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South Carolina 2009-2010 Influenza Season Surveillance Summary

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South Carolina influenza surveillance consists of reporting the following:

- **Laboratory confirmed cases (culture, RT-PCR, DFA, IFA)**: Positive results from confirmatory tests should be reported electronically or via an 1129 card within 7 days.
- **Laboratory confirmed hospitalizations**: Total number of laboratory confirmed (viral culture, PCR, DFA, IFA) influenza hospitalizations should be reported weekly to the regional health department.
- **Laboratory confirmed deaths**: Lab confirmed influenza deaths (all ages) should be reported to DHEC within 7 days. **Starting in January, 2011, pediatric influenza deaths will be reportable within 24 hours to your regional health**

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Changes in School and Childcare Exclusion Lists for the 2010-2011 School Year

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After undergoing extensive revision in 2009 based upon new guidance from the American Academy of Pediatrics, the exclusion lists for the current academic year have only minimal changes. These affect exclusion for diarrhea (addition of Norovirus), clarification on exclusion for fever and influenza-like illness (ILI), and updating of criteria for exclusion of person exposed to pertussis cases or outbreaks.

Norovirus

Norovirus was added as an exclusion criterion this year, after many schools and childcare facilities experienced outbreaks in the past year. It has always been excludable based upon diarrheal symptoms. The new wording for school and childcare reads:

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Inside: *Ask Epi: Long-term Therapy for Lyme Disease—or not?*

A thorough review of the complex process of Lyme disease diagnosis and treatment and discussion of issues pertaining to post-Lyme syndrome.

Update on Influenza: What You Need to Know for the Upcoming Season

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On August 10, 2010, the World Health Organization declared that, in terms of H1N1 influenza, we are now in a post-pandemic phase. Now is the time to reflect on what was an interesting flu season, which exemplified the unpredictable nature of influenza, and to prepare for the upcoming season.

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department. Influenza deaths are considered lab-confirmed with results from viral culture, PCR, rapid flu tests, DFA, IFA or autopsy results consistent with influenza.

- **Positive rapid antigen influenza tests**: Summary numbers of positive rapid influenza tests and influenza type identified should be submitted to the regional health department weekly.
- **Novel or avian influenza surveillance**: Any novel (excluding 2009 H1N1) or avian strain should be reported immediately by phone.
- **Influenza like illness (ILINet)**: Sentinel providers submit weekly reports of the total number of patients seen in a week and the subset number of those patients with ILI symptoms by age group.

Viral culture network: Sentinel providers submit specimens to the BOL for viral culture testing.

In April, 2009, A novel influenza virus, 2009 H1N1, emerged. Unlike typical influenza viruses, 2009 H1N1 persisted throughout the summer months. Influenza activity began to increase in September with the season's peak occurring in early October. Activity began to decrease in April and is currently at a low level. The World Health Organization has recently declared a step down from Phase 6 to a post-pandemic phase. The 2009 H1N1 virus is expected to co-circulate with other seasonal strains. South Carolina statistics for the 2009-10 season are shown below and on facing page:

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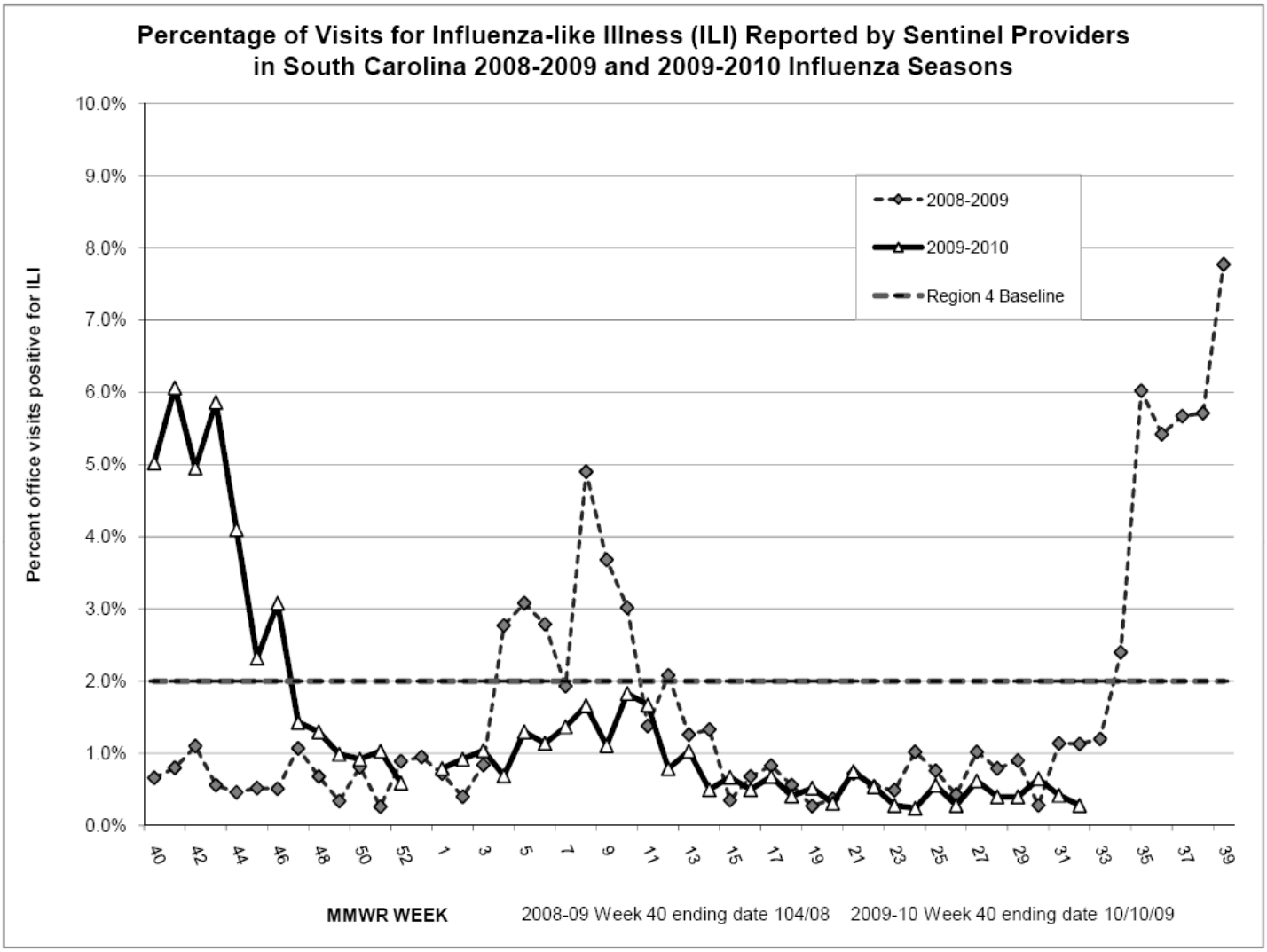

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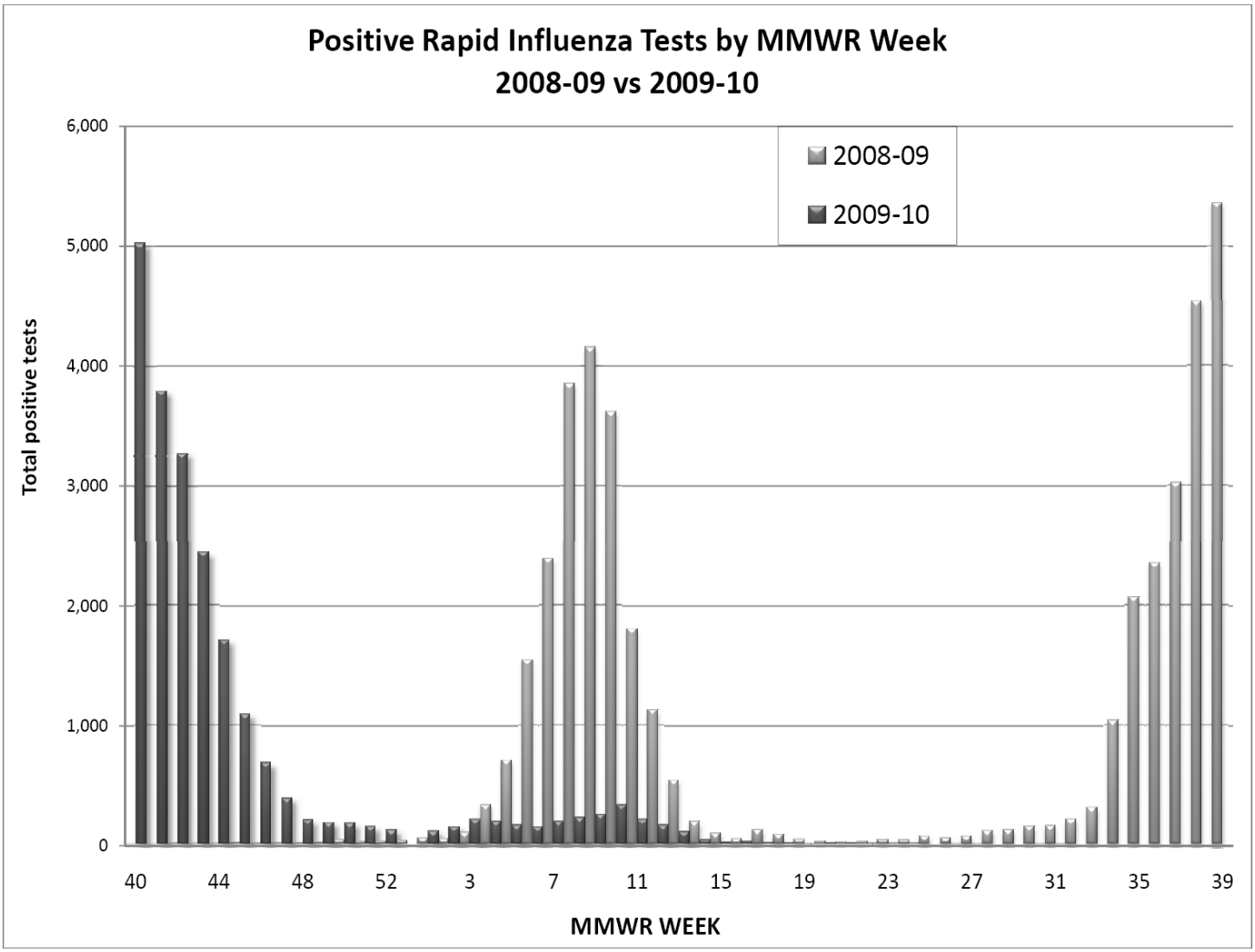

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904 culture and RT-PCR positive specimens were reported by the Bureau of Labs and other commercial and clinical labs. All subtyped influenza A viruses reported were 2009 H1N1. One influenza B was identified by the BOL.

Of the 70 providers enrolled in ILINet, 47 reported at least once during the season. A subset of approximately 15 providers has continued to report throughout the summer.

South Carolina's ILI percentage peaked at 6.06% at the start of the season and remained above the South Atlantic (2.2) baseline through the end of November. *(See graphic, facing page.)*

There were 21,826 positive rapid flu tests from October 4, 2009 to August 14, 2010. This compares to 18,188 for this period during the 2008-09 season. The most positive rapid tests observed in one week were during the first week of the season.

The 2010-2011 flu season will begin with MMWR Week 40 on October 3, 2010. The full version of the Flu Watch will resume publication at this time.

Please visit the DHEC Flu Monitoring website for the weekly Flu Watch: http://www.scdhec.gov/health/disease/acute/flu.htm. An end-of-season flu report will be also available on this website in September.

If you have questions about SC influenza surveillance or wish to participate in any of our voluntary surveillance networks, contact Chasisity Springs at (803) 898-0870.

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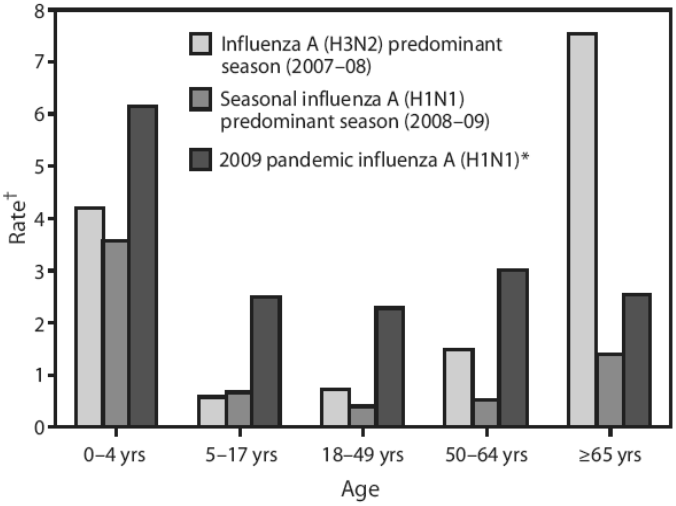
Review of 2009-2010 Flu Season

The CDC estimated that from April 2009 to April 2010, approximately 61 million people in the United States contracted H1N1 influenza; 274,000 people were hospitalized with H1N1 influenza, and 12,470 people died of the disease. In terms of raw numbers, one may say that 2009-2010 was a relatively mild year, given the estimates that between 3,000 and 49,000 people in the US died each of the past 30 years from flu-associated illness. However, the data by age confirm that people younger than 65 years of age have been more severely affected by novel H1N1 relative to people 65 and older compared to seasonal flu. With seasonal influenza, about 60% of seasonal flu-related hospitalizations and 90% of flu-related deaths occur in people 65 years and older. With 2009 H1N1, approximately 90% of estimated hospitalizations and 87% of estimated deaths from April through April 2010 occurred in people younger than 65 years of age. Therefore, in terms of years of life lost, one can say that 2009 H1N1 was more formidable.

H1N1 seemed to "squeeze out" other strains of influenza, with little activity demonstrated by other strains. However, as H1N1 activity has decreased, sporadic cases of H3N2 influenza have occurred. Iowa recently experienced two outbreaks of H3N2 influenza thought to be due to the A/Perth/16/2009-like H3N2 virus. Eleven other states have also reported sporadic cases of H3N2 to the CDC. As of yet (September 2010), South Carolina has not had any reported cases of H3N2 influenza; however, these reports remind us of the importance of continued surveillance. DHEC will continue to post weekly updates to our Influenza Surveillance via the FluWatch report, available at www.scdhec.gov/health/disease/acute/flu.htm.

FIGURE 1. Cumulative rate of hospitalizations during three influenza seasons, by age group — Emerging Infections Program, United States, 2007–2010



* 2009 Pandemic Influenza A(H1N1) hospitalization data from September 1, 2009–January 21, 2010.
† Per 10,000 population.

Source: CDC, 2010a

Immunization for Current Flu Season

In the upcoming 2010-2011 flu season, the novel H1N1 strain (A/California/7/2009 H1N1-like) will be contained in the seasonal influenza vaccine as will the H3N2 (A/Perth/16/2009). The third strain in the 2010-2011 influenza vaccine is the B/Brisbane/60/2008-like.

For the upcoming season, **the Advisory Committee on Immunization Practices (ACIP) recommends influenza vaccination for all persons six months of age and older.** Since the novel H1N1 strain is included in the seasonal vaccine, only one injection will be required for most patients. Adults and children over the age of nine will need one injection, while children from six months of age to nine years of age may require two injections depending on their previous vaccination history. (See flow chart, p. 6)

Another specific product worthy of discussion is the **Fluzone High-Dose** (Sanofi Pasteur), which the FDA approved for patients 65 years of age and over. These older patients typically respond to vaccination with lower antibody titers to influenza hemagglutinin compared with younger adults. Standard dose inactivated trivalent influenza vaccines contain a total of 45 micrograms of influenza virus hemagglutinin antigen, 15 micrograms of each of the three recommended strains. In contrast, Fluzone High-Dose contains a total of 180 micrograms of influenza virus hemagglutinin (60 micrograms of each strain) in the same volume. Studies among persons 65 years and over indicated that, compared with standard dose Fluzone, preparations of Fluzone High-Dose elicited significantly higher hemagglutinin inhibition titers against all three influenza virus strains that were included in the vaccine. Whether the higher postvaccine immune responses observed among Fluzone High-Dose recipients will result in greater clinical protection against influenza is still unknown. A three year postlicensure study of the vaccine effectiveness of Fluzone High-Dose compared

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with standard dose inactivated influenza vaccine was begun in 2009 and should be completed in 2012. The ACIP has not expressed a preference for any specific licensed inactivated trivalent influenza vaccine, including Fluzone High-Dose, for use in persons 65 years of age and older.

Vaccine Safety

Last year, many people had concerns about vaccine safety, even though the H1N1 vaccine was produced in the same manner as all influenza vaccines. The CDC monitors vaccine safety mainly through two channels. First, is the Vaccine Adverse Event Reporting System (VAERS). Clinicians and members of the public voluntarily report any potentially vaccine related adverse events, which are then investigated to determine whether an actual association with vaccination exists. VAERS data indicated 82 adverse event reports per 1 million H1N1 vaccine doses distributed, compared with 47 reports per 1 million seasonal influenza doses distributed. However, no substantial differences between H1N1 and seasonal influenza were noted in the proportion or types of serious adverse events reported.

The second important method the CDC uses to monitor vaccine safety is the Vaccine Safety Datalink (VSD). The VSD is collaboration between CDC and eight managed-care organizations with a total of 9.5 million members, which utilizes administrative data and electronic medical records to collect information on vaccinations and other health-care encounters to monitor vaccine safety. No increase in any adverse events under surveillance has been seen in VSD data. The CDC will continue to monitor influenza vaccine safety throughout the year, and health-care providers as well as the public are encouraged to report adverse health events that occur after vaccination.

During the 2010 influenza season in Australia, the Fluvax Junior and Fluvax trivalent inactivated vaccines (CSL Biotherapies) were associated with increased frequency of fever and febrile seizures in children aged 6 months through 4 years. Post-marketing surveillance indicated increased reports of fever in children aged 5 to 8 years after vaccination with Fluvax compared to previous seasons. An antigenically equivalent 2010-2011 Northern Hemisphere seasonal influenza trivalent inactivated vaccine, called Afluria (CSL Biotherapies) is approved by the Food and Drug Administration for persons greater than 6 months of age in the United States. On August 5, 2010, the ACIP recommended that the 2010-2011 Afluria vaccine not be administered to children aged 6 months through 8 years. Other age-appropriate, licensed seasonal influenza vaccine formulations should be used for prevention of influenza in these children. If no other age-appropriate, licensed inactivated seasonal influenza vaccine is available for a child 5 to 8 years who has a medical condition that increases his risk for influenza complication, Afluria can be used. However, providers should discuss with the parents or caregivers the risks and benefits of Afluria before administering this vaccine to children aged 5 to 8 years.

Treatment

Clinicians should continue to include influenza in their differential diagnoses when evaluating patients with acute respiratory illness. **Treatment decisions should not be made on the basis of the results of a rapid influenza test since these tests have only moderate sensitivity**. The neuraminidase inhibitors oseltamivir and zanamivir are recommended for use against currently circulating viruses. Both the novel A/ California/7/2009 H1N1-like and the A/Perth/16/2009-like H3N2 demonstrate susceptibility to these medications. The adamantanes, amantadine and rimantadine, are not recommended because of high levels of resistance to these drugs among both the novel H1N1 and the currently circulating H3N2.

Prompt empiric antiviral treatment is recommended for patients with clinically suspected influenza illness who have illness requiring hospitalization; progressive, severe, or complicated illness, regardless of previous health status; and patients at increased risk for severe disease. Persons at high risk of influenza complications include people aged 65 years and over; young children; pregnant women; people with long-term health conditions such as asthma, diabetes, heart disease, neurologic and neuro-developmental disorders; and people with immunosuppressive conditions or taking immunosuppressive medications.

Testing

As part of continued influenza surveillance, the SC DHEC Bureau of Laboratories (BOL) offers influenza testing for:

- patients with influenza-like illness (ILI) who are admitted to hospitals,
- fatalities associated with ILI, and

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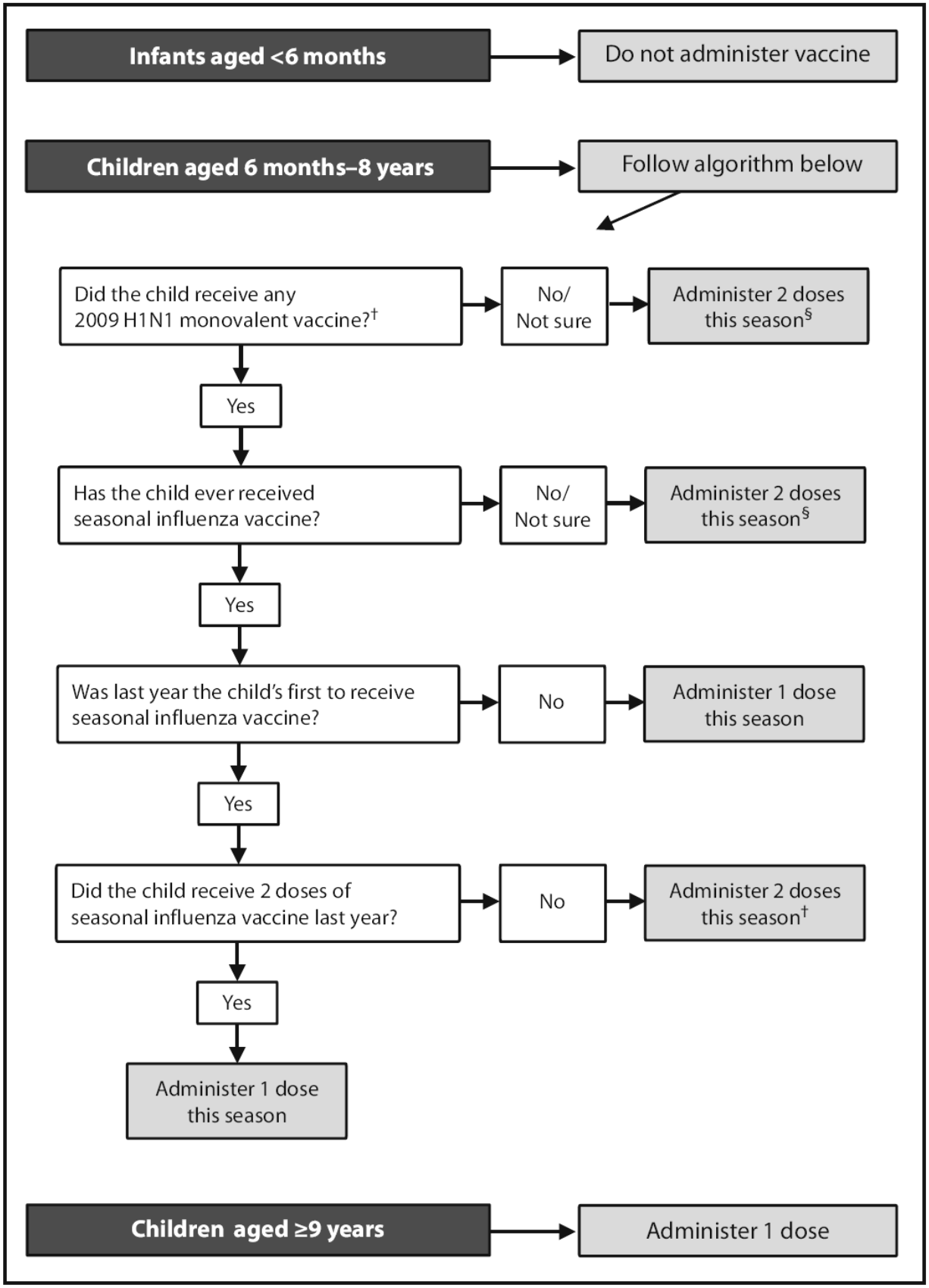
Number of 2010-2011 seasonal influenza vaccine doses recommended for children



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- patients with ILI seen at facilities participating in the Sentinel Culture Provider Surveillance Network.

Testing outside the above criteria may also be performed at the BOL if public health staff in the Division of Acute Disease Epidemiology or the Regional Public Health Epidemiologic Response staff determine that such testing is necessary.

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Notes on Pediatric Seasonal Vaccination Algorithm (facing page)

* Figure developed by CDC with the American Academy of Pediatrics, Committee on Infectious Diseases.

† Children who had a laboratory-confirmed 2009 pandemic H1N1 virus infection (e.g., reverse transcription–polymerase chain reaction or virus culture specific for 2009 pandemic influenza A(H1N1) virus) are likely to be immune to this virus. At provider discretion, these children can have a "Yes" entered at this box, and proceed down the path to the next box to determine whether two doses are indicated based on seasonal vaccine history. However, if no test result is available and no influenza A(H1N1) 2009 monovalent vaccine was administered, enter "no" here.

§ Interval between 2 doses is ≥4 weeks.

Source: CDC, 2010a: http://www.cdc.gov/mmwr/pdf/rr/rr5908.pdf

Ask Epi: Lyme Disease
Long-term Therapy for Lyme Disease — or Not?

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At the DHEC Bureau of Disease Control, we regularly receive questions from providers as well as from the public regarding the epidemiology and control of infectious diseases of public health importance. From time to time we relay in this Epi Notes Ask-Epi column Q&As of potential interest to a wider audience. We invite readers to submit questions for future columns to AskEpi@sc.dhec.gov.

Question regarding long-term antibiotic treatment of Lyme disease (LD): We have had questions from several patients suffering from various long-standing somatic problems who, after they had done some "Internet research," inquired as to whether their problems might be related to "chronic Lyme". They ask whether they might benefit, as they had seen suggested on several web sites, from a long course of parenteral antibiotics. **What is the current status of such so-called "Long-term therapy" for Lyme disease?**

Ask Epi's Answer: The **short answer** to the question is that **there is no evidence that "long-term" therapy (i.e., many months of parenteral antibiotics) is beneficial.** Thus, expert guidelines from the Infectious Disease Society of America (IDSA) (ISDA, 2010; Wormser, et al, 2006) as well as guidelines in standard textbooks (Steele, 2010 in Mandell 7th edition) unequivocally recommend against such therapy.

Below, we offer a **somewhat longer answer** which touches on

(i) issues relating to the reliability of LD information on the web;

(ii) some special considerations regarding LD in South Carolina and in the Southeastern United States;

(iii) selected summary points relating to diagnosis and treatment of LD; and

(iv) a bit of the "behind-the-scenes story" relating to the IDSA guidelines.

1. **Useful information on the Web:** Perhaps the best web information about LD can be found on the CDC's Lyme page, accessible by typing www.cdc.gov/lyme/ (CDC, 2010). Some portions and links on this site are meant for the public and can help provide patients with reliable information. Other links are more technical and are aimed at physicians.

2. **Misinformation on the Web:** Cooper and Feder conducted an interesting review of 251 LD websites, finding and analyzing 19 that gave general Lyme disease information (Cooper & Feder, 2004). The authors concluded that 10 of the 19 gave "accurate information" while 9 gave "inaccurate information." This serves as a caution, and emphasizes the usefulness of referring patients to a source of accurate information such as the CDC site mentioned above.

3. **Lyme Disease in South Carolina:** Lyme disease has been reportable in South Carolina (SC) for several decades (see the official list of reportable diseases for SC at http://www.dhec.sc.gov/administration/library/CR-009025.pdf). However, the disease is not commonly reported in South Carolina, where only about 90 cases have been detected by the DHEC disease surveillance system in the last five years.

   It may be noted that the "officially counted LD cases," whether in SC or elsewhere, may not represent all cases that have actually occurred in the population. We recognize that:

   (i) Some cases are never diagnosed;

   (ii) Diagnostic tests are not 100% sensitive;

   (iii) Reporting is not complete; and

   (iv) The CDC "surveillance definition" for LD is quite strict and some patient's presentations that merit to be considered as "cases" from a clinical management perspective may not meet formal surveillance "case-counting" criteria.

   However, it is assumed that these limitations do not substantially undercount the numbers of reported cases each year.

   Ecology of Lyme in SC: This said, the situation in South Carolina is clearly very different from that in northeastern states such as Connecticut, Massachusetts, Pennsylvania, and (upstate) New York, where several thousand cases per year are reported. *Ixodes scapularis* ticks, the vector for the LD agent *Borrelia burgdorferi,* are certainly found in

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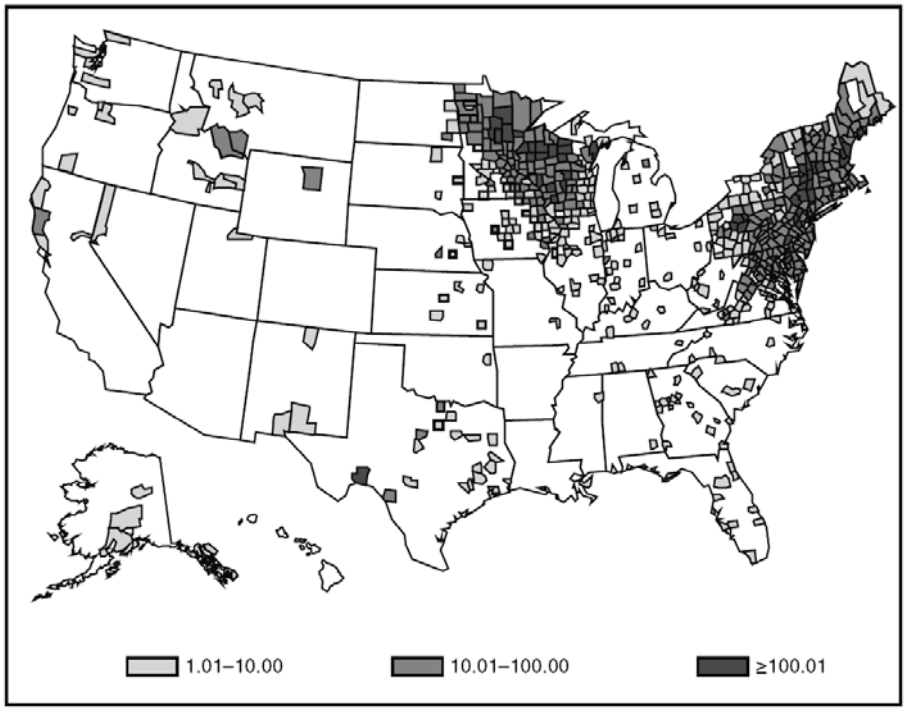
South Carolina. However, the ecology of these ticks is different in the southeast, where they often feed on various species of lizards, which, on the average, are not as good hosts for *B. burgdorferi* as are the several species of small rodents on which these same ticks feed in the northeast (Evans, C., SC Bureau of Laboratories Entomologist, personal communication with the author, September 9, 2010). Indeed, in, some areas of the country, as many as 80 or 90 percent of *I. scapularis* may carry *B. burgdorferi*, whereas in SC evidence points to a much smaller percentage being carriers. In several studies in SC, the proportions of ticks infected by *B. burgdorferi* during transmission season were 0-2% (Gibson, J. J., SC State Epidemiologist, personal communication with the editor, September 13, 2010). Thus, *I. scapularis* bites in SC fortunately carry a lower risk of transmission than do similar bites in the northeast.

4. **Special Considerations in the Southeastern United States:** To some patients, the occurrence of classical *erythema migrans* (an expanding annular erythematous rash with progressive central clearing – "bull's-eye rash") at the site of a tick bite is synonymous with Lyme disease. However, it is now known that in the southeastern US an essentially identical looking rash can occur following bites of Lonestar ticks (see CDC, 2009b) for an excellent photo of this tick). These ticks are not known to transmit *B. burgdorferi*. The rash following a bite from the Lonestar tick has been given the name "Southern Tick-Associated Rash Illness," or STARI (CDC, 2009b). There had been earlier suggestions that STARI was due to another *Borrelia*, *B. lonestari*. This now seems to be in doubt and though the cause of STARI cases may well be another *Borrelia* species, the exact cause remains unknown. Fortunately, the rash and accompanying symptoms of STARI commonly resolve promptly following treatment with oral antibiotics.

5. **Ticks, tick-borne diseases, and post-exposure prophylaxis (PEP) in brief**: The best method for preventing infection is to avoid exposure to vector ticks. Recommended measures include:
   (i) Use of protective clothing and tick repellents;
   (ii) Checking the body for ticks at least once a day; and
   (iii) Prompt removal of attached ticks. Ticks must attach for 24-72 hours for transmission to occur (Wormser, et al, 2006).

   While the IDSA does not recommend *routine* use of antimicrobial treatment testing following recognized tick bites, a single dose of doxycycline (200 mg for adults, and 4 mg/kg up to maximum of 200 mg for children ≤8 years of age) is recommended if all of the following exist:
   (i) The attached tick can be identified as an adult or nymphal stage *Ixodes scapularis* that is estimated to have been attached for ≥36 hours (recalling that most *B. burgdorferi* are carried by larval or

LYME DISEASE. Incidence* of reported cases, by county — United States, 2008



* Per 100,000 population.

Approximately 90% of Lyme disease cases are reported from the northeastern and upper midwestern United States. A rash that can be confused with early Lyme disease sometimes occurs following bites of the lone star tick (*Amblyomma americanum*). These ticks, which do not transmit the Lyme disease bacterium, are common human-biting ticks in southern and southeastern United States.

Source: CDC, 2010a, p. 62

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Diagnosing Lyme Disease: from the *Final Report of the Lyme Disease Review Panel of the Infectious Diseases Society of America*

Clinical judgment is critical to all responsible medical practice, including the recognition of disease patterns and the rational ordering of diagnostic tests and therapy. However, the point of departure for all clinical assessments is to find a "best fit" association between a patient's illness and a likely diagnosis as established by medical evidence.

Based on current research, for patients with nonspecific symptoms that may be seen in many illnesses (such as subjective complaints of fatigue, musculoskeletal pains and neurocognitive dysfunction), it would be a deviation from this "best fit" to attribute such symptoms to Lyme disease in the absence of more specific clinical features or laboratory results.

All Lyme-associated clinical findings, even including erythema migrans, can be seen in diseases other than Lyme disease. Symptoms that are commonly attributed to chronic or persistent Lyme, such as arthralgias, fatigue, and cognitive dysfunction, are seen in many other clinical conditions and are, in fact, common in the general population. This remains true whether or not they are also features of Lyme disease. **It would thus be clinically imprudent to make the diagnosis of Lyme disease using these nonspecific findings alone**. (ISDA, 2010, p. 26)

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nymphal stage ticks (Gibson, J. J., personal communication with editor, September 13, 2010);

(ii) PEP can be started within 72 hours of the time the tick was removed;

(iii) Ecologic information suggests that the local prevalence of infection of such ticks with *B. burgdorferi* is ≥20% (a condition not known to exist in South Carolina), and

(v) Administration of doxycycline is not contraindicated (Wormser, et al, 2006).

An excellent Tick Management Handbook (84 pages) is available on the web (Stafford, 2007). The monograph is labeled as a "guide for homeowners, pest control operators, and public health officials for the prevention of tick-associated disease."

6. **Diagnosis in brief -- and Clinical Epidemiology Perspectives on Lyme Disease Testing:** As microbiologic tests for LD are not commonly available and are, in any case, of limited practical utility, diagnosis of early Lyme disease is commonly based on:
   - Recognition of characteristic clinical signs and symptoms: fever, headache, fatigue, EM rash;
   - A history of exposure to ticks (especially in an endemic area!), and, *except for patients with the characteristic Erythema Migrans (EM) rash*;
   - Positive serological tests.

While the ISDA does not recommend *routine* testing after tick bites, they note that it would be **"clinically imprudent to make the diagnosis of Lyme disease using ... nonspecific findings alone"** (ISDA, 2010, p. 26). For such testing, the CDC (2009a) and the IDSA (2010) recommend a sequential 2-step approach (analogous to serological testing for HIV infection) wherein samples are first tested by ELISA, and patients with equivocal or positive results are then tested by Western blotting. Both tests can be performed on the same blood sample (CDC, 2009a).

The fact that LD is less common in South Carolina than in the Northeast also has implications regarding the need for Western Blot. That is, in states where the disease is common, positive ELISA tests in the right setting might well indicate that a patient does have Lyme disease. **However, in states such as South Carolina where the disease is uncommon, positive screening tests (ELISA or IFA) have a low predictive value, are thus more likely to be false positives, and must be followed-up with a more specific confirmatory test.** The CDC notes, "If the [confirmatory] Western blot is negative, it suggests that the first [screening] test was a false positive. Sometimes two types of Western blot are performed, IgM and IgG. Patients who are positive by IgM but not IgG should have the test repeated a

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few weeks later if they remain ill. If they are still positive only by IgM and have been ill longer than one month, this is likely a false positive" (CDC, 2009a). Recalling Bayes Theorem, in patients with very low pretest probability (low prevalence area, atypical clinical presentation, etc.), even positive ELISA and Western Blot results may be false positives (Gibson, J. J., personal communication with editor, September 13, 2010).

Finally, the CDC has also warned about the problem of diagnostic tests offered by some commercial laboratories "whose accuracy and clinical usefulness have not been adequately established" by the FDA. Patients are encouraged to "ask their physicians whether their testing for LD was performed using validated and FDA approved methods and whether results were interpreted using appropriate guidelines" (CDC, 2005).

7. **Treatment in brief:** Doxycycline, amoxicillin, or cefuroxime are recommended for treatment of adults with early localized or early disseminated Lyme disease, for whom treatment is typically given for 14-21 days. Patients with neurologic involvement, cardiac, or joint involvement may require other regimens and somewhat more prolonged treatment (up to 60 days in some instances). Standard expert guidelines should be consulted for details (Steele, 2010; Wormser, et al, 2006)

8. **Long-term treatment in brief:** Four randomized, placebo-controlled, double-blinded trials of antibiotic therapy have been conducted in patients who had "post-Lyme disease syndrome" (persistent somatic complaints even though they had completed a recommended course of therapy). These have been published in three articles (Fallon, et al, 2008; Klempner, et al, 2001; Krupp, et al, 2003). **All concluded that prolonged antibiotic therapy "offers no sustained benefit, and has potential serious adverse effects"** (Marques, 2008). Based on these trials and other clinical and biologic considerations, the IDSA guidelines (ISDA, 2010; Wormser, et al, 2006) and other authoritative sources (Marques, 2008; Steele, 2010) **thus unequivocally recommend against "long-term antibiotic therapy."**

9. **Evidence-based practice guidelines for physicians:** As alluded to above, the most authoritative LD guidelines were prepared in 2006 by a panel of 14 physicians for the IDSA (Wormser, et al, 2006). The panel used the familiar US Public Health Service scoring system for grading recommendation and the quality of the evidence supporting them. The 2006 guidelines provide a thorough review of issues related to diagnosis and

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Recommendations in the Post–Lyme Disease Syndromes Section of the 2006 Infectious Diseases Society of American Lyme Disease Guidelines

- There is no well-accepted definition of post–Lyme disease syndrome. This has contributed to confusion and controversy and to a lack of firm data on its incidence, prevalence, and pathogenesis. In an attempt to provide a framework for future research on this subject and to reduce diagnostic ambiguity in study populations, a definition for post–Lyme disease syndrome is proposed in these guidelines. **Whatever definition is eventually adopted, having once had objective evidence of *B. burgdorferi* infection must be a condition sine qua non**. Furthermore, when laboratory testing is done to support the original diagnosis of Lyme disease, it is essential that it be performed by well qualified and reputable laboratories that use recommended and appropriately validated testing methods and interpretive criteria. Unvalidated test methods (such as urine antigen tests or blood microscopy for *Borrelia* species) should not be used (ISDA, 2010, p. 18).
- To date, there is no convincing biologic evidence for the existence of symptomatic chronic *B. burgdorferi* infection among patients after receipt of recommended treatment regimens for Lyme disease (ISDA, 2010, p. 18).
- Antibiotic therapy has not proven to be useful and is not recommended for patients with chronic (16 months) subjective symptoms after recommended treatment regimens for Lyme (ISDA, 2010, p. 18).

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treatment, and extensive clinical guidance. The statement also offers helpful photos of nymphal and adult stage *Ixodes scapularis* ticks demonstrating changes in blood engorgement after various durations of attachment.. The guidelines are technical in nature, but much information could be accessible to an especially interested general reader or patient.

As mentioned, **one of the key conclusions in the IDSA document is that no real evidence exists supporting the utility of "long-term" treatment for LD**. Though there are patients who have long term symptoms following LD, there is no evidence that these are related in any way to "persistent LD infection" requiring or benefiting from months of antibiotic treatment. Further, some patients with persistent unexplained symptoms, including some whose problems may be related to other conditions such as chronic fatigue syndrome or fibromyalgia, may believe and/or may have been told (i) that they have "chronic Lyme disease"; (ii) that chronic Lyme disease is common; and (iii) that their condition requires a long-course of antibiotics.

Despite evidence to the contrary, inappropriate long-term antibiotic therapy for "chronic Lyme disease" continues. Members of Lyme disease advocacy groups are often convinced of these three points above. Further, some physicians have excessively promoted the need for "prolonged therapy," and had profited financially from providing such therapy despite lack of acceptable evidence that it is needed; some have lost their licenses for this practice. Finally, for reasons related to interpretation of LD serological tests (see point 6, above), some patients who have received months of antibiotics may never even have had LD at all! These patients have thus been subjected both to the expense of unproven treatments, and to their potential side effects. Deaths from such inappropriate therapy have even been reported (Patel, Grogg, Edwards, Wright, & Schwenk, 2000).

10. **Further saga of the IDSA Lyme disease guidelines:** Though the 2006 IDSA guidelines were generally recognized as being authoritative by the medical community, they did generate political controversy. In 2006, the Attorney General (AG) of the State of Connecticut took action against the IDSA arguing that the guidelines' preparation procedures had been inappropriate in a number of ways. However, a subsequent (2008) review of the matter concluded that the motivation of the AG in bringing the action against the IDSA appeared to be "a response to the concerns of Lyme disease advocacy groups in Connecticut that the IDSA guideline raised doubts about the diagnosis of 'chronic Lyme disease' and discouraged long-term antibiotic therapy" (Klein, 2008). In any case, as a consequence of the legal action, the IDSA agreed to a thorough review of the guidelines. This review was conducted by a new expert panel of eight (different) physicians. Lantos notes:

> "After multiple meetings, a public hearing, and extensive review of research and other information, the Review Panel concluded that the recommendations contained in the 2006 guidelines were medically and scientifically justified on the basis of all of the available evidence and that no changes to the guidelines were necessary." (Final report of the Lyme Disease Review Panel of the Infectious Diseases Society of America, 2010).

The ISDA Guidelines, dated in 2010, are available for review by clinicians, from the ISDA website: http://www.idsociety.org/uploadedFiles/IDSA/Resources/Lyme_Disease/Final_Report/IDSA-Lyme-Disease-Final-Report.pdf (ISDA, 2010).

Conclusion: Excellent information as well as misinformation about Lyme disease can readily be found on the Internet. One of the controversies about LD has centered on whether prolonged antibiotic therapy is or is not useful (i) for patients who have persistent complaints even after having been treated with recommended regimens for laboratory-confirmed LD, or even (ii) for certain patients with similar complaints who have actually never been rigorously shown to have laboratory-confirmed LD. **The current expert consensus is that prolonged antibiotic therapy is not beneficial and is not recommended for either group.**

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Changes in School and Childcare Exclusion Lists for the 2010-2011 School Year

(Continued from page 1)

- Exclude for diarrhea or vomiting attributable to **Norovirus** until asymptomatic (diarrhea and/or vomiting cease).

***Note**: this is the only time where vomiting by itself is specified as an exclusion criterion for school-aged children.* School children with vomiting **and** another exclusion criterion, e.g., feeling too ill to participate in school activities or contributing to the spread of illness in school, are also excluded.

Fever

Students have always been excluded for fever 101° F (orally) or higher, in the presence of other symptoms of severe illness, e.g., rash, vomiting, behavior change. During the 2009 Novel H1N1 Pandemic, exclusion for Influenza-Like Illness, defined as fever ≥100° F with

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Changes in School and Childcare Exclusion Lists for the 2010-2011 School Year

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other signs of illness (sore throat and/or cough), was added.

At the time when the exclusion lists were being revised for Summer 2010 posting, the CDC had redefined ILI to include "feverishness," without a temperature being specified (Centers for Disease Control and Prevention, 2009). This definition may again be revised by the CDC, and a significant change will warrant further revision of the exclusion lists.

For 2010-2011, the exclusion criteria for Fever and ILI read:

- Exclude for **Fever**, accompanied by behavior changes or other signs and symptoms of illness (such as rash, vomiting, diarrhea, earache, irritability, or confusion), in students who do not have signs of influenza-like illness, until medical evaluation indicates inclusion is acceptable. Fever is defined in school children as:
  - Oral temperature: 101.0° F or greater
  - Axillary (under the arm) temperature: 100.0° F or greater
- **Exclude students, faculty, staff, volunteers, etc., with Influenza / Influenza-like Illness or ILI,** until at least 24 hours after they are free of fever or *signs of a fever* (without the use of fever-reducing medicines). ILI is defined as feverishness (an oral temperature of 100 degrees Fahrenheit or more) with a cough and/or sore throat for which there is no other known cause besides the flu or an influenza-like illness. An ill person has *signs of a fever* if he or she feels warmer than usual to the touch, has a flushed appearance, or is sweating or shivering.

The list of conditions for which exclusion is NOT mandated now includes:

- Fever, without any other signs of severe illness, if child can participate comfortably in school/program activities.

Signs of severe illness include: difficulty breathing; unusual lethargy (an unusual tiredness or lack of energy); unusually severe irritability, especially in younger students; rapidly spreading rash; weeping or draining sores that cannot be covered; severe vomiting and diarrhea or vomiting blood; and when a student poses a risk of spreading a harmful disease to others in the school setting.

Exposure to Pertussis Cases

The AAP (2009b, p. 509 and 2009a, p. 156) now recommends exclusion of close contacts who are coughing until they receive appropriate evaluation and treatment. Previous verbiage in the exclusion lists was consolidated to reflect this recommendation. The revised criterion now reads:

- In outbreaks and when recommended by DHEC, exclude exposed people (close contacts to pertussis cases) if the contacts are coughing or have other symptoms of pertussis. Contacts with cough illness are excluded (1) until after 5 days of antimicrobial therapy; (2) for 21 days after last contact with an infected person; (3) after a negative pertussis test result; or (4) if a healthcare provider indicates that illness is not pertussis.

Symptoms of pertussis include a new or different cough, that is may be accompanied by vomiting after cough, loss of breath or difficulty catching breath during coughing spells, cyanosis, a whoop when inhaling after coughing, or apneic episodes in infants.

The Exclusion Lists may be accessed on the DHEC website at www.scdhec.gov/health/disease/exclusion.htm. There you will find detailed information on exclusion for school and childcare for healthcare and school professionals, printable brochures for parents, and HTML pages readable on personal assistive devices. Parent brochures are available in English and Spanish.

Please contact the Division of Acute Disease Epidemiology if you have questions regarding exclusion, outbreaks, or other illness in schools or out-of-home childcare.

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Year-to-Date Summary of Reportable Conditions‡ – January 1 to August 1, 2010

Disease / Condition	Case Status		Total
	Confirmed	Probable	
Animal Bite - PEP Recommended**	206	*	206
Aseptic meningitis	52	0	52
Campylobacteriosis	166	0	166
Cryptosporidiosis	48	18	66
Cyclosporiasis	2	0	2
Dengue Fever	3	2	5
Ehrlichiosis, chaffeensis	4	1	5
Giardiasis	78	0	78
Group A Streptococcus, invasive	79	0	79
Group B Streptococcus, invasive	33	0	33
Haemophilus influenzae, invasive	58	0	58
Hepatitis (not otherwise specified)	1	0	1
Hepatitis A, acute	19	0	19
Hepatitis B virus infection, Chronic	41	228	269
Hepatitis B, acute	35	0	35
Hepatitis C Virus Infection, past or present	1,899	13	1,912
Influenza, Rapid Test	2,723	0	2,723
Influenza, human isolates	26	0	26
Legionellosis	9	0	9
Leptospirosis	0	1	1
Listeriosis	9	0	9
Lyme disease	12	6	18
Malaria	3	0	3
Mumps	3	0	3
Neisseria meningitidis, invasive (Mening. disease)	9	0	9
Novel Influenza A Virus Infections	201	0	201
Pertussis	190	23	213
Q fever	0	2	2
Salmonellosis	577	2	579
Scombroid fish poisoning	1	0	1
Shiga toxin-producing Escherichia coli (STEC)	9	1	10
Shigellosis	41	0	41
Spotted Fever Rickettsiosis	0	7	7
Strep pneumoniae, invasive	333	0	333
Streptococcus pneumoniae, invasive disease (IPD)	1	0	1
Toxic-shock syndrome, staphylococcal	1	0	1
Varicella (Chickenpox)	73	1	74
Vibrio parahaemolyticus	1	0	1
Vibrio spp., non-toxigenic, other or unspecified	8	0	8
Vibrio vulnificus infection	1	0	1
Yersiniosis	3	0	3

‡ To save space, conditions with zero reported cases in 2010 were omitted from this list.

** Animal bites with PEP recommended: Bat-45; Cat-47; Dog-62; Farm Animal-0; Fox-12; Raccoon-29; Skunk-5; Other-6.*

*** Probable case status is not allowed for this condition.*

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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.

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