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EDITORIALS

Toxic math

A New York-based group called the Radiation and Public Health Project recently released seemingly alarming statistics about cancer and infant health in downstate Grundy County. The group implied that an alleged rise in health problems was related to the Dresden 2 and 3 nuclear reactors in Morris, which have license renewals pending before the Nuclear Regulatory Commission.

"Infant deaths, childhood cancer soar near Dresden plant," a statement from the group shouted.

This is the same group that has drawn accusations of peddling junk science for its ongoing project to assess the impact of above-ground nuclear bomb testing by examining old collections of baby teeth. In Grundy County, its case is a textbook example of the old saw, "Statistics will tell you anything if you torture them enough."

At the request of the Tribune, Tiefu Shen, chief of the division of epidemiological studies at the Illinois Department of Public Health, took a look at the numbers. In example after example, he said, the statistics cited by the group were technically accurate, but meaningless.

A clue that something's fishy is that the group cherry-picked time frames instead of looking at health statistics over the same period of time. The group examined infant deaths from 1990 to 2000. But it looked at birth defects from 1992 to 2001. For cancer rates, it was 1986 to 1999.

A well-chosen time frame affects one of the group's most eye-catching claims: the cancer rate for Grundy County youths (15 years old and younger) nearly quadrupled.

The baseline was 1990 to 1994, when there was one instance of cancer recorded. That was compared to 1995 to 2000, when there were six. Adjust for population growth, annualize the rates and *voilà!* The group can claim a 377 percent increase in cancer rates.

What the group doesn't mention is the inconvenient fact that Grundy County's cancer rate for youths 15 and under is lower than the state's. (Grundy County's rate was 8.1 cancers per 100,000 people from 1990 to 2000; the state's was 13.7 per 100,000.) As population in the county rises, you would expect cancer rates in Grundy County's to converge with state cancer rates.

A statistician would rightly point out that the smaller the population, the less reliable health

statistics will be. Statistically, Grundy County's cancer rate for youths is indistinguishable from the state's rate. The key point is that there's no sign of an unusual amount of cancer among Grundy County youths.

The group found the rate of infant deaths "soared 98 percent" from the first half of the 1990s to the second half, while it fell 11 percent statewide.

But Grundy County's infant mortality rate is lower than the state's: From 1997 to 2001, it was 5.9 deaths per 1,000 live births compared to 6.2 statewide.

For seven out of 10 health measures cited by the radiation group, there's no statistical difference between Grundy County and the state.

On two measures—babies born with low birth weight or very low birth weight—Grundy County does significantly better than the state. In only one measure, cancer deaths for those over 65, Grundy County looks worse than the state. In that case, Grundy County's rate resembles neighboring Kendall County, which doesn't have a nuclear power plant.

"Overall, we don't see a systematic pattern indicating that Grundy County's health statistics are worse than the state's," Shen said.

Beyond that, there is no evidence to suggest that deaths in the county can be traced to the nuclear plant.

In 2000, the Illinois Public Health Department compared child cancer statistics for counties with nuclear reactors and compared them to similar counties without reactors. It found no statistically significant difference.

In a study published in 1990, the National Institutes of Health looked at cancer rates and proximity to 62 nuclear power plants. It found no connection. In January 2001, the Connecticut Academy of Science and Engineering published a report on cancer rates among people living near the Haddam Neck nuclear power plant. The academy found no link there either.

The point is not to summarily dismiss concerns about nuclear power plants and health. Of course, nuclear power plants should be monitored and regulated closely. But critics only lose credibility by stoking fears with trumped-up statistics purporting to show a link between nuclear plants and illness. The Radiation and Public Health Project's case is a dud.