Conclusion: All farms had microorganisms in excess of tolerable levels due to unhygienic practices. Presence of virulent Stx2d producing E. coli has a serious public health implication as milk is sometimes consumed without pasteurization. Farmers were educated on hygienic practices during milking and importance of milk pasteurization. Measures aimed at reducing milk contamination especially during milking should be enforced in all dairy farms.

doi:10.1016/j.ijid.2010.02.1624

26.002
Investigation and control of a meningitis outbreak in Birbhum-Murshidabad border of West Bengal, India, March 2009

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Background: Sudden onset of high fever, severe headache, nausea and convulsion, followed by unconsciousness, struck in nine villages of both banks of river Brahmani in Birbhum-Murshidabad border of West Bengal, India, from 19.03.2009 to 25.03.2009 causing panic after eight deaths. We along with Rapid Response Team investigated the outbreak to determine the cause and worked for containment.

Methods: We defined the case, confirmed the outbreak and line listed by house to house visit; arranged hospitalization, laboratory investigation and treatment of case-patients; examined, treated and monitored contacts; undertook hygienic, disinfective and environmental measures involving community; strengthened immunization, health-education and advocacy.

Results: Attack Rate (AR) of two villages of Nalhati II block of district Birbhum and western part of Brahmani was 2.21 with higher incidence among male and 16-49 years age group with hospitalization of 27 cases. Case fatality Rate (CFR) was 6.45. AR of seven villages of Nabagram and Khargram blocks of Murshidabad district and eastern part of Brahmani was 3.60 with higher incidence among male and 16-49 years age group with hospitalization of 116 cases. CFR was 1.90. These areas are riverine low lands with marshy paddy fields full of culex and other mosquitoes; several water bodies where migratory birds used to come; scattered bushes and trees with bat population; congested unhygienic hutsments with backyard poultry and pig rearing by a section. Poverty, lack of awareness and poor nutritional status were common. Frequent migration for better livelihood through masonry and other labouring works is rampant. Blood slides, culture, IgM, virology; urine and CSF examinations were performed. CSF suggested Pneumococcal meningitis.

Conclusion: It was a fatal bacterial meningitis outbreak which was controlled by prompt treatment and public health intervention. Improvement of personal hygiene, nutritional status, housing and environment and persistent advocacy and surveillance are recommended to prevent future outbreak.

doi:10.1016/j.ijid.2010.02.1625

26.003
Burden of illness for food-borne Salmonella: a cohort study in an agricultural community in Yucatan, Mexico

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Background: There is a great need for conducting community-based integrated food-chain surveillance in highly endemic settings to assess the impact of Salmonella infections on human health.

Methods: A 15-month cohort study was conducted in Buctzotz, a small, well-nourished, agricultural community in Yucatan, Mexico. Twice-weekly household visits for surveillance of diarrheal disease, collection of stool samples and health education were performed in 126 infants less than 3 years of age and 120 adults over 74 years. Ten samples each of foodanimal intestines, raw retail meat, and ready-to-eat food and beverages were tested weekly. Salmonella isolates were serotyped, and tested for antimicrobial susceptibility and PFGE according to standard methods.

Results: Salmonella contamination rates in chicken, swine and cattle intestine and raw retail meat were 20% and 27%; 82% and 69%; and 74% and 75%, respectively. Salmonella was also recovered from 5% of cooked pork, 4% of cooked chicken and 4% of fresh fruit beverages. The annual incidence of diarrhea of any etiology was 2.1 episodes/infant and 0.7 episodes/elder. Incidence of Salmonella-associated diarrhea was 21 episodes/100 infants and 13 episodes/100 elders. Asymptomatic carriage was detected in 18% of household members. None of the cohort subjects suffered dehydration or required hospitalization. The distribution of Salmonella serotypes in humans closely correlated with those isolated from animals and foods. PFGE analysis of the two top serotypes, Agona and Meleagridis, and two virulent serotypes, Enteritidis and Typhimurium, showed that many human isolates were indistinguishable or closely related to animal isolates. In the few household clusters detected, the infant was symptomatic and older family members were usually diarrhea-free. Overall, 3.5% of isolates were resistant to ceftriaxone, 17.7% to nalidixic acid, and 0% to ciprofloxacin; 5.6% were resistant to ampicillin, chloramphenicol and trimethoprim-sulphamethoxazole.

Conclusion: In highly endemic settings, multiple clones of Salmonella circulate in the food chain and are continuously transmitted to humans of all ages. Constant exposure results in sporadic symptomatic infections at the extremes of age and asymptomatic infections at other ages. Future preventive interventions should focus on health education aimed at reducing household transmission, and on the rational use of antimicrobials in food animal production.

doi:10.1016/j.ijid.2010.02.1626