Prevalence and Geographic Distribution of Human Trichinella Infection in Alaska from 1980-2008

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BACKGROUND

Trichinosis, a zoonotic parasitic infection, is caused by an infectious agent (Trichinella spp.) that can be transmitted between animals and humans. In Alaska, arctic bear and walrus meat have been identified from previously reported food-borne cases as the most common sources of human infection. Though most outbreaks of trichinosis in the U.S. are caused by Trichinella spiralis, the primary cause in Alaska is the sylvatic species, Trichinella nativa. T. nativa is cold-resistant, therefore freezing meat does not kill the infective larvae as with T. spiralis. Ingestion of raw or undercooked infected meat is the cause of the infection and outbreaks.

METHODS

This study characterized the reported cases of human trichinosis in Alaska from 1980 through 2008. The methods used were:

1. Extensive literature review of trichinosis in Alaska and other circumpolar countries;
2. Review and analysis of trichinosis cases from summary data from the Section of Epidemiology; and
3. Geographic information system mapping of the reported cases in Alaska.

The number of reported cases were analyzed by month, years, age, sex/race/ethnicity, and region/residence. Data analysis was conducted in ESRI ArcGIS 9.3 and MS Excel 2007.

RESULTS

Between 1980 and 2008, 143 cases of human trichinosis were reported to the State of Alaska health officials. Since the 1980s, the number of reported cases has been decreasing.

A. GEOGRAPHIC DISTRIBUTION

The population from the Northern region had the highest number of reported cases (83) between 1980-1994. Between 2005-2008, the only reported cases were in the Anchorage/Mat-Su Region (3). The region with the least number of cases (1) was the Southeast between 1990-1994. The data represents the residence of the individuals infected, not location of exposure.

B. AGE, SEX & RACE DISTRIBUTIONS

- Age ranged from the 0-4 year age group to the 90-94 age group; 56% of cases were between 20-43 years of age.
- 54% of cases were male; 45% were female; and 1% were unknown.
- 76.2% were American Indian/Alaska Native; 19.6% were Caucasian; and

CONCLUSIONS

- Overall, numbers of reported cases has decreased, especially during the past 4 years (2005-2008).
- Geographic distribution changes have occurred (i.e., decrease of reported cases in the Northern Region; 83 cases from 1980-1990 to no reported cases from 2000-2008).
- Seasonality shows most cases reported in June and July, with a peak in March, which can have significance for prevention interventions.
- Establishing baseline data of zoonotic infections with periodic review and analysis of reported cases are important to monitor trends and identify possible needs.

D. LIMITATIONS

Passive Surveillance: Reported cases to State health departments may not reflect the actual incidence or prevalence of infection. Self-reporting can lead to under-reporting of cases. Individuals and providers may be reluctant to report illness to health providers and/or state officials for a variety of reasons.

Gap in Data: No data were reported during the 5-year period from 1995-1999.

Summary Data: Aggregated data are useful for descriptive studies and generalizations; however, it may not be specific for developing focused efforts for public health interventions.