

Public Health Division

Mt Vernon Elementary School Cancer Inquiry Response

May 2024

Oregon
Health
Authority

Introduction

In September 2019, administrators from the Springfield Oregon School District contacted the Oregon State Cancer Registry (OSCaR) on behalf of staff at the Mt Vernon Elementary School with concerns regarding the number of cancer diagnoses staff had observed among their peers. School district administrators asked OSCaR, on behalf of Mt Vernon staff, whether the amount of cancer observed in the school community would constitute a “cancer cluster.”

The Centers for Disease Control and Prevention (CDC) defines “cancer cluster” as “a greater than expected number of the same or etiologically related cancer cases that occurs within a group of people in a geographic area over a defined period of time.” The CDC has developed guidelines for evaluating community concerns about reports of cancers diagnosed among community members that appear to present a higher number of cancers than they would expect to observe among their friends, neighbors, and/or co-workers.

The Oregon Health Authority Public Health Division (PHD), including staff from OSCaR and the Environmental Public Health Section, follow the CDC guidelines in evaluating patterns of cancer reported by communities and in developing appropriate responses to community cancer concerns. These responses include evaluation of environmental conditions and confirmation that all appropriate environmental testing has been completed. PHD reviewed a variety of concerns raised regarding environmental conditions in and around the Mt Vernon School and concluded that no conditions have been identified that could be associated with an increased risk of cancer in the Census tract area of concern and would require remediation.

Background

The following is a brief timeline of OHA PHD’s response to the Mt Vernon cancer inquiry:

September 2019

The Springfield School District contacted OSCaR to discuss cancer concerns raised by staff at Mt Vernon Elementary School. PHD staff had a telephone meeting with Springfield School District (SSD) staff during the week of September 16th, 2019, and discussed the background for the inquiry and reviewed PHD procedures for triaging and evaluating cancer cluster inquiries. Staff explained concepts related to the perception of cancer in communities. PHD was advised that Mt Vernon was in compliance with the Healthy Schools Act (HSA) environmental health guidelines, and that all testing at Mt Vernon met HSA and other applicable standards. OSCaR staff confirmed with the PHD Environmental Public Health Section (EPH) that no other testing would be recommended by EPH based on the information provided by SSD as background to the Mt Vernon cancer inquiry. Some of PHD’s comments were repeated in correspondence sent by the superintendent of Springfield Public Schools to the Mt Vernon community, including the comment that no additional environmental testing was recommended by the Oregon Environmental Public Health Program.

February 2023

EPH was contacted by a former Mt Vernon staff person with an inquiry about the status of any environmental testing at Mt Vernon. PHD had not received any specific environmental testing reports at the time, but later received copies of Mt Vernon environmental reports, and confirmed that Mt Vernon was operating within HSA guidelines and standards.

August 2023

Staff from the office of Oregon State Representative John Lively contacted PHD by email dated August 24, 2023, with questions about a constituent's concerns associated with the Mt Vernon cancer inquiry. (It was later confirmed that the constituent that contacted Rep. Lively's office was the same individual who earlier had contacted EPH, and to whom OSCaR and EPH had recently responded by email with requested information).

September 2023

PHD staff had a telephone conference with OR-OSHA on September 18, 2023, to discuss potential environmental issues related to the Mt. Vernon inquiry. OR-OSHA indicated that they had been in communication with the former Mt Vernon staff person and that they had informed them about procedures for requesting copies of environmental testing results from public schools. They also shared that, based on their preliminary evaluation of the Mt Vernon inquiry, OR-OSHA policy would not support a recommendation for any further environmental testing.

At the request of Representative Lively, PHD staff met with Rep Lively and his staff on September 28, 2023 to answer their questions about the Mt Vernon cancer inquiry. PHD staff provided an overview of PHD procedures for responding to cancer inquiries, as well as the preliminary cancer data report produced by OSCaR that showed no excess cancer rates for residents in the census tracts proximate to Mt Vernon Elementary School when compared with cancer rates in the surrounding area.

February 2024

PHD was contacted by Lane County Public Health (LCPH) on February 8, 2024, regarding email communication sent to LCPH by another former Mt Vernon staff person reiterating concerns about the Mt Vernon cancer inquiry. LCPH referred the Mt Vernon staff person to PHD and forwarded the emails received by their office.

Statistical evaluation of cancer registry data

The first step in evaluating the Mt Vernon cancer inquiry was to make a preliminary determination of whether the residential area in the neighborhood surrounding Mt Vernon Elementary School has higher than expected rates of cancer. This involves a comparison of cancer rates in the area of interest (census tracts surrounding the Mt Vernon campus) with a larger area selected for the cancer rates comparison (Oregon). OSCaR staff calculated rates of all cancer types and rates of female breast cancer (the most often cited cancer observed among Mt Vernon staff) among residents residing in the area of interest, and among Oregon residents for the 10-year period 2012–2021.

Population data used to calculate rates were obtained using U.S. Census data estimates for 2021; Oregon population (all ages, population 4,246,155) was used as the referent population to estimate expected numbers of cancers for the standardized incidence ratio (SIR) calculations. The underlying census tracts were identified for the area of interest, which included tracts 3400, 3500, 1902, 1903, and 1904. In 2021, the population for the five census tracts combined was 24,212. During 2012–2021, 237,169 cases of cancer were reported among Oregon residents and 965 cases were reported in the census tracts of interest. During the same time period, 38,878 cases of female breast cancer were reported among Oregon residents and 145 cases of female breast cancer were reported in the census tracts of interest.

Age-adjusted rates of all cancers and female breast cancer in Oregon during 2012–2021 were used to generate an expected number of cases for both groups of cancers in the selected census tracts during the same time period. [Standardized Incidence Ratios](#) (SIR) were calculated for each cancer type group, comparing the observed number of all cancers and female breast cancers in the census tracts of interest to the expected number of cases for those areas. An SIR of 1.0 means the observed number of cases equals the expected number of cases. An SIR that is *significantly* above 1 means the observed number of cases is greater than the expected number; an SIR that is *significantly* below 1 means the observed number of cases is lower than the expected number. Statistical significance depends on the size of the numbers compared. In general, if the 95% confidence interval for an SIR includes 1.0, that means it is not significantly different from the expected number of cancer cases.

The results of this comparison show that the number of all cancer types and female breast cancers diagnosed among residents of the census tracts of interest were not significantly higher than expected during the designated 10-year time period. The SIR for all cancers in the census tracts of interest was 0.86 (95% confidence interval 0.80–0.91); the SIR for breast cancers in the census tracts of interest was 0.75 (95% confidence interval 0.64–0.89).

PHD staff also reviewed a list of cancers compiled by the Springfield School District (SSD) based on reports of cancers provided by Mt Vernon staff. A copy of the SSD list is attached as Appendix A.

Communication with Springfield School District

In a telephone meeting with Springfield School District staff, OSCaR shared some common perceptions associated with community cancer concerns, highlighting the following points:

When looking at cancer as a trend within a population, it should be noted that having a cancer diagnosis is quite common. Based on national cancer statistics, 1 in 2 men and 1 in 3 women will be diagnosed with cancer during their lifetimes. Statistics also show that most cancers develop in individuals over the age of 60. In fact, age is one of the primary risk factors for cancer. Also, it is important to note that cancer is not one disease but is more accurately understood as over 100 different diseases. Therefore, any environmental exposures that are identified as carcinogenic will likely be associated with one or a few specific types of cancer, but not all cancers.

Another important part of our understanding of cancer causation is that cancer takes years to develop (cancer experts estimate that cancer in adults typically develops over a period of about 15 years after the first carcinogenic exposure). Our general understanding is that cancer develops due to a variety of environmental exposures and multiple biological factors, and in the vast majority of cases, cancer causation cannot be determined. Therefore, although cancer registry data can give an indication of whether cancer rates in a particular area or population are higher or lower than cancer rates overall, cancer registry data cannot help us understand what caused an individual case of cancer. Scientific research, typically performed at universities and medical centers, is the chief means of determining causes of cancers. PHD does not have the resources to perform such research.

Evaluation of school environmental concerns

Part of the initial evaluation of a cancer cluster inquiry is to conduct a preliminary assessment of potential environmental concerns in the area of interest. Notwithstanding the overall statistical analysis that concluded cancer rates in the vicinity of the Mt Vernon School were not higher than expected, PHD staff reviewed environmental test results for the Mt Vernon School and confirmed that Mt Vernon is in compliance with Healthy Schools Act guidelines, which include environmental testing standards for radon and lead. Further, PHD staff confirmed that there was no asbestos in the building materials used in the construction of the Mt Vernon School building in 1997.

Water

Mt Vernon Elementary School is on a public water supply (Springfield Utility Board). This is the same water system as the rest of the city, not specific to the school. PHD staff searched the state drinking water online database: <https://yourwater.oregon.gov/wssearch.php> searching on “Springfield” and selected “Springfield Utility Board” or Public Water System ID 00837.

Analysis found:

- 1 violation on record: they were two days late reporting testing results for one of their source wells.
- 2018: two excursions on corrosion goals in a 6-month period. An *excursion* occurs when a water quality parameter is outside the range of the health-based standard.
 - The concern with corrosion control is the potential for leaching lead or copper from plumbing pipes in older structures throughout the distribution system. However, the school was built in 1997 so it wouldn't have any lead pipes or lead soldering, which were banned in new construction by Congress in 1986.
 - No excursions since 2018.
- Springfield Utility Board installed a new corrosion-control system in 2021.
- Overall, Springfield Utility Board had very clean water results all the way back to 1983, where PHD online records end (before school was built).

Lead testing in school water required under Healthy Schools Act

School water was tested in December 2019. Almost all tests did not detect lead, except one faucet in a boys' washroom was slightly over the maximum contaminant level (MCL) of 0.015 mg/L.

https://resources.finalseite.net/images/v1695335443/springfieldk12orus/oh4iv03s7oztwhobkvpu/2019_MtVernonLeadtestresults.pdf

Radon testing under Healthy Schools Act

Radon was tested in December 2019. All testing locations were below the level of detection except the principal's office.

Data available online here:

<https://resources.finalseite.net/images/v1695335845/springfieldk12orus/a8aoo0kxs3wmys7du6i5/MtVernonRadon.pdf>

Additional environmental concerns expressed by staff and district sampling in response

The Springfield School District has noted numerous comments from Mt Vernon staff expressing concern about potentially unhealthy conditions in the Mt Vernon School environment. Among the environmental concerns mentioned are that the school was built on property where a filbert orchard was previously located; the school is located adjacent to a cell tower; staff have noticed mold inside the school that is black in color; and there have been questions about the HVAC system and building materials used in the 1997 construction. In a March 2024 school board meeting, former staff offered statements requesting testing for polychlorinated biphenyls (PCBs) in the school building and soil testing on school property.

On May 3rd, 2024, Springfield School district shared a report from PBS Engineering and Environmental LLC with PHD. The report included laboratory reports and summarized environmental sampling that PBS conducted on April 24, 2024. The testing included mold and indoor particulate matter, asbestos, pesticides, and polychlorinated biphenyls (PCBs). Asbestos, pesticides, and PCBs were not detected in any samples. Indoor mold and particulate matter were similar to outdoor air and within typical ranges for indoor settings. PHD finds no results of concern in this additional testing.

Conclusions and recommendations

The Public Health Division concludes that (1) no carcinogenic risks have been identified, (2) the majority of cancers reported by school staff are common cancer types, and (3) cancer rates fall within the expected range of cancer incidence for the geographic area of concern. PHD does not recommend any additional environmental testing or any further analysis of public health cancer data.

Finally, OHA PHD would like to acknowledge that cancer is a devastating disease. It is always saddening to hear of cancer diagnoses and the impact they have on individuals and their loved ones. Almost all of us know a family member or friend who has received a cancer diagnosis. The Oregon State Cancer Registry exists to support efforts in the screening, treatment and survivorship of all people in Oregon affected by cancer.

Appendix A.

Cancers reported by Springfield School District in staff and students at Mt Vernon Elementary

2001

- Student – Ewing's Sarcoma
- Student – Brain cancer
- Staff – Leukemia

2002

- Staff – Breast cancer

2007

- Staff – Breast cancer

2008

- Student – Brain cancer

2017

- Staff – Breast cancer

2018

- Staff – Breast cancer

2019

- Staff – Leukemia
- Staff – Breast cancer
- Staff – Breast cancer

Known risk factors for cancer types reported

A risk factor is anything that increases a person's chance of developing cancer. Although risk factors often influence the development of cancer, most do not directly cause cancer. Older age is one of the top risk factors for most cancers. Some people with several risk factors never develop cancer, while others with no known risk factors do. Following are the cancers of concern in this community and risk factors associated with them:

- Ewing's Sarcoma – <https://www.cancer.org/cancer/types/ewing-tumor/causes-risks-prevention/risk-factors.html>
- Brain cancer – <https://www.cancer.org/cancer/types/brain-spinal-cord-tumors-adults/causes-risks-prevention/risk-factors.html>
- Leukemia – <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=34&contentid=17601-1>
- Breast cancer – <https://www.cancer.org/cancer/types/breast-cancer/risk-and-prevention.html>