also

be used for PEP.¹ Careful reading of the ACIP's wording shows that IG is to be preferred in some instances, vaccines in others, but that in many (but not all!) circumstances both are considered acceptable (Table 1).



Table 1 (adapted from reference 1)

Summary of updated recommendations for prevention of Hepatitis A (i) after exposure to hepatitis A virus, and (ii) in departing international travelers

Postexposure prophylaxis: People who recently have been exposed to HAV and who previously have not received hepatitis A vaccine should be administered a single dose of single-antigen hepatitis vaccine or immune globulin (IG) (0.02 mL/kg) as soon as possible.

- For healthy people aged 12 months–40 years, single antigen hepatitis A vaccine at the age-appropriate dose is preferred.
- For adults aged >40 years, IG is preferred; vaccine can be used if IG cannot be obtained.
- For children aged <12 months, immunocompromised persons, those who have been diagnosed with chronic liver disease, and people for whom vaccine is contraindicated, IG should be used.

International travel: All susceptible persons traveling to or working in countries that have high or intermediate hepatitis A endemicity should be vaccinated or receive IG before departure. Hepatitis A vaccine at the age-appropriate dose is preferred to IG. The first dose of hepatitis A vaccine should be administered as soon as travel is considered.

- One dose of single-antigen hepatitis A vaccine administered at any time before departure can provide adequate protection for most healthy persons.
- Older adults, immunocompromised persons, and persons with chronic liver disease or other chronic medical conditions planning to depart to an area in ≤ 2 weeks should receive the initial dose of vaccine and also simultaneously can be administered IG (0.02 mL/kg) at a separate anatomic injection site.
- Travelers who elect not to receive vaccine, are age <12 months, or are allergic to a vaccine component should receive a single dose of IG (0.02 mL/kg), which provides effective protection for up to three months.

NOTE: Previous recommendations remain unchanged regarding (i) settings in which postexposure prophylaxis is indicated, and (ii) timing of administration of postexposure prophylaxis.

(Continued on page 7)

New Recommendations for Hepatitis A Vaccine Use in Post Exposure Prophylaxis

(Continued from page 6)

2. What led the ACIP to modify its long-standing recommendations for use of Immune globulin for Hepatitis A PEP?

The rationale for the ACIP change offers an excellent example of the paradigm of "evidence based public health."² The chronology of the question runs like this:

- Hepatitis A vaccine was licensed in 1995
- In 1999, an Italian group published results of a randomized trial showing that PEP with hepatitis A vaccine was more effective than no PEP in preventing disease among household contacts.⁴ That study clearly demonstrated the utility of vaccine, but left open the question of how vaccine would compare to IG, the long-time standard!
- Then, in 2007, a joint American-Kazakh team published results of another prospective randomized study conducted in Kazakhstan that showed nearly equivalent efficacy of vaccine and IG in preventing hepatitis A in household and day-care contacts.⁵ This then became the key study, which allowed the ACIP to formulate its new guidelines.¹

3. For what other infectious diseases can vaccine be effective in preventing disease even after exposure?

Though vaccines are more commonly administered prior to exposure (*Pre-exposure prophylaxis/PrEP*), several vaccines are effective in preventing

disease even when administered after exposure (*post-exposure prophylaxis/PEP*). Examples of vaccines for viral illnesses that can offer effective PEP are (i) smallpox, (ii) measles, (iii) hepatitis A, (iv) hepatitis B, (v) varicella and (vi) rabies. Tetanus provides a familiar example of an illness caused by a bacterium for which vaccine (tetanus toxoid) should be used as PEP in appropriate circumstances."^{**} Full recommendations regarding use of vaccines for PEP can be found in the ACIP statements available online⁶ and, in more abbreviated format, in CDC's *Epidemiology and Prevention of Vaccine-Preventable Diseases*, also known as the "Pink Book."⁷ These references also provide helpful summaries of the circumstances in which vaccines used for PEP are administered along with an appropriate immunoglobulin (e.g., HRIG, HBIG and TIG as part of the PEP regimens for rabies, hepatitis B and tetanus respectively.)

Consultation regarding post-exposure prophylaxis for hepatitis A or other vaccine preventable diseases is available from the DHEC Bureau of Disease Control at (803) 898-0861.

** Persons exposed to two other bacterial diseases, diphtheria and pertussis, should also receive post-exposure doses of vaccine as appropriate. However, PEP for these conditions also includes an antibiotic (Benzathine penicillin for diphtheria, and a macrolide for pertussis) so that the efficacy of the PEP is shared, in varying proportions according to the biology of the circumstances, between the vaccine and the antimicrobial.

References:

1. CDC. Update: Prevention of Hepatitis A after Exposure to Hepatitis A Virus and in International Travelers. Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP) *MMWR* October 19, 2007 / Vol. 56 / No. 41. [Highly recommended four page discussion]
2. <http://library.umassmed.edu/ebpph/guidelines.cfm>. Last accessed 09/04/2008.
3. Brownson RC et al. *Evidenced Based Public Health*. Oxford University Press, USA (2002).
4. Saggiocca L, Amoroso P, Stroffolini T et al. Efficacy of Hepatitis A vaccine in Prevention of Secondary Hepatitis A infection: a Randomized Trial. *The Lancet* 1999;353:1136-39.
5. Victor JC, Monto AS, Surdina TY et al. Hepatitis A Vaccine versus Immune Globulin for Postexposure Prophylaxis. *N Engl J Med* 2007;357:1685-94.
6. All ACIP recommendations are available on line in PDF format from: <http://www.cdc.gov/vaccines/pubs/ACIP-list.htm>.
7. CDC's Pink Book, *Epidemiology and Prevention of Vaccine-Preventable Diseases (10th edition)* is also available online, either as a single volume, or chapter by chapter, from: <http://www.cdc.gov/vaccines/pubs/pinkbook/default.htm>

South Carolina 2007-2008 Influenza Season Surveillance Update

Chasisty Springs, MSPH
 Influenza Epidemiologist
 Division of Acute Disease Epidemiology

To help everyone prepare for the 2008-2009 influenza season, which begins in October, we are providing a summary of South Carolina’s 2007-2008 season. Data were current as of mid-August 2008. The 2008-2009 flu season will begin on September 28, Week 40 of the Morbidity and Mortality Weekly Report (MMWR).

South Carolina influenza surveillance consists of the following components:

- Viral isolates
- Influenza-like illness
- Positive rapid antigen influenza tests
- Enhanced human avian influenza surveillance, and
- Influenza associated pediatric deaths.

Influenza Culture Surveillance

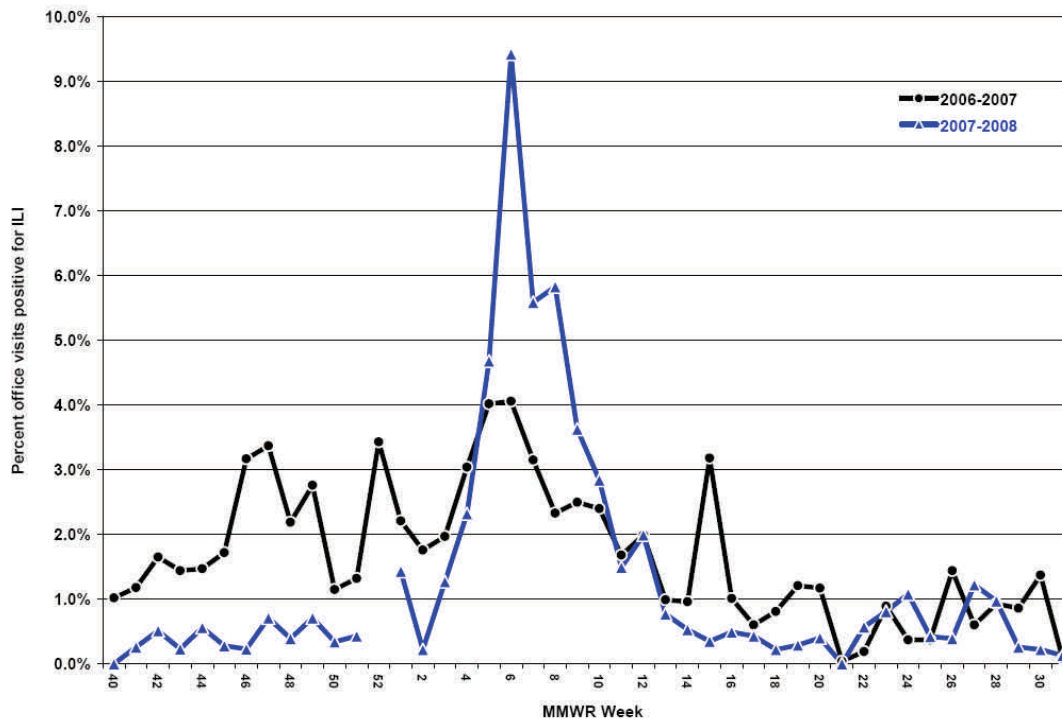
During the 2007-2008 flu season, 110 providers submitted specimens to DHEC’s Bureau of Labs (BOL) for testing. BOL reported 446 culture-confirmed cases of influenza: 362 influenza A (H3), 45 influenza A (H1) and 42 influenza B.

ILI* Surveillance

Thirty-three South Carolina counties have at least one enrolled influenza-like illness (ILI) sentinel provider. Sentinel providers report to the Centers for Disease Control and Prevention each week the percentages of patients seen in their practices who presented with ILI. Data were submitted at least once throughout the 2007-2008 season from

(Continued on page 9)

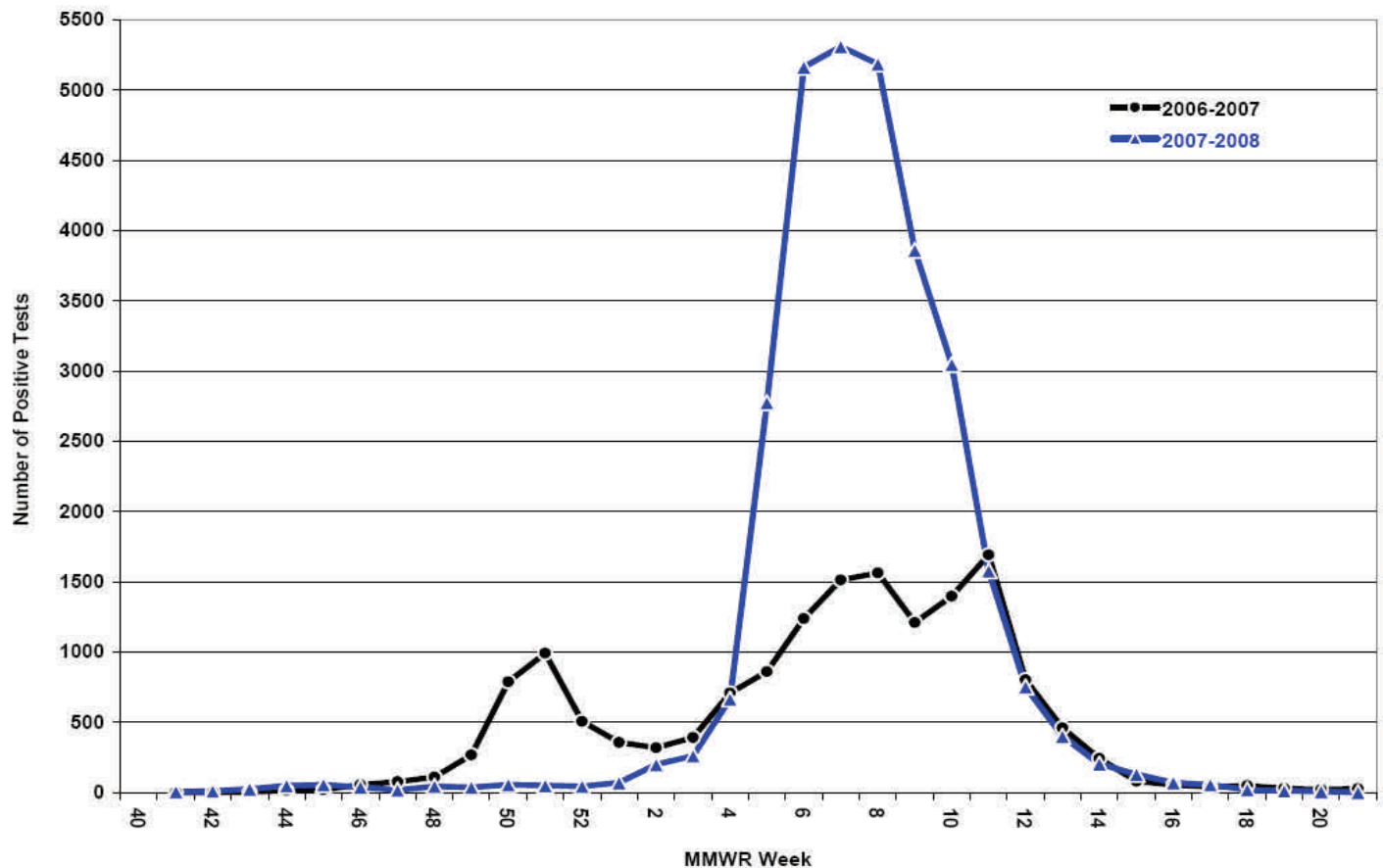
Chart 1: Percentage of visits for Influenza-like Illness (ILI) reported by Sentinel Providers in South Carolina, 2006-2007 and 2007-2008 Influenza Seasons



South Carolina’s ILI percentage remained above the South Atlantic baseline (2.1 percent) from 2008 MMWR Week 04 through MMWR Week 10 (January 20 through March 8, 2008.)

South Carolina 2007-2008 Influenza Season Surveillance Update

Chart 2. 2006-2007 vs. 2007-2008 Positive Rapid Flu Tests in South Carolina



There were 30,221 positive rapid flu tests in the SC 2007-2008 flu season, compared to 15,914 in the 2006-07 season.

(Continued from page 8)

providers in 20 of these counties.

Thirty-four providers actively participated in ILI surveillance in the 2007-2008 flu season. This accounted for 43 percent of the enrolled providers. Of those who actively participated during the height of the flu season, approximately 15 percent have continued to report throughout the summer months.

If you wish to participate in the viral isolate network, contact Nena Turner at (803) 896-0819 to provide demographic info and license number.

If you wish to participate in the ILI sentinel provider network, contact Chasity Springs at (803) 898-0870.

Please visit the DHEC Flu Monitoring Web site for weekly updated information: <http://www.scdhec.gov/health/disease/acute/flu.htm>

* *ILI, or influenza-like illness, is defined as fever $\geq 100^{\circ}$ F AND cough or sore throat where no other explanation exists for these symptoms.*

Download the full-sized original from www.scdhec.gov/mrsa. Available in PDF formatted as color or black and white 8.5 X 11 mini-posters or 11X17 tabloid-sized poster.

Outpatient[†] management of skin and soft tissue infections in the era of community-associated MRSA[‡]

Patient presents with signs/symptoms of skin infections:

- Redness
- Swelling
- Warmth
- Pain/tenderness
- Complaint of "spider bite"
- Folliculitis, Furuncle, Carbuncle

Is the lesion purulent (i.e., are any of the following signs present?):

- Fluctuance – palpable, fluid-filled cavity, movable, compressible
- Yellow or white center
- Central point or "head"
- Draining pus
- Possible to aspirate pus with needle and syringe

Possible cellulitis without abscess: THINK MRSA

- Provide antimicrobial therapy with coverage for MRSA, for *Streptococcus* spp., and/or other suspected clinical pathogens.
- See chart below for options for empiric antimicrobial therapy.
- **Follow-up within 24 to 48 hours is critical after any treatment of a presumed MRSA case.**

† For patients with systemic symptoms including fever, severe local symptoms, immunocompromised status or if patient is an infant, hospitalization and consultation with an infectious disease specialist are recommended.

‡ Visit www.cdc.gov/mrsa for more information.

§ Empiric treatment is only appropriate for patients unlikely to have health care associated MRSA.

THINK MRSA:

1. Drain the lesion (I&D) or aspirate pus.
2. Send wound drainage for culture and susceptibility testing.
3. Advise patient on wound care and hygiene.
4. Discuss follow-up plan with patient.
5. **Follow-up within 24 to 48 hours is critical after any treatment of a presumed MRSA case.**
6. Treatment with I&D alone may be adequate for a mild infection in a healthy patient.
7. Consider antimicrobial therapy with coverage for MRSA in addition to I&D if there are systemic symptoms, severe local symptoms, immune suppression, or failure to respond to I&D. See options below for empiric[§] therapy.

SPECIAL CONSIDERATIONS FOR CHILDREN

Children with systemic or severe local infections due to MRSA often do not present with fever. School and childcare exclusion rules may apply. Patient education on hygiene and wound care may need to address athletic participation, other shared exposures.

Abbreviations:

I&D – incision and drainage
 MRSA – methicillin-resistant *S. aureus*
 SSTI – skin and soft tissue infection

Options for empiric[§] outpatient antimicrobial treatment of SSTIs when CA-MRSA is a consideration *

DRUG NAME	ADULTS	PEDS	CONSIDERATIONS	PRECAUTIONS **
Trimethoprim Sulfamethoxazole (TMP-SMX)	YES	YES, 2 mos and older	<ul style="list-style-type: none"> ■ TMP-SMX is clinically effective for treatment of staphylococcal SSTIs, but is not FDA-approved for this indication. ■ TMP-SMX therapy is generally inexpensive. 	<ul style="list-style-type: none"> ■ TMP-SMX is not recommended for infants less than 2 months of age, nor for women in the third trimester of pregnancy. ■ TMP-SMX is not recommended if streptococcal infection is part of the differential diagnosis, because it may not provide coverage for group A streptococcus, a common cause of cellulitis.
Tetracyclines <ul style="list-style-type: none"> ■ Doxycycline ■ Minocycline 	YES	YES 8 yrs and older	<ul style="list-style-type: none"> ■ Doxycycline is FDA-approved to treat <i>S. aureus</i> skin infections. 	<ul style="list-style-type: none"> ■ Tetracyclines are not recommended during pregnancy, nor for treatment of children under the age of 8 ■ The activity of tetracyclines against streptococcal infection is unknown.
Clindamycin	YES	YES	<ul style="list-style-type: none"> ■ Clindamycin is FDA-approved to treat serious infections due to <i>S. aureus</i>. ■ D-zone test should be performed to identify inducible clindamycin resistance in erythromycin-resistant isolates. 	<ul style="list-style-type: none"> ■ <i>Clostridium difficile</i>-associated disease, while uncommon, may occur more frequently in association with clindamycin compared to other agents.
Linezolid	YES	YES	<ul style="list-style-type: none"> ■ Consultation with an infectious disease specialist is recommended. ■ Linezolid is FDA-approved to treat complicated skin infections, including those caused by MRSA. 	<ul style="list-style-type: none"> ■ Linezolid has been associated with myelosuppression, neuropathy and lactic acidosis during prolonged therapy

- MRSA is resistant to all currently available beta-lactam agents (penicillins and cephalosporins).
- Fluoroquinolones (e.g., ciprofloxacin, levofloxacin) and macrolides (erythromycin clarithromycin, azithromycin) are not optimal treatment of MRSA SSTIs because resistance is common or may develop rapidly.
- Rifampin is a consideration only as an adjunct to other agents for more severe/involved presentations. Empiric therapy with clindamycin or TMP-SMX generally should not start with rifampin added. Providers should consider an infectious disease consult prior to any use of combination therapies.

* Data from controlled clinical trials are needed to establish the comparative efficacy of these agents in treating MRSA SSTIs. Patients with signs and symptoms of severe illness should be treated as in-patients.

** Consult product labeling for potential adverse effects and contraindications associated with each agent. Always assess for drug allergies.

ROLE OF DECOLONIZATION

- **Regimens intended to eliminate MRSA colonization should only be used in patients after active infections have resolved.**
- Decolonization regimens may have a role in preventing recurrent infections, but more data are needed to establish their efficacy and to identify optimal regimens for use in community settings.
- *After treating active infections and reinforcing hygiene and appropriate wound care, consider consultation with an infectious disease specialist regarding use of decolonization when there are recurrent infections in an individual patient or members of a household.*



Adopted in April 2008 by the SC DHEC Bureau of Disease Control
 Based on Guidance provided in September and October 2007 by the Centers for Disease Control and Prevention, the American Medical Association, and the Infectious Disease Society of America.

Hospital Infection Disclosure Act (HIDA)

Amber Taylor, MPH
Hospital Infections Epidemiologist
Division of Acute Disease Epidemiology

What is HIDA?

HIDA is the acronym for Hospital Infection Disclosure Act; it was passed by the SC State Legislature in May 2006. The statute, found in the SC Code of Laws, Chapter 7, Article 20, Title 44, is designed to assure that the public has access to information on hospital acquired infections in each hospital. HIDA requires hospitals to collect data on Hospital Acquired Infections (HAI) for specific procedures, which are determined by DHEC with the advice of the HIDA Advisory Committee. Reportable procedures are being phased in over time.

Data are collected by a hospital's infection control professional (ICP) and entered into the CDC's National Healthcare Safety Network (NHSN). Each hospital gives DHEC access to its NHSN data; these data are used to develop semi-annual HIDA reports as well as the detailed yearly analysis which is due February 1, 2009.

What HAI information is HIDA collecting?

Surgical Site Infections (SSIs)

- Hysterectomies (abdominal and vaginal)
- Cholecystectomy and cholecystotomy (gallbladder surgery)
- Hip prosthesis (replacement)
- Knee prosthesis (replacement)
- Coronary Artery Bypass Graft (chest only incision and chest/donor site incision)

Blood Stream Infections

- Central Line Associated Blood-stream Infections

Central Line Associated Blood Stream Infections (CLABSIs) are monitored in medical-surgical critical care units, pediatric critical care units and all inpatient locations, except long term acute care, in hospitals with < 150 beds.

- MRSA Blood Stream Infections (MRSA BSIs)

Reporting is required from clinical laboratories through paper reports, Carolina's Health Electronic Surveillance System (CHES) reporting on the web, or via Electronic Laboratory Reporting (ELRs).

What are Infection Control Professionals required to do?

ICPs are required to enter in NHSN all of the required reportable procedures and infections that pertain to their hospitals. ICPs must put in a monthly reporting plan and do active surveillance for the procedures.

For SSIs, the ICPs must ensure that basic demographic, procedure and risk data are entered for each reportable surgery for the month (i.e. patient ID, gender, birth date, procedure code, procedure date, and ASA class, wound class, etc) regardless of an infection occurring. If a SSI occurs, then they are required to then put in event details pertaining to the infection.

For CLABSIs, active surveillance means assuring that a daily count is taken at the same time each day of the number of patients with central lines in each location under surveillance (e.g., ICU), as well as the number of patients for that particular unit. Additional information is required when a CLABSI occurs.

How are the rates determined?

SSI Rates are determined by the following equation:

$$\frac{\text{Number of SSIs}}{\text{Number of surgical procedures}} * 100 = \text{SSI rate per 100 surgical procedures}$$

$$\frac{5 \text{ SSIs}}{150 \text{ procedures}} * 100 = 3.3 \text{ SSI rate per 100 surgical procedures}$$

(Continued on page 12)

2008 Recommendations of the Advisory Committee on Immunization Practices (ACIP) Regarding Influenza Vaccine and Antiviral Agents

(Continued from page 1)

that place them at increased risk for complications from influenza should continue. Children and adolescents at high risk for influenza complications should continue to be a focus of immunization efforts as providers and programs transition to routinely immunizing all children.

- **Either TIV[†] or LAIV[‡] may be used when immunizing healthy persons 2 through 49 years of age.** LAIV should not be administered to children aged <5 years with possible reactive airways disease, such as those who have had recurrent wheezing or a recent wheezing episode. Children with possible reactive airways disease, all persons at higher risk for influenza complications because of underlying medical conditions, children ages 6 to 23 months, and persons aged >49 years should receive TIV.
- Children aged 6 months through 8 years should receive two doses of vaccine if they have not been immunized previously at any time with either LAIV or TIV (doses separated by ≥ 4 weeks); two doses are required for protection in these children. Children aged 6 months through 8 years who received only one dose in their first year of immunization should

receive two doses the following year.

- The 2008-09 trivalent vaccine virus strains are A/Brisbane/59/2007 (H1N1)-like, A/Brisbane/10/2007 (H3N2)-like, and B/Florida/4/2006-like antigens.
- Oseltamivir-resistant influenza A (H1N1) strains have been identified in the United States and some other countries. However, oseltamivir (Tamiflu, GSK) or zanamivir (Relenza, GSK) continue to be the recommended antivirals for treatment of influenza because other influenza virus strains remain sensitive to oseltamivir, and resistance levels to other antiviral medications remain high.

Reference: Centers for Disease Control and Prevention, (2008). Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP), 2008. *MMWR*, 57(RR07), 1-60.

Note: Brand names used in this article are for illustrative purposes. DHEC does not endorse any companies or brands.

[†] TIV: Trivalent inactivated influenza vaccine (flu shots)

[‡] LAIV: Live attenuated influenza vaccine, administered intranasally.

Hospital Infection Disclosure Act

(Continued from page 11)

MRSA BSI rates are determined for six month intervals by the following equation:

$$\frac{\text{Lab reports of MRSA BSI's received in DHEC for a 6-month reporting period}}{\text{Number of hospital patient bed days* in the same 6-month period}} * 1000 = \text{MRSA Bloodstream infection rate per 1,000 patient bed days}$$

$$\frac{5 \text{ MRSA BSI's reported to DHEC for a 6-month reporting period}}{2200 \text{ patient bed days* in the same 6-month period.}} * 1000 = 2.27 \text{ MRSA bloodstream infection rate per 1,000 patient bed days}$$

(Continued on page 13)

ACIP Influenza Vaccination Recommendations as Summarized in the August 8, 2008 MMWR

BOX 1. Summary of influenza vaccination recommendations, 2008: children and adolescents aged 6 months–18 years

Vaccination of all children aged 6 months–18 years should begin before or during the 2008–09 influenza season if feasible, but no later than during the 2009–10 influenza season. Vaccination of all children aged 5–18 years is a new ACIP recommendation.

Children and adolescents at high risk for influenza complications should continue to be a focus of vaccination efforts as providers and programs transition to routinely vaccinating all children and adolescents. Recommendations for these children have not changed. Children and adolescents at higher risk for influenza complication are those:

- aged 6 months–4 years;
- who have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological or metabolic disorders (including diabetes mellitus);
- who are immunosuppressed (including immunosuppression caused by medications or by human immunodeficiency virus);
- who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration;
- who are receiving long-term aspirin therapy who therefore might be at risk for experiencing Reye syndrome after influenza virus infection;
- who are residents of chronic-care facilities; and,
- who will be pregnant during the influenza season.

Note: Children aged <6 months should not receive influenza vaccination. Household and other close contacts (e.g., daycare providers) of children aged <6 months, including older children and adolescents, should be vaccinated.

BOX 2. Summary of influenza vaccination recommendations, 2008: adults

Annual recommendations for adults have not changed. Annual vaccination against influenza is recommended for any adult who wants to reduce the risk for becoming ill with influenza or of transmitting it to others. Vaccination also is recommended for all adults in the following groups, because these persons are either at high risk for influenza complications, or are close contacts of persons at higher risk:

- persons aged ≥ 50 years;
- women who will be pregnant during the influenza season;
- persons who have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological or metabolic disorders (including diabetes mellitus);
- persons who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus);
- persons who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration;
- residents of nursing homes and other chronic-care facilities;
- health-care personnel;
- household contacts and caregivers of children aged <5 years and adults aged ≥ 50 years, with particular emphasis on vaccinating contacts of children aged <6 months; and,
- household contacts and caregivers of persons with medical conditions that put them at high risk for severe complications from influenza.

Hospital Infection Disclosure Act

(Continued from page 12)

CLABSI rates are determined by the following equation:

$\frac{\text{Number of CLABSI}}{\text{Number of central line days}}$	* 1000 =	$\text{CLABSI Rate per 1,000 central line days}$
$\frac{10 \text{ infections}}{2000 \text{ central line days}}$	* 1000 =	$5.0 \text{ CLABSIs per 1,000 central line days}$

Note: Hospital patient days are reported by the DHEC Office of Research and Statistics (ORS) hospital discharge database.

Where can I find information on HIDA and the August 1, 2008 preliminary report?

Information on HIDA is available at:
www.scdhec.gov/health/disease/hai/.

Summary of Conditions reported to SC DHEC January 1 through August 1, 2008.

Compiled by Claire Youngblood, MA, Data Manager
Division of Acute Disease Epidemiology

Condition	Confirmed	Probable	Total
Animal Bite—PEP Recommended	245	0	245
Aseptic meningitis	44	0	44
Botulism, infant	1	0	1
Brucellosis	1	1	2
Campylobacteriosis	143	0	143
Ciguatera fish poisoning	0	0	0
Cryptosporidiosis	29	1	30
Cyclosporiasis	0	0	0
Dengue Fever	0	0	0
Ehrlichiosis - human granulocytic	0	0	0
Ehrlichiosis - human monocytic	0	0	0
Ehrlichiosis - human- other & unspec	0	0	0
Encephalitis - West Nile	0	0	0
Enterohem. E. coli O157:H7	1	0	1
Enterohem. E. coli shigatox+- ?serogrp	1	0	1
Enterohem. E. coli- shigatoxin+- non-O157	0	0	0
Giardiasis	77	0	77
Group A Streptococcus- invasive	40	0	40
Group B Streptococcus- invasive	25	0	25
Haemophilus influenzae- invasive	34	1	35
Hemolytic uremic syndrome - postdiarrheal	0	0	0
Hepatitis A - acute	7	0	7
Hepatitis B - acute	40	1	41
Hepatitis B virus infection—Chronic	64	276	340
Hepatitis B virus infection—Perinatal	0	0	0
Hepatitis C - acute	3	0	3
Hepatitis C Virus Infection- past or present	2468	99	2567
Hepatitis Delta co- or super-infection- acute	0	0	0
Hepatitis E - acute	0	0	0
Influenza - human isolates	254	0	254
Legionellosis	10	0	10
Listeriosis	3	0	3

Summary of Conditions reported to SC DHEC January 1 through August 1, 2008

Condition	Confirmed	Probable	Total
Lyme disease	8	9	17
Malaria	7	0	7
Mumps	0	0	0
Neisseria meningitidis- invasive (Mening. disease)	16	1	17
Pertussis	66	10	76
Rocky Mountain spotted fever	4	17	21
S. aureus, vancomycin intermediate susc (VISA)	0	0	0
Salmonellosis	545	0	545
Shiga toxin-producing Escherichia coli (STEC)	24	3	27
Shigellosis	393	11	404
Strep pneumoniae- invasive	358	0	358
Streptococcal disease- invasive- other	1	0	1
Tetanus	0	0	0
Toxic-shock syndrome - staphylococcal	0	0	0
Varicella (Chickenpox)	315	240	555
Vibrio parahaemolyticus	1	0	1
Vibrio spp. - non-toxigenic- other or unspecified	2	0	2
Vibrio vulnificus infection	2	0	2
West Nile Fever	0	0	0
Yersiniosis	3	0	3

Spotlight on Salmonella

(Continued from page 3)

- In reported outbreaks, or where an increased background cases is identified, epidemiological interviews are conducted. These may identify potential sources of illness.
- The DHEC Bureau of Laboratories serotypes all Salmonella isolates that are submitted to DHEC.
- DNA fingerprinting (Pulsed Field Gel Electrophoresis) is completed for the majority of isolates submitted to DHEC.

laboratories are critical links between individual presenting patients and public health responses. Without reports of illness from local partners, DHEC could not identify and investigate outbreaks of public health significance. South Carolina's local disease reporters have provided key information in numerous outbreak investigations and in turn, critical product recalls.

Reporting: Salmonellosis is reportable within 7 days in South Carolina. Please see the 2008 SC List of Reportable Conditions for more information: http://www.scdhec.gov/health/disease/docs/reportable_conditions.pdf

Local healthcare providers and reference

Epi Notes

Division of Acute Disease Epidemiology
SC DHEC
2600 Bull Street
Columbia, SC 29201

**Epi Notes is published by the South Carolina
Department of Health and Environmental Control
Division of Acute Disease Epidemiology**

FOR DISEASE REPORTING

For immediately reportable conditions, call your local county health department or, for after hours, call 1-888-847-0902. Routine reports may be phoned in to your local health department or mailed on a completed DHEC DISEASE REPORTING CARD (DHEC 1129.) Local county health

department numbers are listed on the Official List of Reportable Conditions. For a copy of the current Official List of Reportable Conditions, call 803-898-0861 or visit www.scdhec.gov/health/disease.index.htm.

THE EPI NOTES NEWSLETTER IS AVAILABLE ONLINE AT

www.scdhec.gov/health/disease/index.htm.

Bureau of Disease Control

J. Gibson, MD, MPH, Director
803-898-0861

Bureau of Disease Control Divisions

Division of Acute Disease Epidemiology

803-898-0861

Division of Immunization

1-800-277-4687

Division of STD/HIV

803-898-0749

Division of Surveillance and Technical Support

803-898-0749

Division of Tuberculosis Control

803-898-0558



Editorial Staff

Editors: Michelle L, Myer, MSN, RN, APRN, CPNP
Karen Addy, BA
Data Manager: Claire Youngblood, MA