

Data Brief: Health

A Norfolk Southern freight train carrying hazardous materials derailed in East Palestine, OH on February 3, 2023. This is a summary of human health data gathered after the derailment to assess acute and chronic health impacts.

Key Points:

- An Assessment of Chemical Exposures (ACE) was conducted among 312 first responders and 708 residents near the derailment.
- Among first responders, the most commonly reported symptoms were runny nose, stuffy nose/sinus congestion, and burning nose or throat. Among residents, headaches and anxiety were the most frequently reported health distress symptoms.

Assessment of Chemical Exposures (ACE)

What is an **ACE** Investigation?

- **A**ssessment of **C**hemical **E**xposures sponsored by the Agency for Toxic Substances and Disease Registry (ATSDR, Centers for Disease Control and Prevention), and collected by state health departments.
- Rapid assessments investigating the potential health impacts of a chemical release on individuals and the community.
- Interviews of people who were potentially exposed to chemicals of concern.
- Collects information on exposure history, symptoms experienced, medical history, and health services used.

Table 1. Ohio and Pennsylvania ACE survey responders collected from March 5-31, 2023*

	OH	PA
First Responders	198	114
Residents	534	174
Total	732	288

*Source: Ohio and Pennsylvania Departments of Health

- Residents within a two mile radius of the derailment or first responders answered the ACE survey in-person at the health center, online via weblink, or door-to-door canvassing.
- Half of Ohio first responders were onsite for 22 hours; 42% of Pennsylvania first responders had six or more contact hours. Only 30-40% of first responders wore a face mask respirator.

Figure 1. Types of first responders completing the ACE survey.

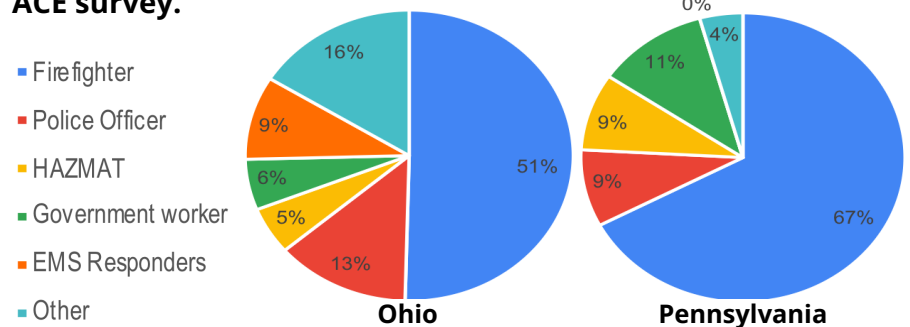
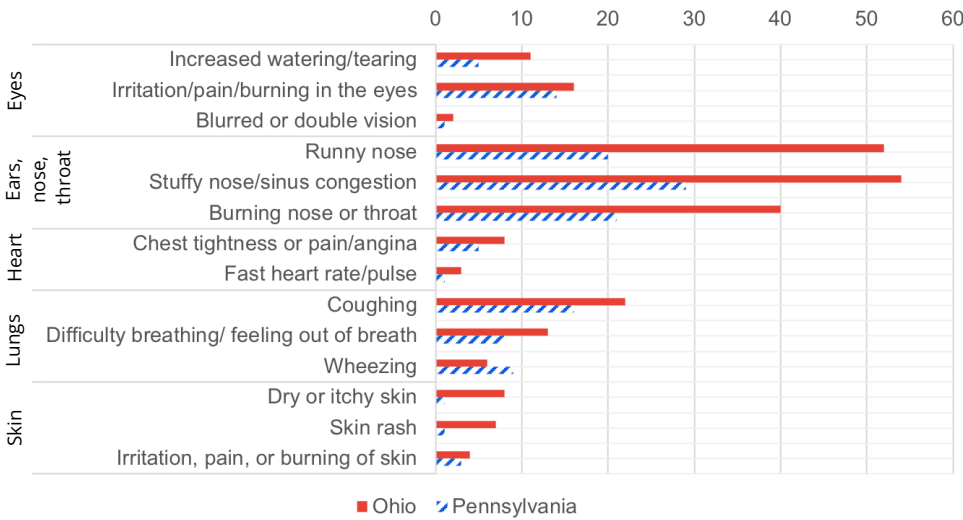
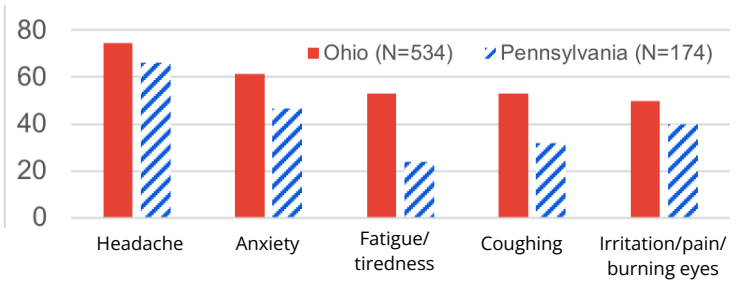


Figure 2. ACE Survey: First Responder Symptoms (No.)



- A greater number of Ohio first responders reported experiencing symptoms than Pennsylvania first responders (**Figure 2**).
- Runny nose, stuffy nose/sinus congestion, and burning nose or throat were the most frequently reported symptoms by first responders in both Ohio and Pennsylvania.

Figure 3. ACE Survey: Residential Symptoms (%)



- Higher percentages of Ohio residents reported symptoms than Pennsylvania residents across five categories (**Figure 3**).
- Of residents reporting health distress symptoms, headaches and anxiety were most frequently reported for residents of both Ohio and Pennsylvania.

Baseline Data

Table 2. County demographics for East Palestine and surrounding communities providing context for understanding health outcomes*

	Ohio		Pennsylvania	
	Columbiana	Mahoning	Beaver	Lawrence
Total Population (N)	100,511	225,636	165,677	84,849
Age and Sex (%)				
Persons under 5 yrs	4.9	5.3	4.7	5.0
Persons under 18 yrs	20.1	20.1	19.2	19.8
Persons 65 yrs and older	22.1	22.5	22.9	23.4
Female persons	49.0	50.8	50.9	51.2
Race and Hispanic Origin (%)				
African American/Black	2.6	15.7	6.5	4.3
Asian	0.3	1.0	0.6	0.5
Hispanic/Latino	2.1	6.9	2.2	1.9
White	93.3	80.2	90.0	92.5
Education (%)				
High school grad or higher	89.5	91.4	94.5	91.8
Bachelor's degree or higher	15.7	24.9	25.9	21.5
Income and Poverty				
Median household income	\$51,664	\$50,750	\$62,152	\$53,106
Persons in poverty (%)	16.7	19.3	11.10	12.2

*Source: U.S. Census Bureau QuickFacts, 2023

Table 3. Baseline health status, 2022*

	Columbiana	Ohio	Peer Group	US
Cancer Incidence Rate/100,000	442.6	456.0	469.5	465.3
Heart Disease Prevalence (%)	7.3	6.7	7.2	6.7
Diabetes Prevalence (%)	11.1	10.5	N/A	N/A
Adults w/ Frequent Mental Distress (%)	17.1	15.1	16.3	15.4
Adults in Poor or Fair General Health (%)	17.5	17.2	19.8	17.6

*Note: Sample size varies for each measure; appx. 750 individuals surveyed in 2021; **Source:** Columbiana County community health assessment in 2022; Peer Group: Matching US counties based on characteristics and other factors presented in Table 2.

Columbiana County had higher rates of heart disease, diabetes, mental distress, and poor/fair health than residents of other Ohio counties before the derailment.