



Bulletin No. 3

February 26, 2002

Investigation of Possible Encephalitis or Meningitis Cases in Anchorage  
September 2001 - February 2002

Since September 2001 the Anchorage Department of Health and Human Services and the Section of Epidemiology have been investigating individuals with possible encephalitis or meningitis caused by infections. After three children who attended Mears Middle School (Epidemiology *Bulletin* No. 19, 12/3/01) developed severe illnesses, an ongoing investigation was initiated to determine if a common etiologic agent could be identified.

We investigated a total of 11 individuals who were clinically diagnosed with encephalitis or meningitis in Anchorage (Figure 1), ranging in age from 3 years to 40 years (Figure 2).

*Bacterial Disease* (N=2)

- One person had a severe but nonfatal bacterial blood stream infection due to *Neisseria meningitidis*. This patient may have also had meningitis due to this bacteria.
- One person died of bacterial meningitis due to *Streptococcus pneumoniae*.

*Viral Meningitis* (N=3)

- One person had a headache, stiff neck, photophobia, and a normal cerebrospinal fluid (CSF) profile.
- One person had a headache, nausea, vomiting, and elevated white blood cells in the CSF.
- One person had a headache, ulcerations on the soft palate, nausea, vomiting, and elevated white blood cells in the CSF.

*Viral Encephalitis* (N=6)

- One person had laboratory evidence of Epstein-Barr virus infection with mental status changes and seizures. This patient died.
- One person had severe headache, mental status changes, and elevated white blood cells in the CSF.
- One person had a headache, nausea, vomiting, mental status changes.
- One person had a headache and a stumbling gait.
- One person had a headache, mental status changes, and elevated white blood cells in the CSF.
- One person had a headache, seizures, a stumbling gait, and elevated white blood cells in the CSF.

A team of epidemiologists and public health nurses interviewed patients and families looking for an epidemiological link between the cases. Daily active surveillance was established at four Anchorage hospitals. Specimens of blood, spinal fluid, NP swabs, and serologies were obtained from the 11 individuals and tested for multiple bacteria and viruses. Laboratory studies to date have identified no common infection, and epidemiologic investigation has found no links between individuals.

**Discussion**

Many organisms are known to cause acute infection and injury to the central or peripheral nervous system with a broad range of severity of symptoms, ranging from mild illness (most frequently) to fatality (rarely). Many of the signs and symptoms of these diseases are determined by whether the infection is limited primarily to the tissue that covers the brain and spinal cord (meningitis) or involve the nerve cells of the brain (encephalitis). The same organisms responsible for causing viral meningitis are also responsible for causing encephalitis, although their relative frequencies differ.

Among the viruses that cause meningitis or encephalitis, enteroviruses, arboviruses, herpes simplex, mumps, varicella, measles, Epstein-Barr, cytomegalovirus, HIV, and influenza A and B, are just a few. In the U.S., there are an estimated 33,000 reported cases of viral meningitis, 20,000 reported cases of encephalitis, and 14,000 reported cases of bacterial meningitis each year. Because most cases go unreported to public health authorities, we do not know the exact incidence of viral meningitis and encephalitis in the U.S.

Since many of these viruses commonly circulate in Anchorage and in Alaska each year, we expect to see patients with viral meningitis or encephalitis due to these viruses within our community. There is no epidemiological indication of an unusual pattern or outbreak of viral meningitis or encephalitis in Anchorage or Alaska. There are no new recommendations for special precautions, prophylactic medication, or vaccinations.

Figure 1. Possible Encephalitis or Meningitis Cases in Anchorage by Date of Onset--Sept. 2001-Feb. 2002

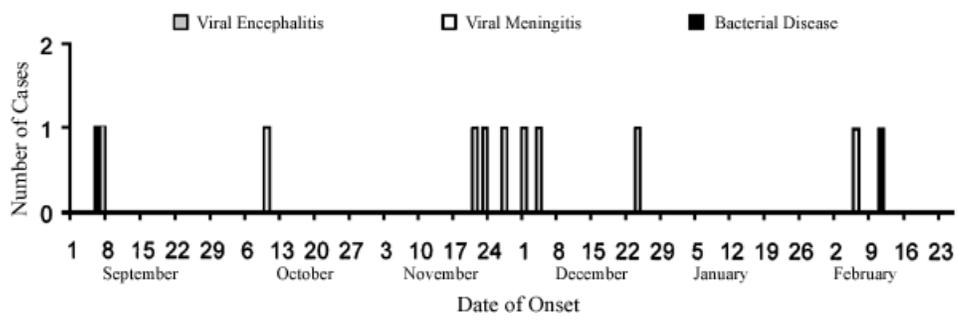
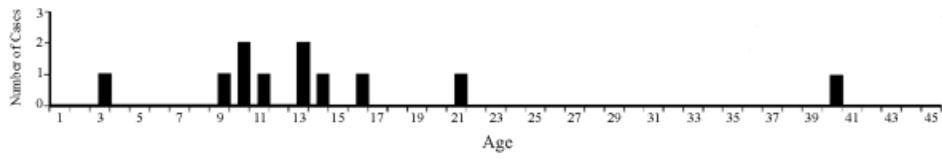


Figure 2. Possible Encephalitis or Meningitis Cases in Anchorage by Age--Sept. 2001-Feb. 2002



(Reported by Bruce Chandler, M.D., M.P.H., Municipality of Anchorage and Joe McLaughlin, M.D., M.P.H., Section of Epidemiology.)