State of Alaska Epidemiology **Bulletin**

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Bulletin No. 30 October 30, 2003

Pertussis in Homer Region - Interim Report

Background

On October 9, 2003, the Alaska Section of Epidemiology received a report of a culture confirmed case of pertussis. The patient was a boy from Kachemakselo, a community near Homer, Alaska. The boy was en route to Minnesota to visit relatives and had been seen previously in Homer for a severe cough. Kachemakselo is a Russian Old Believer community where, because of religious beliefs, few children have been immunized against vaccine preventable diseases including pertussis.

The Section of Epidemiology worked with the Homer Public Health Center to heighten surveillance for pertussis in the region. Seventeen symptomatic individuals who were contacts to the index case were tested for pertussis using direct fluorescent antibody (DFA) stain and culture; four of the contacts were DFA positive.

Investigation

On October 21, 2003, an investigating team from Epidemiology flew to Homer and was joined by Homer Public Health Nurses and the school nurse for Kachemakselo. The team reviewed immunization records, contacted all families in Kachemakselo, and asked parents to bring their children to meet the team for interviews. The team recorded contact information, presence or absence of pertussis symptoms, and current immunization history. All children with a cough or runny nose were cultured for pertussis; parents of symptomatic children were also cultured. Children with a severe paroxysmal cough of more than two weeks with or without post-tussive vomiting were treated with azithromycin for five days. All household contacts of symptomatic children were also given five days of azithromycin.

The investigation was also extended to Voznesenka, a nearby Russian Old Believer community, because families in Kachemakselo regularly interact with this community. The team reviewed immunization records and interviewed families of all children in Voznesenka who were sent home from school for respiratory illnesses. Residents of Homer such as public health nurses and teachers who interacted with sick children of these two communities were also interviewed and, if appropriate, cultured or treated with azithromycin.

Results:

A total of 115 people were interviewed; 75 were children and 40 were adults. Ten were infants, 13 were preschoolers, 52 were school age children, 27 were parents, and 13 were teachers (Table 1).

Of 75 children interviewed, 16 (21%) had severe symptoms that were highly suggestive of pertussis; defined as paroxysms of coughing or post-tussive vomiting. Thirty-eight (51%) had mild respiratory symptoms, which included a cough, rhinorrhea, or both. Twenty-one children (28%) were asymptomatic (Table 2).

Table 1: Number interviewed by location, age and occupation

	Kachemakselo	Homer	Voznesenka
Infants	10	0	0
Preschool	8	0	5
School age	34	0	18
Parents	19	0	8
Teachers/Nurses	1	12	0
Total	**72**	**12**	**31**

Table 2: Number of children by symptoms and location

	Kachemakselo	Voznesenka	Total
Asymptomatic	16	5	21
Mild symptoms	25	13	38
Severe symptoms	11	5	16
Total	52	23	75

The team and local providers cultured 96 people for pertussis: 67 children and 29 adults. To date, three cultures have been positive for *Bordetella pertussis*, for a total of four culture-confirmed cases. The remaining culture results are pending.

The investigating team and local providers treated 75 individuals for suspected pertussis or because they were contacts to a suspected or confirmed pertussis case. Of those treated, 24 were adults and 51 were children. Seventy-one received oral azithromycin for 5 days, two received this drug for 10 days, and two received oral erythromycin for 14 days.

Recommendations:

1. **Affected communities:** All unimmunized children less than age seven should start the DTaP vaccination series as soon as possible. All school-aged children in the affected communities should receive post-exposure prophylaxis. Antibiotics will be provided free of charge.
2. **Homer region children:** Review immunization records of all children age six years and younger who live in the Homer region. Children who are under-immunized for pertussis should receive a DTaP vaccination immediately.
3. **Healthcare providers**: Providers who evaluate patients for pertussis may obtain Regan-Lowe agar (pertussis culture media) from the Homer Health Center (907-235-8857) or the State Public Health Lab (907-334-2100).
4. **Suspected cases:** Suspected cases and household contacts, including adults, should be treated with an appropriate antimicrobial regimen (Table 3). ***Suspected and confirmed pertussis cases should be reported to the Section of Epidemiology*** at (907) 269-8000 during office hours or (800) 470-0084 after hours.

Table 3.	Medication	Adult Dose	Child Dose
Drugs of Choice	Erythromycin estolate (Ilosone)	Formulation not available for adults.	40 mg/kg/day in 2-3 divided doses for 7 days.
	Erythromycin ethylsuccinate (E.E.S.)	1-2 g/day in 4 divided doses for 14 days. Max 2 gm/day.	40-50 mg/kg/day in 3-4 divided doses for 14 days. Max 2 gm/day.
Alternative Drugs	Azithromycin (Zithromax)	10-12 mg/kg/day in one dose for 5 days. Max 500 mg/day.	10-12 mg/kg/day in one dose for 5 days. Max 500 mg/day.
	Clarithromycin (Biaxin)	15-20 mg/kg/day in 2 divided doses for 7-10 days. Max 1 gm/day.	15-20 mg/kg/day in 2 divided doses for 7-10 days. Max 1 gm/day.
	Trimethoprim (TMP) – sulfamethoxazole (SMZ) (Bactrim, Bactrim DS)	320 mg/day TMP/1600 mg/day SMZ in two divided doses for 14 days.	8 mg/kg/day TMP/40 mg/kg/day SMZ administered in two divided doses for 14 days.

(Submitted by Marc Chimonas, MD, MPH, Section of Epidemiology.)