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Avian Influenza

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Some scientists say we are "overdue" for a human influenza (flu) pandemic and that an avian virus could be the cause. For avian flu to cause a human pandemic, it must be efficiently transmitted from person to person. Currently, this is not the case.

However, we are concerned about a particular avian flu virus that is circulating in birds in Asia, Europe, and more recently in Africa. There are many types of avian flu, but the one we are concerned about is called highly pathogenic H5N1 (named for its specific surface antigens). Highly pathogenic avian flu viruses cause high mortality in poultry, such as chickens and turkeys. Officials aren't exactly sure how it is spreading, but there are several theories. The H5N1 virus has been found in healthy migratory birds, so some scientists believe the healthy birds are spreading it as they migrate. There is also direct evidence of legal and illegal movements of infected birds and contaminated poultry products through commerce as the source of spread. Whatever the source, the H5N1 virus is resulting in a high level of concern on the part of agricultural officials and the commercial poultry industry in the U.S. Although H5N1 has not been identified in the U.S., it could devastate our poultry industry. The federal government is implementing surveillance plans for H5N1 through the states. The early detection system is focused on the U.S. Migratory Bird Flyways, in particular, Alaska and the Pacific Migratory Bird Flyway, as this area is a risk for introduction of H5N1 into the U.S. Poultry surveillance plans have also been enhanced to sample commercial and backyard poultry flocks.

Although we are not considered a high-risk area, South Carolina is preparing for the possibility of H5N1 in our wild birds or commercial poultry. Although plans have not been finalized, the state has drafted a working plan for responding to a human pandemic flu. The draft is part of the S.C. State Emergency Operations Plan. In addition, Clemson University Livestock Poultry Health (CULPH) program and the S.C. poultry industry are working on plans to prepare for avian flu in poultry.

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New Hepatitis B Immunization Recommendations from the ACIP

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(Portions of the following information are excepts from a "Dear Colleague" letter dated January 18, 2006, by John Ward, MD, Director of the Division of Viral Hepatitis at the Centers for Disease Control and Prevention (CDC) and Lance Rodewald, MD, Director of the Division of Immunization Services, National Center for Infectious Diseases, National Immunization Program, CDC).

The Advisory Committee on Immunization Practices (ACIP) has revised the hepatitis B immunization recommendations in order to ensure that newborn infants are protected from hepatitis B virus (HBV) infection, a major cause of cirrhosis and liver cancer in the United States. In the previous recommendations, the ACIP noted a preference for giving the first dose at birth to all infants, but stated that infants born to uninfected mothers could receive the first dose at age 1-2 months. The ACIP now recommends that, except on a case-by-case basis and only in rare circumstances, **universal infant hepatitis B vaccination should begin at birth**. To prevent HBV transmission among children at greatest risk for HBV infection, the ACIP also recommends that prenatal care

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providers, delivery hospitals, and health departments implement policies and procedures to identify and manage children born to infected mothers and mothers with unknown HBV infection status.

The ACIP statement, including all of the revised recommendations, is available from the CDC in the Morbidity and Mortality Weekly Report at (http://www.cdc.gov/mmwr/PDF/rr/rr5416.pdf). A synopsis of the updated ACIP recommendations is provided below.

Recommendations for Prenatal Care Providers

Management of All Pregnant Women

- Test all pregnant women for hepatitis B surface antigen (HBsAg) during each pregnancy.
- Transfer a copy of the original laboratory report of the pregnant woman's HBsAg test result to the patient's medical record in the delivery hospital.
- Inform pregnant women of the importance of newborn hepatitis B vaccination.
- Vaccinate pregnant women who are at risk for HBV infection.

Management of Pregnant Women Who Are HBsAg Positive

- Inform HBsAg-positive women of HBV transmission risks and ways to prevent HBV infection, including the importance of postexposure prophylaxis for newborn infants and hepatitis B vaccination of household, sexual, and needle-sharing contacts.
- Refer HBsAg-positive women to an appropriate case-management program to ensure that their newborn infants receive timely postexposure prophylaxis and follow-up.
- Provide or refer HBsAg-positive women for appropriate medical management of their HBV infection.

Recommendations for Delivery Hospitals

Management of All Newborns

- Implement standing orders to ensure that, except in rare circumstances (see ACIP statement in MMWR for additional details), **all medically stable newborns with birth weights of > 2,000 grams receive hepatitis B vaccine before discharge.** Only single-antigen hepatitis B vaccine should be used for the birth dose.

Management of Infants Born to HBsAg-Positive Mothers and to Mothers With Unknown HBsAg Status

- Implement policies and procedures to ensure that all infants born to HBsAg-positive mothers and all infants born to mothers with unknown HBsAg status are identified and receive appropriate immunoprophylaxis. These policies and procedures should include the following standing orders:
  - Review HBsAg test results for all pregnant women at the time of admission for labor and delivery.
  - Conduct HBsAg testing as soon as possible after admission for pregnant women who do not have a documented HBsAg result and for pregnant women identified as being at risk for HBV infection during pregnancy (e.g., >1 sex partner in the previous 6 months, evaluation or treatment for a sexually transmitted disease, recent or current injection-drug use, HBsAg-positive sex partner).
  - Administer hepatitis B vaccine and hepatitis B immune globulin within12 hours of birth to all infants born to HBsAg-positive mothers.
  - Administer hepatitis B vaccine within 12 hours of birth to all infants born to mothers with unknown HBsAg status.
  - Document on the infant's medical record the maternal HBsAg test results and the infant's hepatitis B immunization.

Recommendations for Health Departments

Case Management Services

- Provide or assure case-management services to ensure that:
  - All pregnant women are tested for HBsAg during each pregnancy.
  - All HBsAg-positive pregnant women are reported to the health department with each pregnancy.
  - Infants born to HBsAg-positive women and to women with unknown HBsAg status receive recommended immunoprophylaxis and follow-up.

Before hepatitis B vaccination became routine in the United States, transmission of HBV infection perinatally and during early childhood caused an estimated 30%-40% of chronic HBV infections. Approximately 25% of chronically infected children die prematurely from cirrhosis or liver cancer. The majority of chronically infected persons remain asymptomatic until the onset of cirrhosis or end-stage liver disease.

These recommendations update the ACIP strategy to eliminate HBV transmission in the United States. This strategy has been implemented with considerable success and has resulted in a substantial decline in hepatitis B incidence in the United States. However, challenges remain to eliminate perinatal and childhood HBV transmission. In particular, CDC estimates that only about half of expected births to HBsAg-positive mothers are identified for case management, which is needed to maximize on-time delivery of postexposure immunoprophylaxis. In addition, errors in management of infants born to HBsAg-positive mothers and infants

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born to mothers with unknown HBsAg status have kept many of these infants from receiving appropriate immunoprophylaxis to prevent HBV infection.

Additional resources may be found at the following website:
http://www.cdc.gov/ncidod/diseases/hepatitis/b/acip.htm

DHEC'S Role in Prevention of Perinatal Hepatitis B:

- DHEC provides case management for all HBsAg-positive mothers and their infants, including mothers and infants who are receiving care from their private health care provider. Individual case management ensures: 1) complete follow-up, including reporting of HBsAg test results between outpatient and hospital-based providers, 2) post-exposure prophylaxis for infants of HBsAg-positive women, 3) vaccine series completion, and 4) post-vaccination testing of infants.
- DHEC provides vaccination services and post-vaccination testing to infants of HBsAg-positive mothers, and offers vaccination to household and sexual contacts of HBsAg-positive pregnant women.
- DHEC conducts surveillance for viral hepatitis, including perinatal hepatitis B.

For questions, consultation, and reporting, please call your local health department, the DHEC Immunization Division in Columbia at 803-898-0460, or the DHEC Division of Acute Disease Epidemiology in Columbia at 803-898-0861. For reporting, a completed DHEC Disease Reporting Card may also be sent to your local health department.

Immunization Requirements for Child Day Care Facilities And Schools

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South Carolina laws[1] and regulations[2] ensure that most[3] children are protected from vaccine-preventable diseases (VPDs) upon entry into child care facilities and public and private schools. Since enactment in 1976 and amended in 1993, these laws and regulations represent major immunization milestones in the state, resulting in high levels of immunization coverage among preschool-aged children4.

An important characteristic of most vaccines is that they provide both individual and community protection. Most vaccine-preventable diseases are transmitted from person to person. When a sufficiently large proportion of individuals in a community are immunized, their collective immunity provides a protective barrier against the potential transmission of the disease. This indirectly protects people in the community who are not immunized and those for whom vaccine failures may have occurred. Increased rates of immunization result in significantly decreased risk for disease.

Currently, there are 18,607 students or 2.56 percent of all students in South Carolina who have medical exemptions to at least one required vaccine. Some of these medical exemptions are temporary; the student will receive the vaccine when the physician determines that the contraindication no longer exists. Other medical exemptions are permanent. There are also 1,588 school students or 0.22 percent of all students in South Carolina who have religious exemptions to immunization. Over the past 10 years these immunization exemption proportions have remained static.

While legislation to mandate particular vaccinations is intended to protect both individuals and communities, certain individuals remain susceptible to VPDs in all grades and in all schools (Malone 2003). That is why schools and child care facilities are required to have on file and on site either the S.C. Certificate of Immunization, which includes medical exemptions, or the S.C. Certificate of Religious Exemption. These readily accessible records ensure that, should there be a VPD outbreak, DHEC will be able to quickly identify unprotected children/students and remove them from harm's way.

Each year in January, DHEC publishes the Schedule of Required Immunizations for School Admittance and the Required Standards of Immunization for Day Care Attendance. These immunization requirements are mailed to immunization providers and schools throughout the state and are also posted on the following DHEC Web page: http://www.scdhec.gov/health/disease/immunization/immunizations.htm

2006-2007 SCHOOL YEAR SCHEDULE OF REQUIRED VACCINATIONS, SCREENINGS, AND IMMUNIZATIONS FOR SCHOOL ADMITTANCE

Pursuant to Regulation 61-8, the South Carolina Department of Health and Environmental Control (DHEC) has declared the schedule of required vaccinations, screenings, and immunizations as listed below necessary for a child to be admitted to any public, private, or parochial school, grades five-year old kindergarten through grade twelve (K-12) for the 2006-2007 school year. Immunization requirements for school admittance apply to all grades (five-year-old kindergarten through grade 12) and begin for children who have attained the age of five (5) years and are attending five-year old kindergarten. Immunization requirements for day care attendance apply to all children ages 3 months through five (5) years. A five (5) year old child not enrolled in five-year old kindergarten must meet the day care attendance immunization requirements if attending day care or a child development program under the control of the State Department of Education.

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(IMMUNIZATION REQUIREMENTS cont'd from Page 3)

Minimum Requirements

- Four (4) doses* of any combination of DTP, DT, DTP-Hib, DTaP, or Td vaccine with at least one (1) dose received on or after the fourth birthday.
  *This immunization requirement only applies to students entering five-year-old kindergarten and first grade in school year 2006-2007. Students previously enrolled in grades 2 through 12 met the requirement as stated for the school year in which they entered school.
  If the fourth dose of DTaP, DTP, or DT is administered before the fourth birthday, a booster dose is required at 4-6 years of age. The fifth dose is not required if the fourth dose was given on or after the fourth birthday. The minimum interval between DTaP dose #3 and #4 or #4 and #5 is six months.
- Three (3) doses of any combination of oral or inactivated Polio vaccine with at least one (1) dose received on or after the fourth birthday.
- Two (2) doses of Rubeola (Measles) vaccine with both doses received on or after the first birthday and separated by at least one month.
- One (1) dose of Rubella (German Measles) vaccine received on or after the first birthday.
- One (1) dose of Mumps vaccine received on or after the first birthday.
- Three (3) doses of Hepatitis B vaccine.
- One (1) dose of Varicella vaccine received on or after the first birthday or positive history of disease for all children admitted to kindergarten, first, second, third, fourth, fifth, and sixth grades.

2006 – 2007 SCHOOL YEAR
REQUIRED STANDARDS OF IMMUNIZATION
FOR DAY CARE ATTENDANCE

Minimum Immunization Requirements for Day Care Attendance

Pursuant to Section 44-29-180 of South Carolina State Law, children less than six years of age who attend a licensed public or private child day care facility or a registered church or religious child day care facility must present to the day care facility a South Carolina Certificate of Immunization (DHEC form 1148), which assures they are "up-to-date" or "catching-up" on the childhood immunizations recommended and routinely provided by the South Carolina Department of Health and Environmental Control (DHEC).

Minimum Immunization Requirements for the Final Certificate for Day Care Attendance**

Also pursuant to Section 44-29-180 of South Carolina State Law, DHEC has declared the following required standards of immunization necessary for a child to receive the final immunization certificate for day care attendance in South Carolina:

- Four (4) doses of any combination of DTP, DT, DTP Hib, or DTaP vaccine.
- Three (3) doses of any combination of oral or inactivated Polio vaccine.
- Three (3) doses of Hepatitis B vaccine.
- Current, age-appropriate Haemophilus influenzae type b conjugate vaccination according to the current Recommended Childhood Immunization Schedule, United States – approved by the ACIP, the AAP, and the AAFP.
- One (1) dose of Rubeola (Measles) vaccine received on or after the first birthday.
- One (1) dose of Rubella (German Measles) vaccine received on or after the first birthday.
- One (1) dose of Mumps vaccine received on or after the first birthday.
- One (1) dose of Varicella (chickenpox) vaccine received on or after the first birthday.

**Minimum requirements for a final certificate for day care attendance should not be confused with theRecommended Childhood and Adolescent Immunization Schedule as published by the Advisory Committee on Immunization Practices (ACIP).

Reference: Malone KM, Hinman AR. Vaccination Mandates: The Public Health Imperative and Individual Rights. In: Goodman RA, Rothstein MA, Hoffman RE, et al., Eds. Law in Public Health Practice. New York: Oxford University Press, 2003: 262-84.

[1] 1 §44-29-180 and § 44-29-190
[2] Regulation 61-8
[3] Percentage of children in child day care fully immunized 95.9 percent; Percentage of all students entering five-year old kindergarten fully immunized 98.8 percent.
[4] DHEC Child Day Care Facility and School Annual Audits

South Carolina Needs More Participation in the Sentinel Influenza Surveillance Providers Network

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With increased attention on avian influena and the possible development of novel influenza strains with pandemic potential, year round surveillance is more important than ever. South Carolina has been conducting year round surveillance for the past two years. The state currently has 60 sentinel providers participating in the surveillance network. Of those, however, only 62 percent report regularly. In addition, participation in the network by upstate and low

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country providers is minimal. Effective use of the surveillance network requires participation from providers in all areas of the state.

Each week, the sentinel providers report the total number of patients seen and the number of patients with influenza-like illness (ILI) by age group. For this system, ILI is defined as fever (temperature of >100°F) plus either a cough or a sore throat. Patients are not required to have had a laboratory test to be considered an ILI case.

The Centers for Disease Control and Prevention (CDC) is encouraging continued vigilance for early detection of avian influenza cases in the U.S. The CDC is urging year round participation by sentinel influenza surveillance providers and attention to travel history in patients with upper respiratory symptoms and fever.

To participate in the Sentinel Influenza Surveillance Provider (ILI) Network, please contact your local public health department. The DHEC Influenza Information Web site is updated weekly to reflect sentinel surveillance as well asrapid influenza and influenza culture activity by county in the state. The DHEC Influenza Web address is: http://www.scdhec.gov/health/disease/acute/flu.htm.

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CULPH has been performing routine avian influenza surveillance on poultry for more than 15 years, including using recently acquired molecular detection techniques. Tabletop exercises and testing of emergency preparedness equipment have been conducted, and additional incident command structure training and exercises are scheduled. CULPH personnel are prepared to respond to an outbreak of avian flu in a poultry flock. The following CULPH Web site includes a detailed power point presentation describing South Carolina's preparedness efforts and information on avian flu: http://www.clemson.edu/LPH/animaldisease information.htm#Poultry

South Carolina is also working with the federal government to prepare all our citizens, including health care providers, businesses, faith-based communities, and other groups, for a possible future flu pandemic. A meeting was held on March 2, 2006 in Columbia to "jump start" those efforts.

Additional information on the flu, and avian flu in particular, can be found at the following Web sites:

- DHEC: http://www.scdhec.gov
- Centers for Disease Control (CDC): http://www.cdc.gov/flu/avian/outbreaks/current.htm
- ProMed Digest: http://www.promedmail.org
- Food and Agriculture Organization (**FAO**): http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/special_avian.html
- World Health Organization (**WHO**): http://www.who.int/csr/disease/avian_influenza/en/
- USDA Animal and Plant Health Inspection Service (**APHIS**): http://www.aphis.usda.gov/vs/ceah/ncahs/nsu/outlook

West Nile Virus in 2006-07 Season

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Arboviral neuroinvasive disease is a state reportable disease. Patients suspected of having West Nile neuroinvasive disease (encephalitis, meningitis, or poliomyelitis) should be reported to the local public health department. Clinical specimens from these patients should include either CSF or serum and be sent to the DHEC bureau of laboratories for confirmation.

West Nile neuroinvasive disease (WNND) diagnosis requires both neuroinvasive symptoms and laboratory evidence of West Nile Virus (WNV), in the absence of a more likely clinical explanation. Acute and convalescent specimen testing is ideal.

With warm spring weather comes mosquitoes and the need for the public to reduce their risk of exposure to West Nile virus-infected mosquito bites. Risk reducing activities include:

- Limiting outdoor activity during peak mosquito activity hours of dawn and dusk.
- Use of insect repellent containing DEET when outdoors.
- Keeping window and door screens intact.

DHEC began accepting dead blue jays and crows for WNV testing on March 15, 2006. For more clinical information on WNV disease, please visit the following CDC Web site: http://www.cdc.gov/ncidod/dvbid/westnile/index.htm

Ciguatera Fish Poisoning from Fish Caught off the Coast of South Carolina

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Ciguatera fish poisoning is caused by toxins produced by the dinoflagellate Gambierdiscus toxicus, which grows worldwide in tropical areas and serves as food for herbiverous fish. The toxins, which are lipid-soluble, bioaccumulate so that levels are highest in large predatory fish such as the barracuda, grouper, and snapper. The toxins are heat-stable, so cooking the fish does not render it safe to eat. The range of fish containing the ciguatera toxin appears to be spreading; one barracuda caught off the coast of Charleston in 2004, which caused ciguatera fish poisoning in two people who consumed it, tested positive for Caribbean ciguatoxin. This was the first documented case of a ciguatera-contaminated fish caught from the Atlantic coast north of Florida. There have also been reports of suspected cases of ciguatera fish

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Time to Order Influenza Vaccine for the 2006-07 Season

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The four manufacturers of influenza vaccine for the 2006-07 season are listed below with contact information. Prebooking of vaccine orders should be placed now for the upcoming season. DHEC strongly recommends that providers place orders for vaccine now to help insure an adequate supply for their high-risk patients in the upcoming influenza season.

Manufacture	Distributor	Contact
Chiron Vaccines	Chiron	1-800-244-7668
GlaxoSmithKline	GlaxoSmithKline	1-866-475-8222
MedImmune	MedImmune	1-877- FLUMIST
Sanofi pasteur	Sanofi pasteur	1-800-VACCINE

Unfortunately, neither the Centers for Disease Control (CDC) nor the South Carolina Department of Health and Environmental Control (DHEC) controls the distribution of flu vaccine outside of the programs that they operate. CDC operates a flu vaccine program for children that DHEC helps to administer. In addition, DHEC operates a flu vaccine program, primarily for older adults, through each county health department. Most of the flu vaccine used in South Carolina is through doctors' offices and hospitals.

This year and in years past, distribution of flu vaccine has created problems. The manufacturers who make the vaccine take orders for the vaccine from all providers, doctors' offices, hospitals, public health agencies – including CDC, and pharmacies. Some pharmacies supply doctors' offices, hospitals, and nursing homes, while other pharmacies supply drugstore-sponsored flu shot clinics.

In most cases, the flu vaccine manufacturers or their distributors deliver flu vaccine to whomever ordered it first, despite requests from CDC for distributors to supply public health agencies and doctors' offices first. DHEC usually places a flu vaccine order each February for the coming fall flu shot season. CDC and DHEC have gone on record with the U.S. Congress to encourage improvements in the mal-distribution of flu vaccine from the companies that are responsible for distribution. DHEC continues to advocate that the best place to receive a flu shot is in the doctor's office.

The increased interest in getting a flu shot is helping to increase the amount of influenza vaccine produced by manufacturers. With increased availability of vaccine supplies, distribution problems generally diminish. However, the entire supply takes time to distribute. Furthermore, vaccine must be used because supplies unused become disincentives for increased production.

An unpredictable supply of influenza vaccine is a major pandemic influenza public health preparedness planning challenge, as is increasing the nation's influenza vaccine production capacity. Thus, a core element of pandemic preparedness planning is to increase influenza vaccine uptake, therefore resulting in an increase in vaccine production.

There is room for improvement in vaccinating South Carolina's population against influenza. Everyone working to improve influenza vaccination coverage should order flu vaccine now.

School and Childcare Exclusion Lists

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Each January, South Carolina DHEC publishes lists of health conditions that exclude children and child-care staff from school attendance or out-of-home child-care settings. The exclusion lists address three barriers to attendance:

- Symptoms of communicable disease,
- Diagnosis of communicable disease, and
- Exposure to or susceptibility to communicable disease during an outbreak of an excludable disease.

Symptoms of Communicable Disease or Severe Illness. Children are excluded from school and child-care attendance when they have:

- Diarrhea (Three or more loose stools in 24 hours, or diarrhea with blood and/or mucous.)
- Vomiting (Two or more times in the previous 24 hours, unless determined to be non-communicable.)
- Fever (oral 101º F or higher; axillary 100º F or higher; rectal for infants 101º F or higher.)
- Rash associated with fever and/or behavioral change.
- Symptoms of possibly severe illness such as difficulty breathing, unusual lethargy or unusually severe irritability.

For children in out-of-home child care, the list further excludes for:

- Mouth sores associated with drooling, until determined to be non-infectious;
- Persistent crying (when a symptom of illness);
- Illness that prevents the child from participating comfortably in program activities;
- Illness that results in a greater need for care than the staff can provide without compromising the health and safety of other children;

For all of these symptoms, the exclusion lists specify whether a parent-written or medical note is required to return to school.

Diagnosis of Communicable Disease. Children and child-care staff are excluded when diagnosed with:

- **Dermatological:** Scabies, Pediculosis, *Tinea capitis*, *Tinea corporis*, Impetigo.
- **GI:** *E. coli*, *Salmonella typhi*, Shigellosis, Giardiasis.
- **HEENT:** Streptococcal pharyngitis, Purulent conjunctivitis.
- **Vaccine Preventable:** Measles, Mumps, Rubella, Congenital Rubella through 12 months of age (see Childcare Exclusion List for details on admission criteria for younger infants), Varicella, Herpes Zoster, Hepatitis A, Pertussis.
- **Other:** TB, and conditions or illnesses that a DHEC or a health care provider indicates warrant exclusion. This includes children determined to be contributing to the transmission of illness in the school or facility.

The exclusion lists specify the criteria (treatments and/or laboratory results or symptom resolution) required to return to school or out-of-home child care; most of these diagnoses also require a medical note for re-admission.

Exclusion Associated with an Outbreak in the School or Community.

- DHEC may require antibiotic prophylaxis for contacts to *Haemophilus influenzae* type B (Hib), *N. meningitides*, or *B. pertussis*.
- Non-immunized children, irrespective of reason for not receiving vaccine, may be excluded when exposed to Measles, Mumps, or Rubella, plus Pertussis for children under age 7.
- DHEC may also opt to recommend exclusion for exposure to other conditions.

FAQ on the Exclusion Lists:

1. Must children sent home with head lice be nit-free before returning to school or childcare? Although thorough combing of the hair with a nit comb can help eliminate remaining viable nits following pediculicidal treatment, neither the Red Book nor S.C. DHEC mandates that children be nit-free when returning to school or out-of-home child care. Some local school districts have "No-Nit" policies, and children attending school in these districts should be given information on manual nit removal.

2. Where is scarlet fever on the exclusion list? Scarlet fever, like a number of other illnesses, is not specifically addressed in the exclusion lists. However, exclusion is required for fever, fever with rash, and (for child care) illness that prevents the child from participating comfortably in program activities. Children should remain out of school or child care until all of these symptoms are resolved.

3. Does an entire classroom need treatment for scabies if more than one case occurs there? This recommendation appears in *Infection Control in the Childcare Center and Preschool*. The *Red Book* (2003) and the CDC recommend treatment/prophylaxis for individuals having prolonged close contact with the infested person. While this could apply to some or all of a child's contacts in an out-of-home child-care setting, it might not apply to all children in a classroom or child-care group. The Division of Acute Disease Epidemiology does not currently recommend prophylaxis/treatment for all exposed children, due to the side effect profiles of many commonly used scabicidal preparations. Classroom-wide prophylaxis may be considered on a case-by-case basis for recalcitrant outbreaks.

4. Should diapered children be excluded for genital herpes infection? Children with mouth sores who cannot control oral secretions are excluded from out-of-home

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childcare until the lesions are determined to be non-infectious. This criterion does not apply to genital lesions. Caregivers should use standard hygienic practices when diapering children.

5. Must non-immunized children be excluded when there is chickenpox in the school? Non-immunized school children must have a documented religious or medical exemption from immunization. Licensed physicians use the DHEC form 1148 (South Carolina Certificate of Immunization) to indicate medical exemptions to immunization. The South Carolina Certificate of Religious exemption is available only from DHEC clinics. DHEC policy is for parents presenting with a religious exemption to receive counseling regarding the possibility of exclusion during outbreaks of vaccine-preventable diseases.

The 2006-2007 school and child-care exclusion lists do not mandate exclusion for non-immunized children during a Varicella outbreak. As a disease control measure, exclusion for one incubation period (21 days for Varicella) has typically been used to protect both the susceptible child and his/her contacts who may not have received full immunity from immunization. Because on-going outbreaks may exclude susceptible children for multiple incubation periods, DHEC Regional Public Health Departments, in consultation with the Division of Acute Disease Epidemiology, will offer outbreak-specific consultation for schools and out-of-home child-care providers.

6. Whom should I call for consultation on exclusion from school or out-of-home childcare? Questions may be directed to Regional Disease Surveillance and Response Coordinators (phone numbers are found on the Reportable Disease poster and on the DHEC web site @ http://www.scdhec.gov/health/disease/docs/reportable_conditions.pdf or from the Division of Acute Disease Epidemiology: (803) 898-0861.

The school and child-care exclusion lists are available on the DHEC Bureau of Disease Control's Web site, at: http:/www.scdhec.gov/health/disease/exclusion.htm. The 2006-2007 school and child-care exclusion lists, revised in January 2006, become effective July 1, 2006.

The **School Exclusion List** applies to most students in the first through twelfth grades. The **Child-Care Exclusion List** applies to all children in out-of-home child care, to children in 3-, 4-, or 5-year-old kindergarten, and to medically fragile students in the first through twelfth grades. For the purposes of school exclusion, "medically fragile students" are those with special health care needs or developmental delays who require close assistance with feeding or other personal hygiene activities by which communicable illnesses may easily be spread.

Parent brochures, which can be printed on legal-sized paper for distribution to families, are also found on the Exclusion List Web site.

The Division of Acute Disease Epidemiology would appreciate any feedback from health care providers on the School or Child-Care Exclusion Lists. Contact us at: Exclusion@dhec.sc.gov.

(CIGUATERA FISH POISONING cont'd from Page 5)

poisoning from fish caught off the coast of Texas [1] and North Carolina [2].

The first symptom of Ciguatera fish poisoning from fish in the Caribbean tends to be gastrointestinal syndrome, consisting of nausea, vomiting, diarrhea, and abdominal pain that begins two to 30 hours after a person eats the fish. [1, 3, 4] It is often associated with cardiovascular symptoms such as hypotension, bradycardia, arrhythmias, or heart block. Then, over the first 24 hours, there may be development of neurological symptoms such as profound weakness, paresthesias, severe pruritus, tooth pain or the feeling that teeth are loose, pain on urination, and blurred vision. Hot-cold temperature reversal is pathognomonic, although it is not always present. Although complete recovery usually occurs within a few weeks, neurological symptoms may last for months to years, and symptoms may periodically recrudesce. Although rare, ciguatera may cause death by respiratory failure, circulatory collapse, or arrhythmias.

Currently, the CDC is performing surveillance for ciguatera fish poisoning in recreational fishers off the coast of Texas. They are also interested in documenting the spread of fish containing ciguatoxin north along Atlantic coast. All suspected ciguatera fish poisoning cases, including those thought to be from locally-caught fish, should be reported to your local public health department. Please ask the patient to save any remaining fish for testing.

Additional information about ciguatera fish poisoning can be found at:
http://www.cdc.gov/nceh/ciguatera/

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Varicella Disease - A Review And An Update On New Recommendations For Vaccination

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Varicella-zoster virus (VZV) is a DNA virus and is a member of the herpesvirus group. VZV, as with all herpesviruses, has the capacity to persist in the body after the primary infection and reactive at a later time. After initial exposure to VZV, the infected person develops chickenpox. When VZV reactivates, it causes a disease called zoster (shingles) that can occur many years after the primary infection.

Pathogenesis
VZV enters through the respiratory tract and conjunctiva. The virus is believed to replicate at the site of entry in the nasopharynx and in regional lymph nodes. The virus disseminates though the bloodstream (primary viremia) four to six days after infection and infects multiple organs and tissue, such as the liver, spleen, and sensory ganglia. Further replication occurs in the viscera and the virus again disseminates widely. During this second stage of viremia, VZV infects the skin and causes "chickenpox". Virus from these pox are highly contagious.

After VZV infects the skin, it travels from the skin up the sensory nerve to the dorsal root ganglia. It stays there in an inactive form until some stimulus reactivates it. Once reactivated, it travels down the sensory nerve and causes shingles (zoster). There, the virus re-infects the dermatome supplied by the sensory ganglia to produce painful vesicles on the skin.

Varicella Disease
Acute varicella is generally mild and self-limited, but may be associated with complications. The rash of varicella is generalized, pruritic, and rapidly progresses from macules to papules to vesicles to crusted lesions. It usually appears on scalp, then trunk, and then extremities. Vesicles can occur on mucous membranes, including the oropharynx, respiratory tract, vagina, conjunctiva, and the cornea. The vesicles are usually one to four mm in diameter and are superficial and delicate and contain clear fluid on a red base ("dew drops on a rose petal"). Successive crops appear over several days, with lesions present in several stages of development. For example, macular lesions may be observed in the same area of skin as mature vesicles. Healthy unvaccinated children usually have 200–500 lesions in two to four successive crops while vaccinated children most often have less than 200 lesions.

Adults may have more severe disease and have a higher incidence of complications. Children with cell-mediated immunosuppression such as lymphoma, leukemia, and HIV may develop a severe progressive form of varicellacharacterized by high fever, extensive vesicular eruption, and high complication rates.

The incubation period of varicella is from 14 to 16 days from exposure, with a range of 10 to 21 days. The incubation period may be prolonged in immunocompromised patients and those who have received varicella zoster immune globulin. For example, the incubation period may be up to 28 days after varicella zoster immune globulin.

Recurrent Varicella
Recovery from primary varicella infection usually results in lifetime immunity. However, recurrences of varicella-like rash have been reported by 4 percent to 13 percent of individuals who had previous varicella infection. Risk factors were young age (< 12 months) at first infection and having a milder first infection.

Complications of Varicella Disease
Acute varicella is generally mild and self-limited but may be associated with complications even in healthy children. The most common complications of varicella are secondary bacterial infections of skin lesions with staphylococcus or streptococcus, dehydration, varicella or bacterial pneumonia, central nervous system involvement (aseptic meningitis, cerebellar ataxia, encephalitis and Reye syndrome), severe dissemination with thousands of lesions, and hemorrhagic varicella.

Persons who are at increased risk for complications of varicella include healthy adults, persons with deficient cell-mediated immunity (leukemia, lymphoma, steroid therapy, HIV), newborns of mothers with rash onset within five days before deliver to 48 hours after delivery, and infants born to women infected with varicella during the first and second trimesters of pregnancy.

The risk of complications from varicella varies with age. Although complications are infrequent among healthy children, they are much higher in persons older than 15 years of age and infants younger than 1 year of age. Among children 1–14 years of age, the fatality rate of varicella is approximately 1 per 100,000 cases, while the rates among persons 15–19 years and among adults 30–49 years of age is 2.7 per 100,000 cases and 25.2 per 100,000 cases, respectively. Adults account for only five percent of reported cases of varicella, but account for approximately 35 percent of mortality.

Complications Due to Neonatal Varicella
Neonates of mothers who develop varicella rash within five days before delivery to 48 hours after delivery do not receive protective transplacental antibodies from mother. Severe varicella develops with a fatality rate of 30%.

Congenital Varicella Syndrome
Infants born to women infected with varicella during the first two trimesters of pregnancy can have VZV transmitted to them transplacentally. The complications that are seen include cicatricial cutaneous scarring of an extremity, hypoplasia of an extremity, low birth weight, microcephaly,

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(VARICELLA cont'd from Page 9)

mental retardation, ocular anomalies, and neurological abnormalities. The rate of congenital varicella syndrome is 0.4 percent to 2.0 percent of infants born to women infected with varicella during the first two trimesters of pregnancy.

Transmission

Transmission occurs person-to person from infected respiratory tract secretions or via airborne droplets. Transmission may also occur through direct contact or inhalation of aerosols from vesicular fluid of skin lesions of acute varicella or zoster.

In unvaccinated persons, varicella is highly contagious. The secondary attack rate among susceptible household contacts is approximately 90 percent. The period of communicability in healthy persons with varicella is approximately one to two days before onset of rash until lesions have formed crusts. In immunocompromised patients the period of communicability is during the entire period that new lesions are appearing.

In vaccinated persons, transmission of varicella from breakthrough cases depends on number of lesions. A breakthrough infection with varicella is one that occurs >42 days following varicella vaccination. If a vaccinated person with breakthrough varicella has >50 lesions, transmission is similar to that of unvaccinated cases. However, if <50 lesions occur, transmission is significantly less.

Varicella Epidemiology Before and After Vaccine (1995)

In the prevaccine era (before 1995), varicella was endemic in the US. It was mainly a childhood disease with 50 percent infected by five years of age and 90 percent by 12 years of age. The highest age-specific incidence of varicella was among children one to four years of age, who accounted for 39 percent of all cases. This age distribution was probably a result of earlier exposure to VZV in preschool and childcare settings. Children five to nine years of age accounted for 38 percent of cases. Adults 20 years of age and older accounted for only seven percent of cases. There were approximately 4 million infections per year, 11,000 hospitalizations per year, and 100 deaths per year.

The introduction of varicella vaccine in 1995 has resulted in a continued significant decline in deaths, hospitalizations, and ambulatory visits due to varicella as the rate of vaccine coverage has increased. By 2003, 85 percent of children in this age group were vaccinated and a corresponding decrease in varicella deaths and hospitalizations of approximately 90 percent in children less than 10 years of age was seen. Despite this success, varicella cases and outbreaks continue to be reported. Most of these cases are mild. In 2004 and 2005, 32,868 and 26,532 cases of varicella, respectively, were reported to CDC. Many of these cases are due to breakthrough varicella (see “Vaccine” below).

Laboratory Diagnosis of Varicella

The most rapid laboratory method for diagnosis of varicella is polymerase chain reaction (PCR). The PCR test for varicella is sensitive, specific, and rapid. Another rapid test is direct fluorescent antibody (DFA) method. However, this test is less sensitive than PCR and requires more meticulous specimen collection and handling. The laboratory diagnosis of varicella may also be made by viral culture of vesicular fluid (offered at DHEC Bureau of Laboratories). Because the varicella-zoster virus is very delicate, the specimen must be collected and transported at the proper temperature with great care. The results of culture take several days.

Serology may be used to determine immune status or a recent varicella infection. In the latter case, a four-fold increase in titer by any standard varicella serologic test supports the occurrence of a recent infection.

Acceptable Evidence Of Varicella Immunity (New Criteria As Of 2005)

As per ACIP, evidence of immunity to varicella includes any of the following:

1. Written documentation of age-appropriate vaccination.
2. Born in the United States before 1966.
3. History of varicella disease based on healthcare provider diagnosis or self or parental report of typical varicella disease for non-U.S.-born persons born before 1966, and all persons born during 1966–1997. For persons reporting a history of atypical mild disease, healthcare providers should seek either:
    a. An epidemiologic link to a typical varicella case (e.g., case occurred in the context of an outbreak or patient had household exposure in the previous 3 weeks), or
    b. Evidence of laboratory confirmation, if it was performed at the time of acute disease. When such documentation is lacking, persons should not be considered as having a valid history of disease because other diseases may mimic mild atypical varicella. For persons born during or after 1998, history of disease is no longer considered as evidence of immunity, unless the illness was laboratory confirmed.
4. History of herpes zoster based on healthcare provider diagnosis.
5. Laboratory evidence of immunity or laboratory confirmation of disease.

Varicella Vaccine

Varicella zoster vaccine is a live attenuated viral vaccine and is available as varicella vaccine alone or in combination as measles-mumps-rubella and varicella (MMRV) vaccine (ProQuad).

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(VARICELLA cont'd from Page 10)

Varicella vaccine produces antibody in 97 percent of children 12 months of age to 12 years of age after one dose of vaccine and >90 percent maintain antibody for >6 years. The vaccine is 70 percent to 90 percent effective against infection but is much more effective in preventing severe disease. Breakthrough varicella infections occur in vaccinated persons at a rate of approximately one percent to four percent per year. Risk of breakthrough varicella is increased if: 1) varicella vaccine was administered before 15 months of age, 2) there was a rash after vaccination, 3) varicella vaccine was administered within < 30 days of receiving MMR or, 4) the vaccine was stored at improper temperature.

2006 Recommendations for Varicella Immunization for Children and Adults

A single dose of varicella vaccine continues to be recommended for children at 12-18 months of age. The three new 2006 recommendations are: 1) all susceptible children <13 years old should receive one dose; 2) all susceptible children >13 years old and adults should receive two doses; and 3) during an outbreak, all persons who have received the first dose should receive a second dose if resources permit. The new MMRV vaccine may be used for varicella vaccination if MMR is also indicated at that time.

Prophylaxis After Exposure to Varicella

There are several approaches to postexposure prophylaxis against varicella. These are immune globulin, varicella immune globulin, varicella vaccine, and antivirals active against varicella virus. Although VZIG (varicella zoster immune globulin) is no longer available, there are two alternatives. These are immune globulin and an investigational agent - varicella zoster immune globulin (VariZig) - that is manufactured in Canada. VariZig can be obtained from its distributor after contacting the DHEC Immunization Division. VariZig or immune globulin is recommended for postexposure prophylaxis of varicella for the following persons:

1. Immunocompromised patients.
2. Neonates whose mothers develop signs and symptoms of varicella around the time of delivery (five days before to two days after).
3. Premature infants 28 weeks or greater who are exposed during the neonatal period whose mothersdo not have evidence of immunity
4. Premature infants who are less than 28 weeks' gestation or who weigh less than 1,000 grams at birth and who are exposed during the neonatal period, regardless of maternal history of varicella.
5. Pregnant women.

Varicella vaccine may also be used for postexposure prophylaxis in susceptible persons in whom the vaccine is not contraindicated. The vaccine is 70 percent to100 percent effective in preventing infection if given within 72 hours to five days of exposure.

Acyclovir may be given for prophylaxis in special circumstances but should be done only with a physician consultation.

Childcare Exclusion Criteria

Children attending child care or school or employees in out-of-home child care settings with either chickenpox or shingles must be excluded from the child care/school setting until all lesions have dried and crusted. Children who have not received varicella vaccine may also be excluded if they have been exposed to varicella (see Outbreak Control).

Outbreak Control

Varicella outbreaks in some settings (e.g., child care facilities, schools, institutions) can last three to six months and may involve children who have been appropriately immunized with varicella vaccine. Non-immunized day care or school children who are exposed to varicella but who have not received varicella vaccine may be excluded on a case-by-case basis. Varicella vaccination of susceptible persons has been used successfully for outbreak prevention and control. Therefore, unimmunized children and all other susceptible persons, including adolescents and adults, should be encouraged to receive varicella vaccine. Furthermore, during an outbreak, persons who have received one dose of varicella vaccine should, resources permitting, receive a second dose, provided the appropriate vaccination interval has elapsed since the first dose (three months for persons aged 12 months to 12 years and at least four weeks for persons aged e"13 years).

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Year-to-Date Summary of Selected Reportable Conditions*

	2005 Year Total			January 1, 2006 - March 1, 2006			January 1, 2005 - March 1, 2005		
Condition	Confirmed	Probable	Grand Total	Confirmed	Probable	Grand Total	Confirmed	Probable	Grand Total
Cyclosporiasis	3		3	1		1			
Ehrlichiosis- human granulocytic	6	3	9				3		3
Ehrlichiosis- human monocytic	1	3	4				1	3	4
Ehrlichiosis- human- other&unspec		4	4		1	1			
Encephalitis- Eastern equine	1		1						
Encephalitis- West Nile	4		4						
Enterohem. E.coli O157:H7	9		9	2		2			
Enterohem.E.coli shigatox+- ?serogrp	3	1	4						
Enterohem.E.coli- shigatox+- non-O157	1		1						
Giardiasis	106	2	108	19		19	23	2	25
Group A Streptococcus- invasive	38		38	21		21	8		8
Group B Streptococcus- invasive	27		27	4		4	7		7
Haemophilus influenzae- invasive	35		35	11		11	2		2
Hemolytic uremic synd- postdiarrheal	1		1				1		1
Hepatitis A- acute	40		40	7		7	5		5
Hepatitis B- acute	142	31	173	14	4	18	23	11	34
Hepatitis B virus infection- chronic	611	82	693	85	16	101	125	17	142
Hepatitis C- acute	2	4	6					1	1
Hepatitis C Virus Infection- past or present	2505	2579	5084	322	320	642	432	420	852
Hepatitis E- acute				1		1			
HTLV-I infection**	2		2						
HTLV-II infection**	3		3						
Influenza- human isolates	52		52	12		12	27		27
Kawasaki disease	3	1	4						
Legionellosis	15	2	17	1		1	1		1
Listeriosis	15	1	16						
Lyme disease	17	7	24	2		2	7	2	9
Malaria	11		11	2		2	1		1
Mumps	1		1						
Neisseria meningitidis- invasive (Mening. disease)	15	1	16	6		6	6	1	7
Pertussis	368	40	408	25	4	29	85	9	94
Q fever		1	1						
Rocky Mountain spotted fever	20	61	81	1	2	3	1	3	4
Rotavirus	1		1						
Salmonellosis	1235	247	1482	66	1	67	109	1	110
Scombroid fish poisoning	2		2						
Shigellosis	102	4	106	28		28	18		18
Strep pneumoniae- invasive	196	2	198	59		59	47	1	48
Streptococcal disease- invasive- other	23		23	7		7	8		8
Toxic-shock syndrome- staphylococcal				1		1			
Tularemia		1	1						
Vancomycin-Resistant Enterococcus**	1516	5	1521				261	2	263
Varicella (Chickenpox)	259	396	655	161	81	242	59	84	143
Vibrio parahaemolyticus	1		1	1		1			
Vibrio spp.- non-toxigenic- other or unspecified	6		6		1	1			
West Nile Fever	1		1	1		1			
Yersiniosis	2		2	2		2			

*This report does not include reportable STD conditions.

** Not reportable for 2006

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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

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