



Cancer is Not Our Destiny

The People's Cancer Incidence Screening Tool (PCIST)

A Citizens' Project in Support of Dignity-Based Epidemiology in Pennsylvania

Community Cancer Incidence Report for Tinicum Township, PA

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People's Cancer Incidence Screening Tool (PCIST)

1

We calculate the average annual crude incidence of 23 different types of cancer over a 20-year (2002-2021) period in a PA town, borough or municipality

2

We compare the local cancer incidence numbers to the national, state and county numbers to identify significant "cancer signals" with elevated rates

3

We take the median age of onset of each type of cancer and compare it with the median age of the town, county, PA and US populations to assess the effect of differences in population age on the cancer rates

4

We investigate and address probable causes of elevated "cancer signals", including heavily polluting industries; infections associated with cancer development; and predatory marketing of addictive toxins to vulnerable EJ communities

Cancer	U.S. Median Age of Onset
Brain and Nervous	61
Breast (F only)	62
Cervical	50
Colon and rectal	66
Esophageal	68
Hodgkin's Lymphoma	39 (bimodal, 20 and 55+)
Kidney and renal	65
Laryngeal	66
Leukemia	65-74, varies by type
Liver and bile	62 (liver) and 70 (bile)
Lung and bronchial	71
Melanoma (skin)	(skin, 66)
Myeloma	60
Non-Hodgkin's lymphoma	67
Oral and pharyngeal	64
Ovarian	63
Pancreatic	70
Prostate	66
Stomach	68
Testicular	33
Thyroid	51
Uterine	60
Urinary and bladder	73

Cancer Rates Vary By Age

The U.S. national, PA state, PA county, and municipal/township/borough cancer incidence rates used in PCIST are crude rates. We derive these by taking the total number of invasive cancer cases that occurred in a specific population (<20 yrs, <30 yrs, adults 20+, and All ages — total, females & males) in relation to the total number of people in that specific segment of the population. This produces a value that represents the amount of cancer in a community relative to its relevant population size. These values are then compared to generate incidence ratios. In our community reports, we flag municipal “cancer signals” with a percentage rate equal to or more than 10% higher than the US, PA and County numbers.

It is important to note that most cancer rates increase with age. To help interpret the effect of a population's age distribution on its crude incidence rates, the following is provided:

- 1) A reference table (at left) with the median age of onset of each type of cancer in the U.S. as per the American Cancer Society
- 2) The relevant median population age for each municipality/ township/borough, the county, PA state, and the US nation
- 3) A chart that shows the precise population age distribution in 5-year increments, derived from the 2010 US Census figures that are used in PCIST's 20-year calculations

When analyzing cancer signals, it is important to note that (with the exception of Hodgkin's lymphoma and testicular cancer) a younger population's crude cancer incidence rates will be under-represented when compared with an older population.

PCIST uses publicly available data sources from the American Cancer Society; the PA Cancer Registry via the PA Department of Health; the CDC SEER and WONDER databases; and the U.S. Census' American Community Survey. None of these providing institutions are responsible for PCIST calculations, interpretations and reports.

Please visit www.pcist.net or contact PCIST@pm.me for a detailed explanation of the PCIST project and more information about the People's Cancer Incidence Screening Tool.

MORE Air & Water Pollution: OUR CONTEXT for RISING CANCER

In the community of Tinicum along the Delaware River, residents have faced **elevated cancer rates for at least the past 20 years.**

WHY? CUMULATIVE IMPACTS

Tinicum is part of an **environmental justice zone**. It is home to the Philadelphia airport and the I-95 and 476 highways. To the south, there is the largest trash incinerator in the U.S. (ReWorld); Delco's sewage sludge treatment plant; Evonik and PQ Chemical plants; Kimberly-Clark's paper factory and LNG power plant; Delta Airlines' oil and Energy Transfers' natural gas liquids refineries and storage facilities; and Braskem petrochemicals. More petrochemical facilities and refineries to the north in Philly and across the Delaware river in NJ also contribute to air and water pollution.

The heavy pollution from all these industries compounds and travels, affecting residents in this community and the fish, birds and wildlife in the John Heinz national wildlife refuge. Currently, Penn America Energy is working to build an LNG refinery and export facility in this SE Delco environmental justice zone, specifically Eddystone or Chester city. Like Energy Transfers, they want to make profits for their shareholders by selling LNG in Europe and Asia for plastics manufacturing, at the clear expense of the health of local residents.

Additionally, Tinicum needs adequate medical screenings and treatments for **infections** that can contribute to cancer, such as **HPV** (cervical cancer), **EBV** (Hodgkin's lymphoma), **Hepatitis B and C** (liver cancer), **H. pylori** (stomach cancer), and **HIV** (many cancers). In pursuit of profit, companies also sell already vulnerable residents addictive products that contain carcinogenic substances, such as **tobacco** and **alcohol**.

2010 Median Population Age:

Tinicum (42.3) is **older than** the US (36.9), PA (39.8) & Delco (38.5)

TOTAL CANCER IN TINICUM

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among all ages of the population of **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware Co** by:

All Age Cancer in Tinicum	> US	> PA	> Delco
Laryngeal	264%	203%	212%
Lung and bronchial	115%	78%	81%
Urinary and bladder	64%	21%	31%
Colon and rectal	59%	30%	28%
Esophageal	57%	23%	38%
Stomach	47%	31%	35%
Thyroid	38%	-2%	6%
Brain and nervous	37%	18%	29%
Oral and pharyngeal	29%	18%	29%
Kidney and renal	26%	12%	16%
Liver and bile	23%	12%	8%
Myeloma	13%	2%	26%
Non-Hodgkin's Lymphoma	13%	-6%	5%
Pancreatic	11%	-10%	-3%
Leukemia	10%	-5%	28%

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FEMALE CANCER IN TINICUM

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among females of all ages in **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware Co by:**

All Age Female Cancer in Tinicum	> US	> PA	> Delco
Urinary and bladder	133%	69%	67%
Lung and bronchial	131%	91%	85%
Colon and rectal	115%	72%	72%
Uterine	87%	36%	42%
Thyroid	71%	22%	36%
Laryngeal	60%	28%	36%
Cervical	58%	60%	62%
Myeloma	53%	39%	58%
Ovarian	52%	28%	28%
Liver and bile	51%	45%	47%
Non-Hodgkin's lymphoma	47%	20%	35%
Oral and pharyngeal	35%	19%	39%
Kidney and renal	15%	2%	11%
Breast	14%	2%	0%
Esophageal	11%	-12%	-21%

2010 Median Female Age: The total female Tinicum (45.6) population is **older than** the US (38.1), PA (41.2) & Delco (40.0)

MALE CANCER IN TINICUM

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among males of all ages in **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware Co by:**

All Age Male Cancer in Tinicum	> US	> PA	> Delco
Laryngeal	289%	228%	229%
Lung and bronchial	101%	66%	77%
Stomach	75%	50%	53%
Brain and nervous	72%	50%	58%
Esophageal	60%	25%	48%
Urinary and bladder	37%	1%	12%
Kidney and renal	28%	14%	12%
Leukemia	27%	10%	50%
Pancreatic	25%	2%	9%
Oral and pharyngeal	22%	14%	18%
Colon and rectal	12%	-7%	-9%

2010 Median Male Age: The total male Tinicum (40.1) population is **older than** the US (35.6); PA (38.3) & Delco (36.7)

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CANCER IN TINICUM

PEDIATRIC CANCER

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among **children aged 0-19 years** in **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware County** by:

Pediatric Cancer in Tinicum 0-19 years of age	> US	> PA	> Delco
Non-Hodgkin's lymphoma	351%	5%	352%
Brain and nervous	238%	3%	190%

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YOUTH CANCER

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among **youth aged 0-29 years** in **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware County** by:

Youth Cancer in Tinicum 0-29 years of age	> US	> PA	> Delco
Uterine	2036%	2036%	3665%
Brain and nervous	135%	101%	114%
Non-Hodgkin's lymphoma	96%	96%	79%
Leukemia	81%	85%	93%
Hodgkin's lymphoma	53%	26%	43%

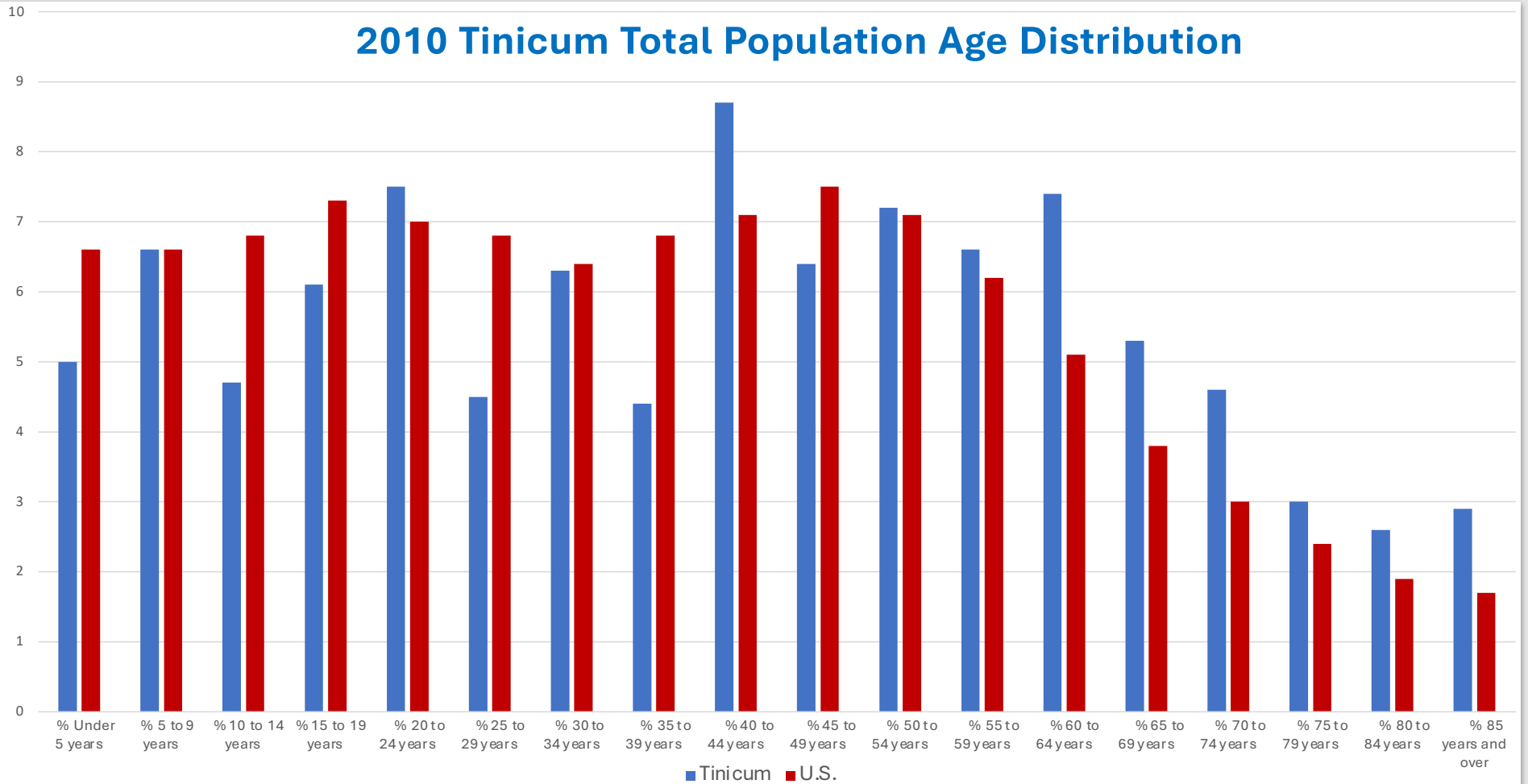
♦ Tinicum lies at the northern end of the Southeastern Delaware County environmental justice region along with Eddystone, Chester city, Trainer and Marcus Hook. It is a heavily industrialized and polluted residential area located on the Delaware riverfront.

ADULT CANCER

During **2002-2021 (20 years)**, the average annual crude cancer incidence rate among **adults aged 20+** in **Tinicum** is greater than the corresponding rate for the **US; PA; & Delaware County** by:

Adult Cancer in Tinicum 20+ years of age	> US	> PA	> Delco
Laryngeal	248%	193%	194%
Lung and bronchial	104%	73%	71%
Uterine	71%	23%	27%
Urinary and bladder	56%	18%	23%
Colon and rectal	51%	26%	21%
Esophageal	50%	19%	30%
Cervical	44%	48%	45%
Stomach	41%	27%	28%
Ovarian	40%	20%	16%
Thyroid	33%	-3%	2.3%
Oral and pharyngeal	23%	15%	22%
Kidney and renal	21%	11%	10%
Liver and bile	17%	12%	2%
Leukemia	13%	8%	31%
Brain and nervous	11%	-1%	-15%
Myeloma	7%	3%	19%

2010 Tinicum Total Population Age Distribution



PCIST's TIPS to Help Protect Our Families

1. RUN AIR PURIFIERS IN OUR HOMES. These machines [remove toxic particles](#) so that we don't inhale them into our lungs. This helps to prevent both cancer and asthma. The best ones have an [activated carbon filter](#) that also removes VOCs (volatile organic compounds). An air purifier handles a set amount of space, so we may need more than one (or to move the one we have when we go to bed). Found on Amazon and Walmart, Lowes, and Home Depot.

DID YOU KNOW? We can inexpensively build our own air purifier with a box fan and furnace filters. Google "How to make a Corsi-Rosenthal box" for directions. Try to use MERV activated carbon filters, which are available on Amazon and at Lowes and Home Depot.

2. REPLACE YOUR GAS STOVE WITH AN ELECTRIC ONE. Natural gas and propane stoves release invisible, odorless and toxic gases (including radon, benzene, nitrogen dioxide and methane) into our homes. These gases affect air quality throughout our homes, including in the bedrooms, and are known to cause asthma and cancer. It is much safer to cook with an electric stove.

3. USE A WATER FILTER, ESPECIALLY IN THE KITCHEN. These filters [remove harmful particles and toxic chemicals from our drinking and cooking water](#). Some come as a pitcher that we fill with water from the tap, while others attach directly to the faucet. The [best filters also remove PFAS/PFOS – forever chemicals](#) – that are known to be in Delaware County's water supply. Found on Amazon and in a wide range of department and home supply stores.

4. AVOID ADDITIONAL FACTORS that put addictive toxins in our bodies and increase cancer risk, such as [smoking](#); breathing [second-hand smoke](#); and [drinking alcohol](#). Some [infections also contribute to causing cancer](#) such as [HPV](#) (cervical cancer), [EBV](#) (Hodgkin's lymphoma), [Hepatitis B and C](#) (liver cancer), [H. pylori](#) (stomach cancer), and [HIV](#) (many cancers). If you were exposed or have symptoms, ask a doctor for [testing and proper treatment](#). All girls and women can also [get vaccinated against HPV](#) between the ages of 9 and 45.

5. FIND AND JOIN ENVIRONMENTAL JUSTICE GROUPS IN YOUR COMMUNITY TO LEARN HOW TO FIGHT BACK against the polluters that are killing us with asthma and cancer, among other diseases. Take a few minutes to [call local political leaders](#) and tell them that we [need clean air and clean water](#). Use your voice to speak up – together we are very strong and loud!

See links on www.pcist.net for suggested environmental health organizations that you can join [to get connected and learn more](#).