DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

FEB 4 2008

The Honorable Collin C. Peterson
Chairman
Committee on Agriculture
House of Representatives
Washington, D.C. 20515-6001

Dear Mr. Chairman:

Thank you for your letter regarding the potential public health threat posed by methicillin-resistant Staphylococcus aureus (MRSA) in food-producing animals. As you know, MRSA infections have received significant media attention recently.

A report by the Centers for Disease Control and Prevention (CDC) and others on the scope and magnitude of life-threatening MRSA infections in the United States was published this past fall in the *Journal of the American Medical Association*,[1] coincident with media reports of severe MRSA in high school students. This increased attention also heightened the level of concern about the possible implications of several recent reports describing MRSA in food-producing animals; however, although the finding of MRSA in retail meats suggest a possible role for foodborne transmission, if such transmission occurs, it likely accounts for a very small proportion of human infections in the United States.

The report indicated that more than 20 percent of community-associated MRSA among persons in the Netherlands was caused by a strain that is non-typable by pulsed-field gel electrophoresis (NT-PFGE) and now thought to be of animal (i.e., pigs and cattle) origin.[2] Another strain known to commonly colonize persons in North American hospitals is PFGE type USA 100 and was found in pigs and pig workers in Canada.

We appreciate the opportunity to comment on these findings and how they may relate to the epidemiology of MRSA in the United States. Enclosed are CDC's responses to each of the specific questions outlined in your letter.

I hope this information is helpful. I also will provide this response to Representatives Bob Goodlatte, Leonard Boswell, and Robin Hayes who cosigned your letter.

Sincerely,

Julie Louise Gerberding, M.D., M.P.H.
Director

Enclosure

original: Deb
cc: Chandler
Martha-notebook

The Centers for Disease Control and Prevention's (CDC) Responses to Questions on Methicillin-Resistant Staphylococcus aureus (MRSA) in Food-Producing Animals Addressed in the December 14, 2007, Letter From the House Committee on Agriculture

- *What is the public-health risk, if any, from MRSA in pigs, and how does that risk compare to the public-health risk of MRSA acquired in health-care facilities or elsewhere in the community?*

Response:

Several facts provide information on the potential public health risk posed by MRSA in food-producing animals. First, more than 80 percent of life-threatening MRSA infections appear to be the result of patient-to-patient transmission in inpatient healthcare facilities.[1] In addition to the nearly 94,000 life-threatening MRSA infections that occur mostly in healthcare settings each year, several million community-associated skin and soft tissue MRSA infections likely occur.[5, 6] It is reasonable to conclude that the vast majority of these common skin and soft tissue infections result from person-to-person transmission of MRSA in the community.

CDC and others have investigated numerous outbreaks of community-associated MRSA infections in the United States, and in none of these investigations has animal exposure been identified as a risk factor for infection.[7-15] Although the finding of MRSA in retail meats suggests a possible role for foodborne transmission, if such transmission occurs, it likely accounts for a very small proportion of human infections in the United States. Recent reports from the Netherlands and Canada suggest that human infections caused by MRSA strains of animal origin occur predominantly among persons with close proximity to colonized or infected animals.[2, 4] In contrast, all U.S. outbreaks of community-associated MRSA infections have been traced to conditions that facilitate human-to-human transmission.[7-15] Although there has long been a type of S. aureus-induced foodborne disease resulting from the ingestion of pre-formed toxin, antibiotic therapy is not used in the treatment of this toxin-related illness. Therefore, MRSA would pose no greater threat than antibiotic- susceptible strains.

- *What type(s) of surveillance programs for monitoring MRSA does CDC have in place in health care and community settings?*

Response:

CDC surveillance systems used to monitor MRSA include the National Healthcare Safety Network (NHSN), the Active Bacterial Core Surveillance (ABCs) and EMERGEncy ID Net components of the Emerging Infections Program (EIP), the National Health and Nutrition Examination Surveys (NHANES), and FoodNet. NHSN is a voluntary surveillance program used by hospitals to report healthcare-associated infections, including those caused by MRSA. The public health importance of healthcare-associated infections has prompted an increasing number of states to enact laws requiring hospitals to report these infections to the health department or another state agency through NHSN. CDC is working to provide technical support and guidance to states with reporting laws and to those considering similar legislation.

Proposed legislation on reporting of these infections has also been introduced on the federal level. The ABCs/EIP has provided recent population-based estimates of both healthcare- and

community-associated life-threatening MRSA infections.[1] In addition, this system has been the source of thousands of MRSA isolates collected from widely dispersed geographic areas over several years. The EMERGEncy ID Net program has provided a geographically dispersed repository of isolates and associated clinical descriptions of outpatients with community-associated MRSA skin and soft tissue infections.[6] Results from NHANES conducted from 2001 through 2004 suggest that asymptomatic carriage (i.e., colonization) of MRSA is present in less than 2 percent of the U.S. population and that most of these persons are colonized with MRSA strains of healthcare origin.[16] FoodNet provides a venue for a planned survey of stool cultures for MRSA from several hundred persons with diarrhea and from healthy controls.

- *Would CDC surveillance detect MRSA that is not typable by pulsed field gel electrophoresis (PFGE)? Are rare types of MRSA, such as a non-typable by PFGE, followed up with an epidemiological investigation?*

Response:

Through the combination of the above outlined surveillance systems and surveys, as well as outbreak investigations, CDC has characterized several thousand community-associated MRSA infections since 2000. Among these isolates, only one has been found to be NT-PFGE (non-typable by PFGE). The majority of human community-associated MRSA infections in the United States are caused by one particular strain and PFGE subtype (USA 300-0114), which appears clearly of human origin. Because virtually all characterized isolates are subjected to PFGE, all NT-PFGE would be identified as such. Although nearly all isolates collected include some epidemiologic information, whether such information is adequate to determine if an animal source could exist would depend upon the surveillance system, survey, or investigation. In some instances, such as the NHANES, additional information necessary to investigate a rare PFGE type may be virtually impossible to obtain.

- *What is known about the transmission of MRSA from humans to animals?*

Response:

Several studies have suggested that MRSA can be transmitted from humans to companion animals, such as dogs, cats, and horses, and that once these animals become colonized or infected with strains of human origin they can be a source for transmission to other animals or humans.[2, 17-21] However, as described in the above response to the first question, thus far there is no documented role for meat consumption or handling in MRSA transmission.

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