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Public Health Response to a Rabid Kitten --- Four States, 2007

On July 24, 2007, the South Carolina Department of Health and Environmental Control (SCDHEC) was notified by the North Carolina Division of Public Health (NCDPH) of a stray, rabid kitten that had been handled by players on several girls' softball teams during a tournament in Spartanburg County, South Carolina. This report summarizes the public health response to exposure to the rabid kitten and highlights the importance of multistate collaboration in a rabid animal investigation.

During July 13--15, 2007, the South Atlantic Summer Showdown softball tournament was held at a recreational complex in Spartanburg County. Softball games were held at four recreational facilities. Approximately 60 teams of approximately 12 players each from multiple states participated in this tournament. Spectators at the tournament included families and friends of the softball players and tournament coordinators and staff members.

On July 14, a softball coach from a North Carolina team found an apparently healthy and alert kitten in a barrel-shaped garbage bin located near one of the playing fields at which the tournament was held. The kitten was placed in a box and later brought to at least six different games played at two recreational facilities that same day. That evening, the kitten was transported by the coach in her private vehicle to her home in Buncombe County, North Carolina. On July 15, the kitten began behaving abnormally and became increasingly lethargic. The coach's housemate brought the kitten to an emergency animal hospital in Buncombe County for care. Although further investigation would reveal that the housemate had been bitten by the kitten, she did not disclose this to the attending veterinarian at the time of the visit. After evaluation indicated that the kitten was severely ill, the kitten was euthanized and held for cremation, planned for July 18. Rabies was not suspected by the attending veterinarian.

On July 18, the mother of a softball player from North Carolina, after learning from the coach that the kitten had become ill and was subsequently euthanized, contacted the emergency animal hospital and asked whether the kitten had been tested for rabies. The mother had been bitten while trying to feed the kitten during the tournament. Rabies testing had not been planned by the animal hospital because the coach's housemate had signed a routine release form indicating the kitten had not bitten anyone during the preceding 10 days. The mother went to the clinic, requested the cat's body, and took it in her private vehicle to her local health department. On July 20, the local health department sent the body to the North Carolina State Laboratory for Public Health for rabies testing. On July 23, the kitten had rabies diagnosed by direct fluorescent antibody testing. The rabies virus was identified as the eastern United States raccoon variant by rabies monoclonal antibody typing.

The mother provided her travel history to NCDPH, which then contacted SCDHEC on July 23 to

alert the department about the possible human rabies exposures in Spartanburg County. NCDPH and SCDHEC obtained a roster of teams from the tournament organizer and discovered that Georgia, North Carolina, South Carolina, and Tennessee all had teams participating in the tournament. NCDPH and SCDHEC contacted CDC and state public health authorities in Georgia and Tennessee, and all four states subsequently initiated contact investigations; these investigations sought to identify and locate potentially exposed persons and ensure that only persons with actual exposures (i.e., contact with saliva, either through a bite, a lick on the oral or nasal mucosa, or a claw scratch) received postexposure prophylaxis (PEP). SCDHEC coordinated the interstate investigation and led its own intrastate investigation to locate persons, assess exposures, and prescribe PEP as warranted; in South Carolina, PEP is provided by the state to exposed persons as determined by SCDHEC.

To locate potentially exposed persons, each state issued advisories (e.g., through daily e-mails) to local health departments; additionally, South Carolina, Georgia, and North Carolina used local news media to alert the public and solicit responses from potentially exposed persons. South Carolina also activated the state's 2-1-1 telephone information system, which uses media channels to advise the public to call a dedicated state telephone number (2-1-1) for information related to specific public health emergencies.

The multistate contact investigations and interviews of persons who had potentially been exposed to the kitten revealed that at least two other stray kittens of similar age as the rabid kitten were found in the parking lot of a fast-food restaurant near the garbage bin where the rabid kitten was found. These stray kittens, which were possibly from the same litter as the rabid kitten, were reported by interviewees to also have been present throughout the length of the softball tournament; several softball players had handled them. These kittens were never located by public health authorities. Interviewees were questioned about their handling of all of the kittens to assess potential exposure to rabies.

Health department personnel relied on the point-of-contact for each team, usually the coach, to identify persons who might have been exposed to the kitten. If players reported exposure, they were interviewed by health department personnel. Anecdotal evidence indicated that no tournament spectators had handled the kitten; investigators were unable to contact spectators because neither documentation nor recorded entry of persons to any of the recreational facilities was available.

Of the approximately 60 teams participating in the tournament, 38 had players and associated family and friends who reported exposure to the rabid kitten. From these teams, 27 persons were identified as having exposures that warranted PEP: one from South Carolina, 15 from Georgia, and 11 from North Carolina; Tennessee reported no exposed persons. All recipients of PEP had reported actual exposure to a kitten's saliva, either through a bite, a lick on the oral or nasal mucosa, or a claw scratch. No reports of human rabies or adverse reactions to PEP were reported.

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Editorial Note:

Animal rabies-control programs, including extensive vaccination campaigns implemented during the 1940s and 1950s, resulted in a substantial decline of rabies in domesticated animals in the United

States (1). Domesticated animals accounted for 7.9% of all rabid animals reported in the United States in 2006 (1), compared with 82.6% in 1950 (2).

Despite this decline, stray animals, including cats, continue to pose a risk for transmission of rabies to humans. During 2006, a total of 49 states and Puerto Rico reported to CDC a total of 6,940 cases of rabies in wild (e.g., raccoons, bats, skunks, and foxes) or domesticated (e.g., cats, dogs, and cattle) animals and three cases in humans (1). Of these reported rabid animals, 318 were cats, representing 4.6% of all cases. This represents an 18% increase from 2005, when 269 cases of rabid cats were reported (1). Of the 24 human rabies cases reported to CDC in the United States since 2000, none have been associated with exposure to a rabid cat. The last documented case of human rabies from exposure to a rabid cat was in 1975 (1). Nevertheless, the risk for human rabies from rabid cats in the United States should not be discounted.

In addition to the risk for rabies, exposure to rabid cats carries substantial economic implications for exposed persons, health insurance companies, and health departments. For example, in Maryland, during 1983--1986, approximately 194 persons received PEP at a total cost of nearly \$68,000 because of rabid cat exposures (3). In New Hampshire, in 1994, approximately 600 persons received PEP after potential exposure to a single rabid cat, at a cost of approximately \$1 million for biologics alone (4). During 1995--2000, cats accounted for 523 (24%) of 2,216 animal rabies exposures requiring PEP reported by four counties in upstate New York (5).

Measures to reduce rabies exposures among humans by promotion of responsible pet ownership and routine vaccination of cats remain public health priorities. Children should be taught to be cautious in their interactions with animals, especially those that are unfamiliar, to avoid potential exposures to rabies and other infectious diseases (6). First aid for animal bites and scratches should include thorough washing with soap and water (7). An apparently healthy dog, cat, or ferret that bites a person should be confined and observed daily for 10 days (7). If the animal becomes ill or dies during this observation period, its brain should be examined by a state laboratory for evidence of rabies virus infection (1). If rabies is detected, prompt administration of PEP is indicated (7). If the animal is unavailable for testing, public health officials should be consulted (7).

The rabid kitten in this investigation was infected with a raccoon rabies--virus variant. Most rabid domesticated animals are infected with the terrestrial rabies--virus variant associated with the geographic location of the animal (8). In the southeastern United States, the region in which this incident occurred, the raccoon rabies--virus variant predominates (8). Raccoons have been recognized as a major reservoir for rabies in the southeastern United States since the 1950s (1).

This investigation highlights the need for rabies-prevention measures, such as continued rabies vaccination among domesticated animals and wild animal populations. The investigation also demonstrates the importance of interstate collaboration during a rabies response. Exposed persons were identified through cooperation among the states and CDC, which included daily conference calls and e-mail exchanges among investigators in the affected states; CDC participated in conference calls to provide additional expertise. In this investigation, rapid, open, interstate collaboration enabled the expeditious identification and prophylactic treatment of exposed persons while preventing unnecessary administration of PEP.

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