

## Health Impacts of Open Dumps

We carried out a series of scientific studies to try to figure out health impacts of open dumps on people living in Alaska Villages.

### The Birth Outcome Studies

In areas with environmental contamination, one of the first negative effects can be problems with people's reproductive systems. Contaminants like arsenic, lead, methyl mercury, and petroleum hydrocarbons are often found at dumps and have been shown to cause problems in babies. Increases in problems like low birth weight babies and birth defects have been found near contaminated areas but these studies have never been done in Villages.

#### What we did

We looked at birth records of babies born to mothers from Villages that have dumps with high hazard rankings. We then compared them to birth records of babies born to mothers from Villages with low hazard rankings. Birth records can be used to find the birth weight of babies, as well as the length of pregnancies, and complications (like some birth defects), and if the baby was stillborn or died within the first month of life. We examined over 10,000 records for babies born during 1997-2001. Through ANTHC and CCHITA records, we found dump hazard rankings for 197 Villages. When examining the data, we accounted for the fact that other risk factors for negative birth outcomes (like age of mother and cigarette use) were not the same for everyone.

#### What we found

- ◆ Mothers from Villages with high hazard dumps were about 2-4 times more likely to have low birth weight babies (babies weighing less than 2500 g) than other mothers.
- ◆ Mothers from Villages with intermediate hazard dumps had babies that weighed about 20 grams less than babies born to mothers from Villages with low hazard dumps. Mothers from Villages with high hazard dumps had babies that weighed about 55 grams less than other babies.
- ◆ Mothers from Villages with high and intermediate hazard dumps had pregnancies that lasted about 1 day less than pregnancies in mothers from Villages with low hazard dumps.
- ◆ We did not find differences in the number of mothers experiencing preterm births, or babies who were classified as very low birth weight (less than 1500 grams), or babies who were considered small for their gestational age.
- ◆ We found no statistical differences (or even indications of differences) in numbers of stillbirths or deaths to babies less than 28 days old.
- ◆ When looking at birth defects, we found no *statistical* differences based on the hazards of the dumps. However we did find *indications* of small increases in risks for

most types of defects examined in babies born to mothers from Villages with higher hazard dumps compared mothers from Villages with lower hazard dumps.

- ◆ Mothers from Villages that had dumps with highly hazardous contents were about 4 times more likely to have babies with certain birth defects (classified as "other" types of defects) than mothers from Villages with dumps that had moderately hazard contents.

### **What it means**

We don't know for sure if the mothers actually spent their pregnancies in the Village that was on the birth record, and how much contact they might have had with the dump. We also don't know if they had other environmental exposures that might account for higher risks of negative outcomes. These sorts of studies are the first types that are done when trying to figure out a problem.

## **The Health Symptom Studies**

To look at the health impacts of open dumps on Native people, CCTHITA carried out studies in four Villages located in the Yukon Delta, Northwest, Yukon Interior, and Southeast. In the summer of 2000, we gave 1,225 residents representing 295 households a survey about their solid waste disposal practices and symptoms that they had experienced the previous 10 days. We asked about 14 different symptoms, like headaches and fevers. We adjusted for things like smoking, age, and level of environmental concern.

- ◆ People living within  $\frac{1}{2}$  mile of the dump were more likely to experience these symptoms than others who lived further away.
- ◆ People who were bothered by odors were also more likely to have symptoms, and the more bothered by odors, the more symptoms they had.
- ◆ Home barrel burning was also associated with symptoms, and people who burned more seemed to experience more symptoms
- ◆ People visiting the dump in the previous 10 days were more likely to experience symptoms. And people who went to the dump more had higher rates of symptoms.
- ◆ People who ate subsistence foods more than half of the time were protected against experiencing symptoms compared to people who consumed subsistence foods less frequently.

## **More Information and How to Contact Us**

More information about these studies can be found in the health risks section of the Solid Waste Alaska Network (SWAN) at: <http://www.ccthita-swan.org/planning/health.cfm> . There, you can find handouts and presentations about the studies and also about reducing health risks associated with your community waste disposal practices. You can contact us, Dr. Lynn Zender ([lzender@zender-engr.net](mailto:lzender@zender-engr.net)), or Dr. Susan Gilbreath ([sgilbreath@zender-engr.net](mailto:sgilbreath@zender-engr.net)) at: Zender Environmental Services, (907) 277-2111, ( [www.zender-engr.net](http://www.zender-engr.net) )

**Thank you for your time.**