



Investigation of an Outbreak of Skin Rashes in Carter County Schools

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Background

Carter County is a rural county located in north-eastern Kentucky with a population of approximately 27,000, according to the 2000 U.S. Census. The Carter County school system consists of two high schools and middle schools (East and West) and six elementary schools located throughout the county. During the 2003-04 school year, total school district enrollment was 4,771 students. The Carter County Health Department is part of the Little Sandy District Health Department (LSDHD), which also includes the Elliott County Health Department.

Investigation

On January 5, 2005, the Fivco Area Development District (ADD) Regional Epidemiologist was contacted by LSDHD in reference to four female students at East Carter High School who had left school with rashes. The rashes were described as bright red pinpoint rashes that were extremely itchy. One of the students was taken to the hospital emergency department with a possible anaphylactic reaction, but it was later determined to be possibly unrelated to the rash outbreak. Based on the information, the regional epidemiologist decided to initiate an investigation. The next day, the regional epidemiologist, preparedness coordinator, and two LSDHD environmentalists inspected a school classroom common to the cases and other common areas. The team also interviewed the school nurse and office staff that had talked with the students before they left school. While the team was investigating, an additional female student arrived with a rash on her legs which was similar in appearance to the rash reported by the students on the previous day.

School policy at this point was to send home students with a rash. By the end of the next day, 40 high school students and staff had left school with a rash and the superintendent closed the high school the following day for cleaning and disinfecting. The Kentucky Department for Public Health (DPH) was contacted and agreed to send an epidemiologist and Epidemic Intelligence Service (EIS) officer assigned by the Centers for Disease Control and Prevention (CDC) to Kentucky, in order to assist the Regional Epidemiologist with the investigation.

On January 7th, the investigating teams from DPH and LSDHD met with the school's maintenance staff, who were in the process of cleaning the entire school and changing the air filters. The staff reported that the school had been cleaned over Christmas break and that no new cleaning products had been used. They also stated that a pest control company had sprayed insecticide during the break and that the library carpets had been cleaned with a rented carpet cleaning machine. Material safety data sheets (MSDS) for the chemicals used in the school were obtained, in addition to a contact number for the pest control company. After returning to the health department, the school nurse informed the team that students and staff at East Carter Middle School were also beginning to contract a skin rash similar to the rash being investigated at the high school. The team began to take photographs of the rashes and asked parents picking up students who were experiencing a rash to take their children to the doctor for evaluation and to obtain a blood

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sample.

No rashes were reported over the weekend, but by the end of the school day on Monday, January 10th, a total of 29 high school and 71 middle school students had left school with a rash. The regional epidemiologist and her team asked affected students and staff to complete a short survey concerning their skin rash and exposure history. Information from the surveys was analyzed using the Epi Info™ computer program, in order to determine if any trends appeared, but none could be found due to the low number of questionnaires returned. By the end of the following school day on January 11th, 49 more students had left five schools in the district early with a rash. School officials decided to close the schools until January 18th due to low attendance, capturing the attention of the media.

Rashes ranged in appearance from a red pinpoint rash to a lacy faint red exanthem. Affected students and teachers described the rash as itching intensely. Many experienced a burning sensation in the affected area before the rash appeared. Most students and teachers reported no other symptoms, such as fever, diarrhea or headache. Rashes were generally self-limited, and itching was relieved by diphenhydramine in many patients. As a result, a “official” case was defined as any unexplained rash not associated with systemic symptoms.

The majority of rashes were located on the chest, back, neck and abdominal area, with very few rashes reported on extremities. Such a pattern might be more indicative of infectious disease rather than a contact dermatitis or environmental etiology. However, no cases were identified in family members or friends of the affected students and staff, which would be unusual for a communicable disease. In other words, direct exposure to a school setting appeared to be an essential risk factor for contracting the rash.

Though the school’s air systems were examined to investigate a possible environmental exposure, the commonalities between the school’s air handling systems were very few. The only common items between the schools involved were the cleaning supplies used and the foods served in the cafeteria,

but further investigation could not determine a common link between these areas and the rash. In addition, the blood samples that were shipped to the state lab and forwarded to the CDC to be tested for parvovirus B19 infection were found to be negative for Fifth Disease.

After discussion between the LSDHD team and state DPH officials, an informational sheet was sent out to area schools, regional epidemiologists, hospitals and physicians, describing the rash and treatments it usually responded to. The sheet also stated that the rash was normally short-lived and that no cases outside of the school district had been reported.

Teams from DPH and LSDHD met with school officials to address concerns. The regional epidemiologist conducted final interviews with the local media assuring parents that no environmental cause was identified and urging students to return when schools re-opened. The investigation team did not conduct phone interviews with the students who had departed school with a rash and had not completed a questionnaire, fearing that it might have caused psychogenic cases to re-emerge.

The investigation was officially closed on January 21st without definitive confirmation of an etiology for the rash. The final total case numbers for the outbreak, according to checkout sheets at the schools, included: 116 cases at East Carter Middle School (90 female and 26 male); 94 cases at East Carter High School (59 female and 35 male); 14 cases at West Carter High School (10 female and 4 male); 2 female cases at West Carter Middle School; and 5 female cases at 3 of the district’s elementary schools. The total case count for the entire school district was 231, with 72% of the cases being female. It is likely that the case count included cases which were a combination of: 1) students and teachers who displayed an authentic reaction to an environmental or infectious agent; 2) students and teachers who had psychogenic reactions to others with rashes; and 3) students who saw this as an opportunity to miss school.

Childhood Rashes

Rashes are a very common occurrence in school-aged children across the U.S. In March and June 2002, the CDC published two articles on "Rashes Among Schoolchildren" in the *Morbidity and Mortality Weekly Report* (MMWR). The articles highlighted rashes in schools in 27 states including Kentucky, Ohio and West Virginia. During October 2001 – May 2002, rashes among groups of students were reported in approximately 110 U.S. elementary, middle and high schools. Similar to the cases in Carter County, the rashes across the U.S. were predominately seen in female students (22% to 100%). The children affected in the 27 states were mostly reported as having 1) pruritic, sunburn-like rash that appeared on the cheeks and arms, 2) a burning sensation on the skin that might be associated with pruritis, or 3) a hive- or nettle-like reaction that was observed moving from one part of the body to another. Rashes tended to be self-limiting and ranged in duration from less than 1 hour to more than 1 month. Accompanying signs and symptoms were absent in all but a few cases. The rashes seen in the Carter County schools closely reflected the compiled information from the 27 states in the MMWR article. The investigations in the 27 states have not identified a common source for the reported cases of rashes. This outcome parallels the Carter County rash investigation.

Lessons Learned

The investigation in Carter County can be used as a teaching tool for other possible disease investigations and emergencies. Communication became an issue during and after the investigation. Many issues that arose were due to poor communication between all parties involved. After the rash, a contact notebook was compiled that contained all of the information necessary to contact the surrounding county health departments and school systems. Additionally, the local investigation team learned the importance of becoming acquainted with school personnel before an emergency and properly communicating with school officials from the beginning of an investigation. Another lesson learned was to approach the media first and stay in constant communication with them throughout the investigation in order to alleviate undue alarm among the community members. The Carter County incident

has set a precedent to encourage fluidity among all parties involved in future investigations. This investigation also showed how regional epidemiologists can assist communities in their given area development district (ADD) during a major investigation. The team formed from the LSDHD, DPH and regional epidemiologist worked efficiently and cohesively throughout the investigation. The lessons learned from this investigation have assisted with investigations conducted since the rash incident and will assist LSDHD and the regional epidemiologist with planning for future incidents.

References

CDC. Update: Rashes Among Schoolchildren- 27 States, October 4, 2001-June 3, 2002. *MMWR* 2002; 51:524-27.

ATTENTION LOCAL HEALTH DEPARTMENTS! INFORMATION REGARDING INFLUENZA VIRAL CULTURE KITS

Influenza surveillance begins the first week of October. Please obtain kits now and distribute to local physicians if you have not already done so.

Strains of influenza can only be determined from cultures. Strain identification is necessary to detect epidemic or pandemic strains of influenza, to make informed decisions regarding the components of the next season's vaccine, and to determine whether strains of influenza are similar in all areas of the state.

Physicians are requested to keep the kits on hand and collect specimens on patients with influenza-like illnesses (ILI). Prepaid postage labels will be sent with the kits for mailing the specimens back to the state laboratory. There will be no cost involved for collecting, submitting and testing the specimen for culture.

To request viral collection kits, please contact Sean Benton or Karim George, Division of Laboratory Services, at (502) 564-4446, ext. 4483 or 4484. For information regarding the Influenza Surveillance Program, please contact Peggy Dixon, State Coordinator at (888) 973-7678 or email to peggy.dixon@ky.gov.

Kentucky's New Tobacco Quit Line Announced

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Introduction

In 1964, the first Surgeon General's report linking tobacco use and lung cancer was released. Public health efforts today continue to focus on decreasing morbidity and mortality related to tobacco use, which is the leading preventable cause of death and disease in the U.S. Each year over 8,000 Kentuckians and 438,000 people nationally die from tobacco-related diseases. In an effort to increase comprehensive services for tobacco cessation, the Kentucky Department for Public Health's Tobacco Prevention and Cessation Program was awarded funding from the Centers for Disease Control and Prevention (CDC) to implement a statewide tobacco quit line.

Smoking Prevalence in Kentucky

Kentucky currently leads the nation in adult smoking prevalence and this status has not changed over the past 15 years. More than half of the Area Development Districts (ADD) in Kentucky have adult smoking rates above the state average of 28% and all exceed the national average of 21%. Approximately 47.6% of smokers in Kentucky have attempted to quit smoking at least one time for one day or longer. The CDC estimates that 70% of smokers would like to be free of tobacco use, but only 2.5% are successful each year. By offering additional evidence-based cessation services such as the Tobacco Quit Line, Kentucky tobacco users may increase their attempts to quit.

Quit Lines

In early 2004, the U.S. Department of Health and Human Services (HHS) announced a federal initiative to create a national network of tobacco cessation quit lines in order to link all tobacco users with access to services and information on quitting. A National Network of Tobacco Cessation Quit Lines was formed and began operating under the portal number 1-800-QUIT-NOW (1-800-784-8669) in November 2004 with funding from the National Cancer Institute. This number electronically routes callers to the state-based quit lines by area code.

Multiple scientific reviews have established that proactive telephone counseling available through quit lines is an effective cessation method. Both the U.S. Public Health Service's *Clinical Practice Guideline* and CDC's *Guide to Community Preventive Services* recommend quit lines as an effective method to help people stop smoking.

Kentucky's Tobacco Quit Line

The Kentucky Tobacco Quit Line is a free statewide telephone-based tobacco cessation resource. The quit line provides information to tobacco users and non-tobacco users on tobacco dependence and its treatment, the dangers of secondhand smoke, and other tobacco-related information. Information may include advice for family and friends on assistance and support for a tobacco user trying to kick the smoking habit. The quit line also offers information on tobacco dependence for health professionals and families or friends of tobacco users.

The quit line provides a one-on-one proactive counseling program for tobacco users who are ready to quit. There are also specific counseling services available for pregnant women and smokeless tobacco users. Callers under the age of 18 are required to have parental consent prior to counseling.

Outreach

Kentucky's Tobacco Quit Line is one component of a comprehensive tobacco cessation network of services and can link callers with information on local and community services such as the Cooper Clayton Method to Stop Smoking program. The Quit Line has the potential to reach large numbers of tobacco users at no cost to callers. The toll-free number increases access to cessation services for all Kentucky tobacco users, especially those who are low income, elderly, uninsured or reside in rural areas or areas where services are under utilized or not easily accessible. By increasing access to services, the Tobacco Quit Line aims to increase the number of people who are tobacco-free in Ken-

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tucky. In addition to tobacco cessation and prevention efforts, policy changes, restriction of access to tobacco, and prevention of youth smoking initiation are additional areas that Kentucky focuses on in order to decrease tobacco-related diseases and deaths.

Minimal Data Set

The North American Quit Line Consortium (NAQC) unites public health departments, quit line service providers, researchers, evaluation specialists and national organizations from Canada and the U.S. The NAQC has been working to develop a standardized approach to evaluate quit lines. As a result, a minimal data set (MDS) has been developed and implementation is scheduled to begin for U.S. quit lines in September 2005. The MDS establishes performance indicators to assist in performance assessments of quit lines, quality improvement, identification of gaps in knowledge, and allows for new strategies to be developed among quit lines to fill identified gaps. The MDS also allows quit lines to speak the same language by utilizing similar defined terms and variables. Through consistent data collection using the MDS, quit lines will be able to aggregate data nationwide for analysis of variables that are critical to the performance, evaluation, success, and proliferation of U.S. quit lines. A national data set will be established to document quit lines and their effectiveness in cessation services and information sharing.

Conclusion

Kentucky recognizes the importance of offering multiple science-based programs to allow tobacco users a variety of options to choose from. Although the Tobacco Quit Line is a new cessation service for Kentucky, quit lines are an established resource and have proven to be effective. Additional evidence will be available in the future with the standardized protocols of the MDS to help demonstrate the reach and opportunities quit lines provide. Through increased access and availability of services, tobacco users in Kentucky can find the best fit for their needs to become tobacco-free.

For assistance or to help someone become tobacco-free, call **1-800-QUIT NOW (1-800-784-8669)**.

Information on Vaccination for the 2005-06 Influenza Season in Kentucky

Influenza vaccine distribution delays or vaccine supply shortages have occurred in the U.S. in three of the last five influenza seasons. Given the uncertainties in availability of doses and distribution this season, the Centers for Disease Control and Prevention (CDC) is recommending that only the following priority groups receive trivalent inactivated influenza vaccine (TIV) until October 24, 2005 in order to ensure that enough vaccine is available for those at the highest risk for complications from influenza:

- Persons aged ≥ 65 years with comorbid conditions
- Residents of long-term care facilities
- Persons aged 2-64 years with comorbid conditions
- Persons aged ≥ 65 years without comorbid conditions
- Children aged 6-23 months
- Pregnant women
- Healthcare personnel who provide direct patient care
- Household contacts and out-of-home caregivers of children aged < 6 months

These groups correspond to tiers 1A-C in the table of TIV priority groups (Table 1, page 6). The Kentucky Department for Public Health recommends that physicians and local health departments, whenever possible, sub-categorize within the tiered system and vaccinate priority groups in a stepwise progression: initially vaccinating the eligible population in category 1A, followed by the population in category 1B and subsequently continuing with category 1C. Beginning October 24, 2005, all persons will be eligible for vaccination, if an adequate supply of vaccine is available then. The tiered use of prioritization is not recommended for live attenuated influenza vaccine (LAIV) administration, which can be administered at any time for vaccination of non-pregnant healthy persons aged 5-49 years, including most healthcare personnel, other persons in close contact with groups at high risk for

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influenza-related complications and others desiring protection against influenza. To keep track of vaccine supply and needs, local health departments/districts are requested to regularly update an interactive spreadsheet accessed via the Health Alert Network (HAN) until at least October 24, 2005.

TABLE 1. Tiered System for Influenza Vaccination Prioritization

Tier/Category	Eligible Persons By Tier/Category
1A	Persons aged ≥ 65 years with comorbid conditions Residents of long-term care facilities
1B	Persons aged 2-64 years with comorbid conditions Persons aged ≥ 65 years without comorbid conditions Children aged 6-23 months Pregnant Women
1C	Health-care personnel Household contacts of children and out of home caregivers of children aged <6months
2	Household contacts of children and adults at increased risk for influenza-related complications Healthy persons aged 50-64
3	Persons aged 2-49 years without high risk conditions