



Summer 2010

Polycythemia Vera in Northeast Pennsylvania

Epidemiology for Healthcare Providers Serving Carbon, Luzerne and Schuylkill Counties

About ATSDR

The Agency for Toxic Substances and Disease Registry (ATSDR) serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

ATSDR is a sister agency to the Centers for Disease Control and Prevention (CDC) and has partnered with PADOH since 1989.

PV, MPNs and JAK2

PV is a rare, chronic myeloproliferative neoplasm (MPN) in which uncontrolled production of erythrocytes leads to hyperviscosity of the blood, resulting in signs and symptoms related to poor circulation and thrombosis. Most people develop PV later in life; the median age at diagnosis is 60 years old. The etiology of PV is unknown.

More than 90 percent of PV patients have a mutation in the gene for JAK2, a tyrosine kinase that plays a regulatory role in hematopoiesis. JAK2 testing can help determine if a patient has or might develop PV or other MPNs.

Summary

In 2004, the Pennsylvania Department of Health (PADOH) identified more cases of polycythemia vera (PV) than expected in parts of Carbon, Luzerne and Schuylkill Counties.

While state cancer data for 2001—2002 show that the incidence of PV in Pennsylvania is 1.6 in 100,000, parts of Carbon, Luzerne and Schuylkill counties have incidence values ranging from 1.7 to 5.9.

National incidence values for PV range from about 1 in 100,000 to 2.3 in 100,000.

The purpose of this fact sheet is to provide healthcare providers with information about PV epidemiology in northeast Pennsylvania.

PV Cluster in Northeast Pennsylvania

Nationally, reported incidence values for PV vary from about 1 in 100,000 to as high as 2.3 in 100,000. State cancer data from 2001 to 2002 show that the incidence of PV in Pennsylvania is 1.6 in 100,000. These same data identified three Pennsylvania counties with higher PV incidence:

- Carbon County, 1.7 per 100,000
- Luzerne County, 5.9 per 100,000
- Schuylkill County, 4.7 per 100,000

In a subsequent survey (December 2006 to July 2007), ATSDR found more confirmed cases of PV than expected in three specific areas: one area near Pottsville, another near Tamaqua and a third area in eastern Carbon County.

ATSDR's survey made use of molecular (JAK2) testing to identify patients with PV. Because the JAK2 mutation was discovered in 2005, previously PV could not be diagnosed with the same accuracy with which it can be diagnosed today. Through JAK2 testing, the ATSDR survey concluded that only 53 percent of patients who thought they had PV and could be evaluated actually had PV. Still, the PV rate in parts of the tri-county area does appear to be elevated.

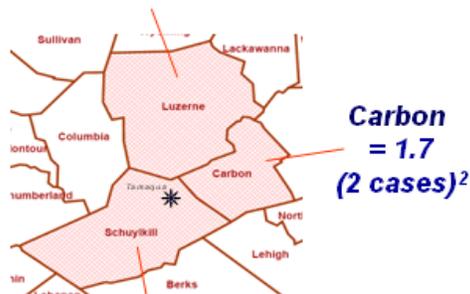
Now that molecular testing for PV is available, it would be useful to reevaluate national PV incidence.

Polycythemia Vera Rates (2001–2002) From National and State Cancer Registry Data (Adjusted for Age)

U.S. = 1.0 (5329 cases)¹



Luzerne = 5.9 (37 cases)²

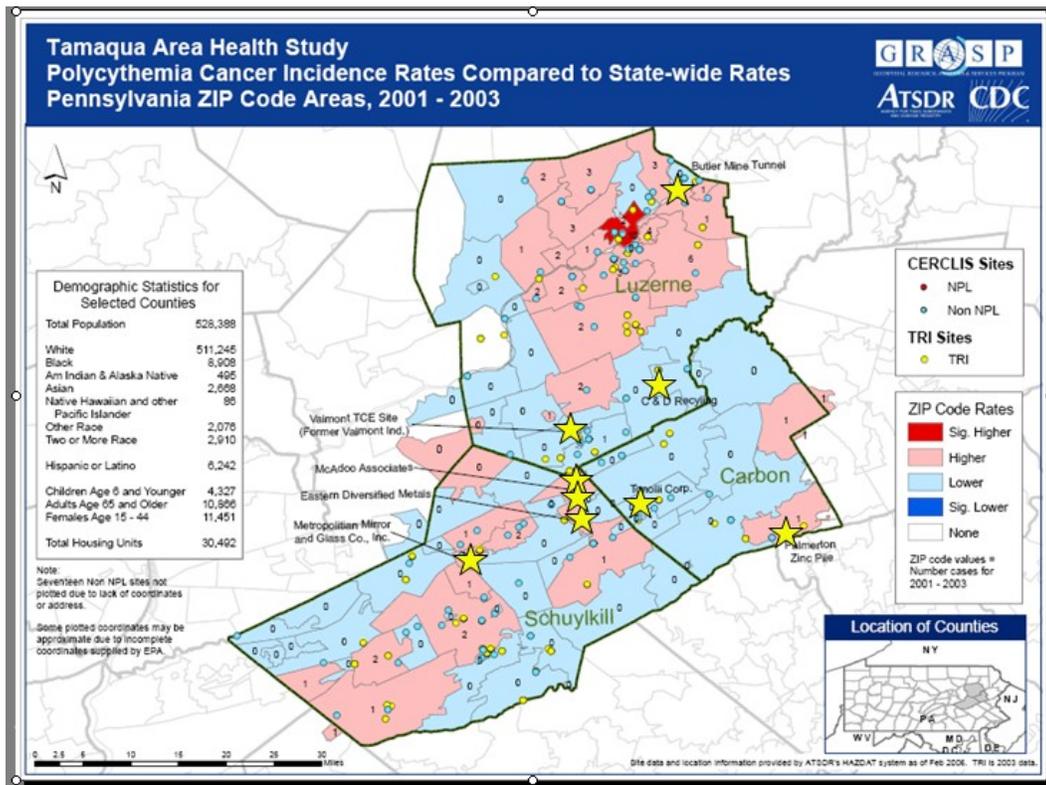


PA = 1.6 (412 cases)²



¹U.S. Cancer Statistics Working Group, United States Cancer Statistics: 1988–2004 Incidence and Mortality Web-based Report

²Pennsylvania Cancer Registry, Final 2001–2005 Report, Feb 2008



For More Information

To obtain more information about PV, you can:

- Visit ATSDR's Web page on PV:
http://www.atsdr.cdc.gov/sites/polycythemia_vera/index.html
- Call ATSDR's toll-free PV information line:
866-448-0242

References

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