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## HEPATITIS A AMONG WASTEWATER TREATMENT WORKERS - JUNEAU

In April 1984, a Juneau-Douglas wastewater treatment operator developed icteric illness diagnosed as hepatitis A by specific serologic testing. Concern was expressed by the patient, his physician, his co-workers, and by the plant operator that the patient's illness may have been work related.

Investigation revealed that this worker's illness was associated with none of the well-established sources of hepatitis A: the patient had no children in daycare, had not recently traveled outside the United States, had not eaten raw shellfish, had no contact with other hepatitis patients, etc. Two other Juneau-Douglas wastewater treatment operators - a former employee at the plant with which the index patient was associated and a operator currently working at a second Juneau/Douglas plant - had serologically confirmed hepatitis A in 1981. Neither of these operators could be associated with established sources of hepatitis A outside of work.

The two Juneau-Douglas plants where operators with cases worked are secondary treatment facilities, aerating and digesting concentrated sewage in a process which is almost completely bactericidal (although only partially viricidal). Potential routes of in-plant exposure to hepatitis A virus included hand-to-mouth contact and wastes inadvertently ingested through splashes or aerosols.

Twelve operators are employed at the two Juneau plants. The incidence of hepatitis A among these workers (8000/100,000/yr. since 1981) is significantly higher than that among the general population of Juneau-Douglas (25/100,000/yr. based on cases reported to the Rapid Telephonic Recording System). Recently we sampled serum from 11 of 12 current Juneau-Douglas wastewater treatment operators for antibodies to hepatitis A and hepatitis B. Results for nine (results are pending on two) show that antibody to hepatitis A was present only in the two current workers who have been affected by clinical hepatitis since 1981. No operator had antibody to hepatitis B.

In 1982-1983 the Epidemiology Office investigated four cases of hepatitis A among 20 Anchorage wastewater treatment plant operators at a facility which concentrates and burns raw sewage. The four cases, which occurred between 1979-1983, affected workers involved directly in wastewater treatment. None of the 25 workers who repaired machinery or were employed in the facility's laboratory or office were affected.

Several Environmental Protection Agency (EPA) sponsored studies have shown no or minimal risk to wastewater treatment workers of viral enteric illness (1). In contrast, a Danish study showed that Copenhagen sewer workers had higher levels of antibody to hepatitis A than a control-group of Copenhagen gardeners (2). The experience of wastewater treatment operators in Juneau-Douglas and in Anchorage indicates that operators have been at risk for hepatitis A in these plants. With the cooperation of workers against contracting hepatitis A are being implemented.

### References:

1. C.S. Clark, G.L. Van Meer, C.C. Linnemann, Jr. et al 1979. Health Effects of Occupational Exposure to Wastewater; Waste water Aerosols and Disease: 239-264.
2. Peter Skinhoj, M.D., F. Blaine Hollinger, Per Lous et al 1979. Infectious Liver Diseases in Three Groups of Copenhagen Workers: Correlation of Hepatitis A Infection to Sewage Exposure; Arch Env Health Vol 36: 139-143.

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