

Radiation and Public Health Project

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LOCAL INFANT HEALTH IMPROVED AFTER PALISADES SHUTDOWN SHARP DECLINES FOUND IN INFANT DEATHS, LOW-WEIGHT BIRTHS

April 22, 2025 – Infant health in Van Buren County MI, where the Palisades nuclear reactor is located, improved dramatically after its shutdown on May 31, 2022, according to a new analysis. County declines in morbidity/mortality rates after 2021-2022 were:

Infant mortality – declined 57.7%. The number of Van Buren County newborns who died in the first year of life fell from 10 to 4 from 2021-2022 to 2023-2024. The county mortality rate decline was -57.7%, compared to an increase of +0.6% nationally.

Perinatal mortality – declined 84.9%. The number of Van Buren County newborns who died in the first 28 days of life fell from 7 to 1 from 2021-22 to 2023-2024. The county mortality rate decline was 84.9%, compared to an increase of +2.9% nationally.

Low-weight births – declined 15.6%. The number of Van Buren County newborns who weighed less than 2500 grams (5.5 pounds) at birth fell from 141 in 2021-22 (an average of 70.5 per year) to 56 in 2023. No data for 2024 are yet available. The county low-weight birth rate decline was 15.6%, compared to an increase of +0.2% nationally.

In addition, improvements in infant health occurred in Berrien and Kalamazoo Counties, which adjoin Van Buren and have many more residents (415,000) than Van Buren County (76,000). Declines in rates in those counties were not as large as Van Buren County's.

“Palisades shutdown may have played a major role in improved infant health,” says Joseph Mangano MPH MBA, who prepared the analysis. Mangano, Executive Director of the Radiation and Public Health Project (RPHP), was lead author of a 2002 peer-reviewed article showing a 17.6% decline in infant deaths declines near eight nuclear plants, two years after shutdown, compared to a national decline of just 6.4%. “The fetus and infant are at greatest risk to radiation exposure, and most likely to benefit from shutdown.”

Information for the analysis was obtained from the Centers for Disease Control and Prevention and the Michigan Department of Health and Human Services. The findings of improved health near Palisades follows a 2023 RPHP report showing Van Buren County cancer death rates rose from 8% below to 14% above the U.S. since 1971 startup (<https://radiation.org/wp-content/uploads/2024/05/Palisades-report-Oct.-2023.pdf>).

Palisades, located in southwest Michigan and operated by Holtec International, is attempting to become the first of 40 permanently closed U.S. nuclear reactors to re-start operations, after operating from 1971 to 2022.

RECENT CHANGES IN INFANT HEALTH
NEAR THE PALISADES NUCLEAR REACTOR

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The shutdown of the Palisades nuclear reactor on May 31, 2022 ended routine radioactive emissions into local air and water. Peer-reviewed journal articles have shown dramatic and immediate declines in infant mortality near each of eight closed reactors (Mangano et al., 2002, <https://pubmed.ncbi.nlm.nih.gov/12071357/>). Data support the principle that the fetus and infant are more sensitive than adults to the harm from radioactivity.

Centers for Disease Control and Prevention (CDC) database on mortality (<https://wonder.cdc.gov/mcd-icd10-expanded.html>) enable county-specific assessments of changes in rates of infant deaths (under age one) and perinatal deaths (under age 28 days). The Michigan Department of Health and Human Services web site makes county-specific annual information available on low-weight newborns born under 2500 grams, or 5.5 pounds (<https://vitalstats.michigan.gov/osr/Nativity/BirthsTrends.asp>).

These data make possible an analysis of local changes in infant health indicators after the shutdown of Palisades. The periods before and after shutdown are 2021-2022 (the last two full years of operations at Palisades) and 2023-2024 (after closing). Mortality rates for each period are in deaths per 100,000 births, while low-weight births are given in percent of total births.

U.S. and Van Buren County trends will be calculated. In addition, rates will be calculated for Van Buren plus the two adjoining counties (Berrien and Kalamazoo), which have much larger populations. Results of the analysis follow:

INFANT MORTALITY

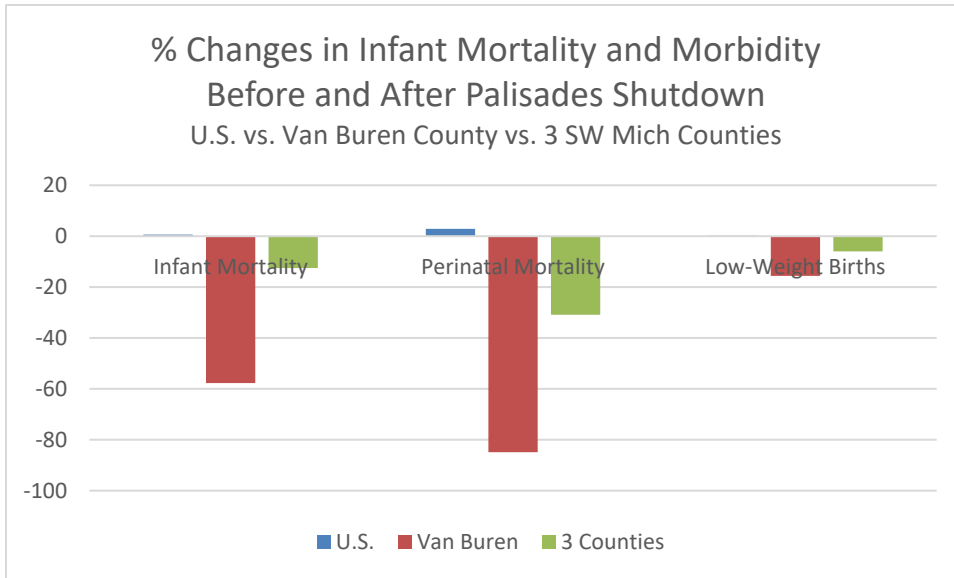
<u>U.S. Rate</u>		<u>Van Buren Rate (No.)</u>		<u>3-Co. Rate (No.)</u>		<u>% Change Rate</u>		
<u>2021-22</u>	<u>2023-24</u>	<u>2021-22</u>	<u>2023-24</u>	<u>2021-22</u>	<u>2023-24</u>	<u>U.S.</u>	<u>V.B.</u>	<u>3 Co.</u>
552.0	555.2	609.0 (10)	257.7 (4)	616.3 (62)	539.23 (51)	+0.6	-57.7	-12.5

PERINATAL MORTALITY

<u>U.S. Rate</u>		<u>Van Buren Rate (No.)</u>		<u>3-Co. Rate (No.)</u>		<u>% Change Rate</u>		
<u>2021-22</u>	<u>2023-24</u>	<u>2021-22</u>	<u>2023-24</u>	<u>2021-22</u>	<u>2023-24</u>	<u>U.S.</u>	<u>V.B.</u>	<u>3 Co.</u>
353.2	363.4	426.3 (7)	64.4 (1)	397.6 (40)	274.0 (26)	+2.9	-84.9	-30.9

LOW-WEIGHT BIRTHS

<u>U.S. Rate</u>		<u>Van Buren Rate (No.)</u>		<u>3-Co. Rate (No.)</u>		<u>% Change Rate</u>		
<u>2021-22</u>	<u>2023</u>	<u>2021-22</u>	<u>2023</u>	<u>2021-22</u>	<u>2023</u>	<u>U.S.</u>	<u>V.B.</u>	<u>3 Co.</u>
8.56	8.58	8.72 (141)	7.36 (56)	8.60 (864)	8.09 (381)	+0.2	-15.6	- 6.0



As of April 6, 2025, only four infant deaths in the three counties have been reported for the year 2025, suggesting a lower rate than 2023-2024. None of these infant deaths occurred among mothers residing in Van Buren County.

None of the differences with the U.S., either in Van Buren County or the three-county area, are statistically significant at $P < .05$. But the consistent and large declines in infant death and low-weight birth rates in the local area after 2022 are worthy of consideration. Because of the sensitivity of the fetus and infant to radiation, local morbidity and mortality rates would be expected to decline after the removal of environmental releases after 2022.

The data in this report suggest several follow up actions should be taken. Data in this analysis, and other infant health measures (such as birth defects and premature births) should be tracked as they become available. Future analyses can be performed to further explore the gap between local and national health trends among children, also at elevated health risk from radiation exposure.

Factors other than reactor shutdown that can affect fetal and infant health – health practices, socioeconomic status, and access to medical care – should be considered. Currently, no major changes in these factors since 2022 are evident.

This report’s data should be shared with the public through media, social media, and public officials, and included in the current discussion of whether to re-start the Palisades reactor. It should be coupled with a report on rising cancer death rates in Van Buren County in the years since Palisades began operating – especially among children and young adults (<https://radiation.org/wp-content/uploads/2024/05/Palisades-report-Oct.-2023.pdf>).

Perhaps most importantly, it would be prudent not to issue any regulatory decision to approve Palisades re-start until a thorough review of potential risks of reactor emissions to the public’s health are conducted and recognized.