

Polycythemia Vera Incidence in the Tamaqua Area of Pennsylvania

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ATSDR
AGENCY FOR TOXIC SUBSTANCES
AND DISEASE REGISTRY

Summary of October 2007 Meeting

Goals

- ❖ Locate and confirm all PV cases diagnosed in the tri-county area during 2001-2005
- ❖ Characterize PV cases with respect to:
 - residence
 - employment
 - lifestyle habits
 - recreational activities

Methods

- ❖ Recruitment of registry and non-registry PV cases
- ❖ Data collection:
 - interview/survey
 - optional JAK2 test
 - medical record review
- ❖ Diagnosis confirmation by expert panel



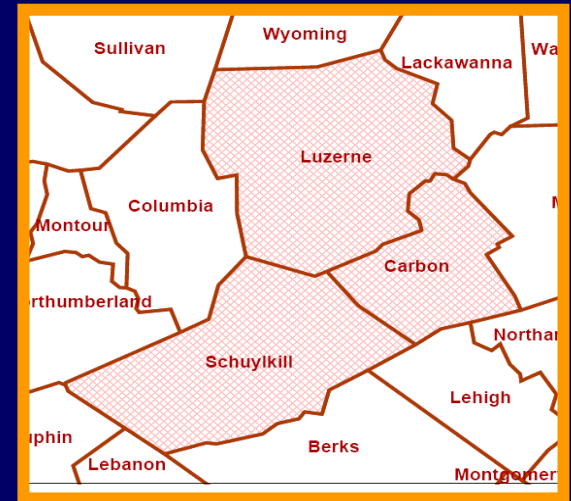
Case Definitions



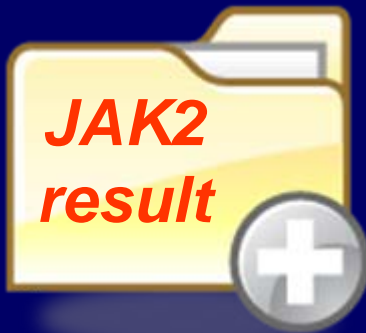
Eligible participant

2001-2005 medical diagnosis of PV

Tri-county resident at diagnosis



Confirmed case



and
or



World Health
Organization
PV Guidelines

=

- PV**
- not PV**
- possible PV**
- ???**

Confirm diagnosis of participants

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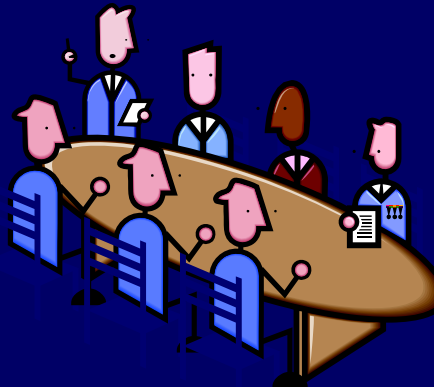
Optional JAK2 test

Medical records

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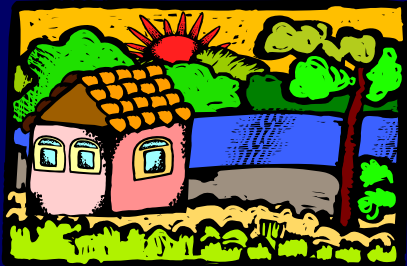
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- PV*
- not PV*
- possible PV*
- ???*

Expert panel

Characterize PV cases

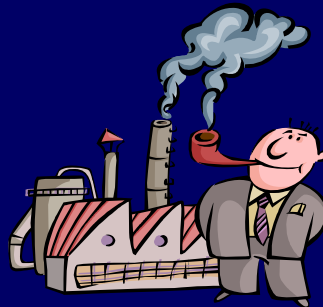
Residence



Employment



Lifestyle habits

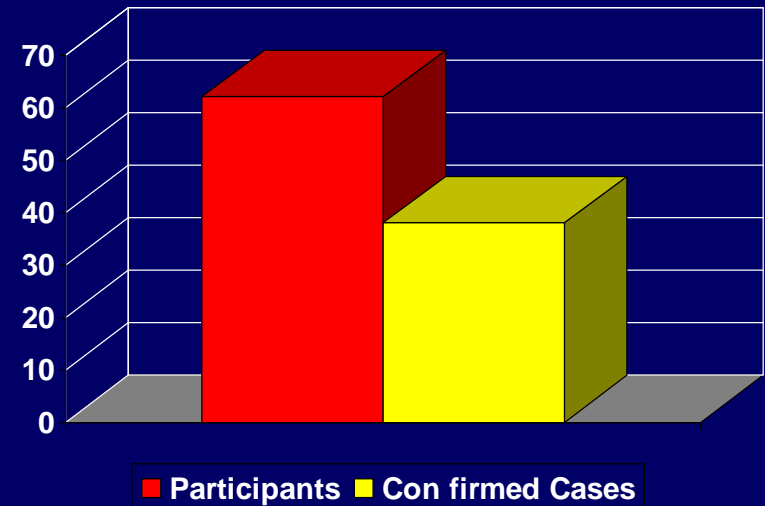


Recreational activities



Results

- ❖ PV confirmed in 33 of 62 participants
 - ❖ 38 of 97 registry cases interviewed
 - ❖ 7 cases added after the investigation, bringing total registry cases to 104
- ❖ Confirmed cases had no common occupations or exposures
- ❖ Confirmed cases had no predictable patterns



Limitations

- ❖ PV diagnosis is difficult
 - ❖ No known cause
 - ❖ Only 5 years of PV reporting
- ❖ No additional environmental testing
- ❖ 62% of registry cases (66) not interviewed
 - ❖ 28 not located
 - ❖ 16 declined
 - ❖ 15 deceased
 - ❖ 7 late additions
- ❖ Adequate data lacking for 12 participants (19%)

PV
 not PV
 probab
 ???

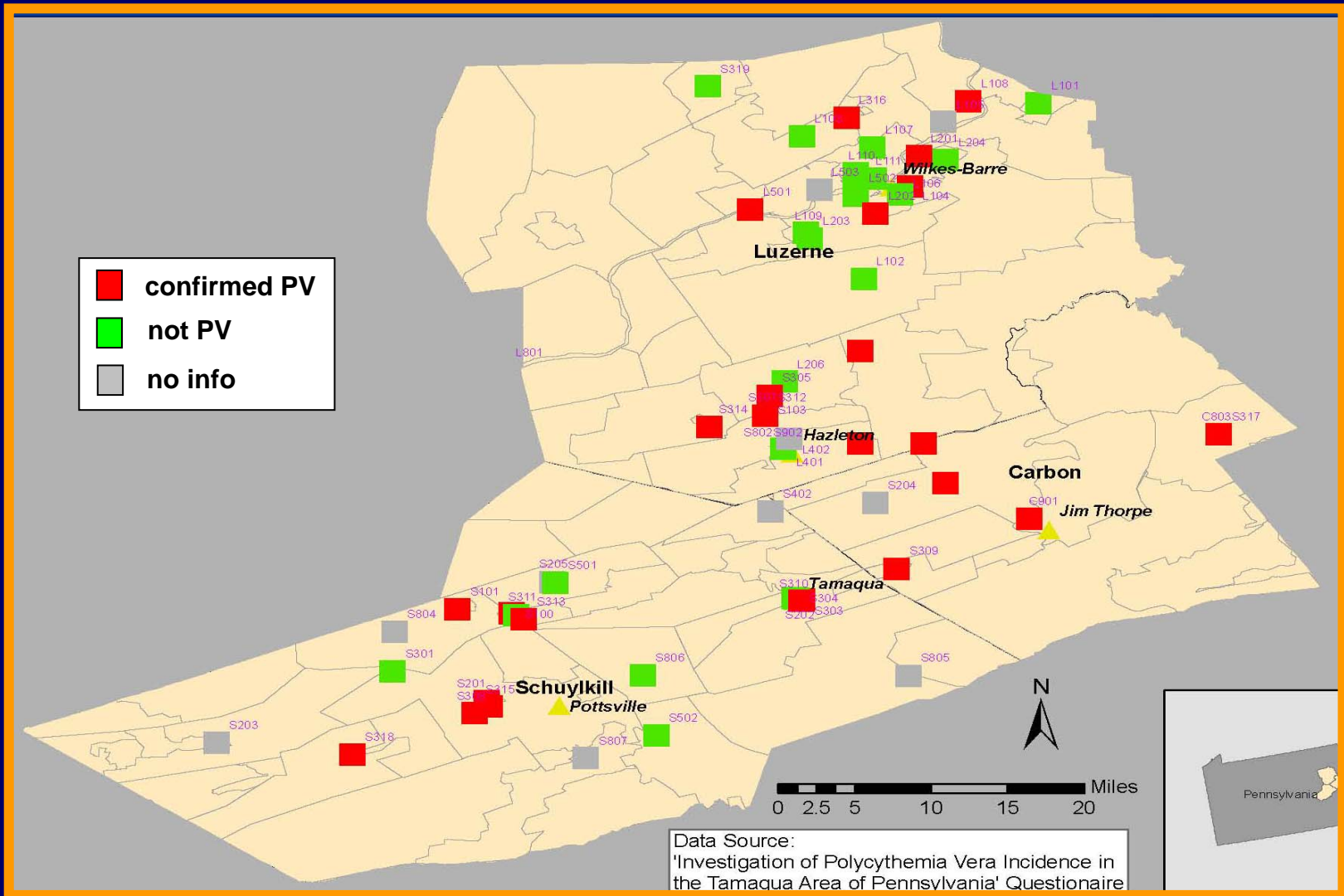
78

New Information

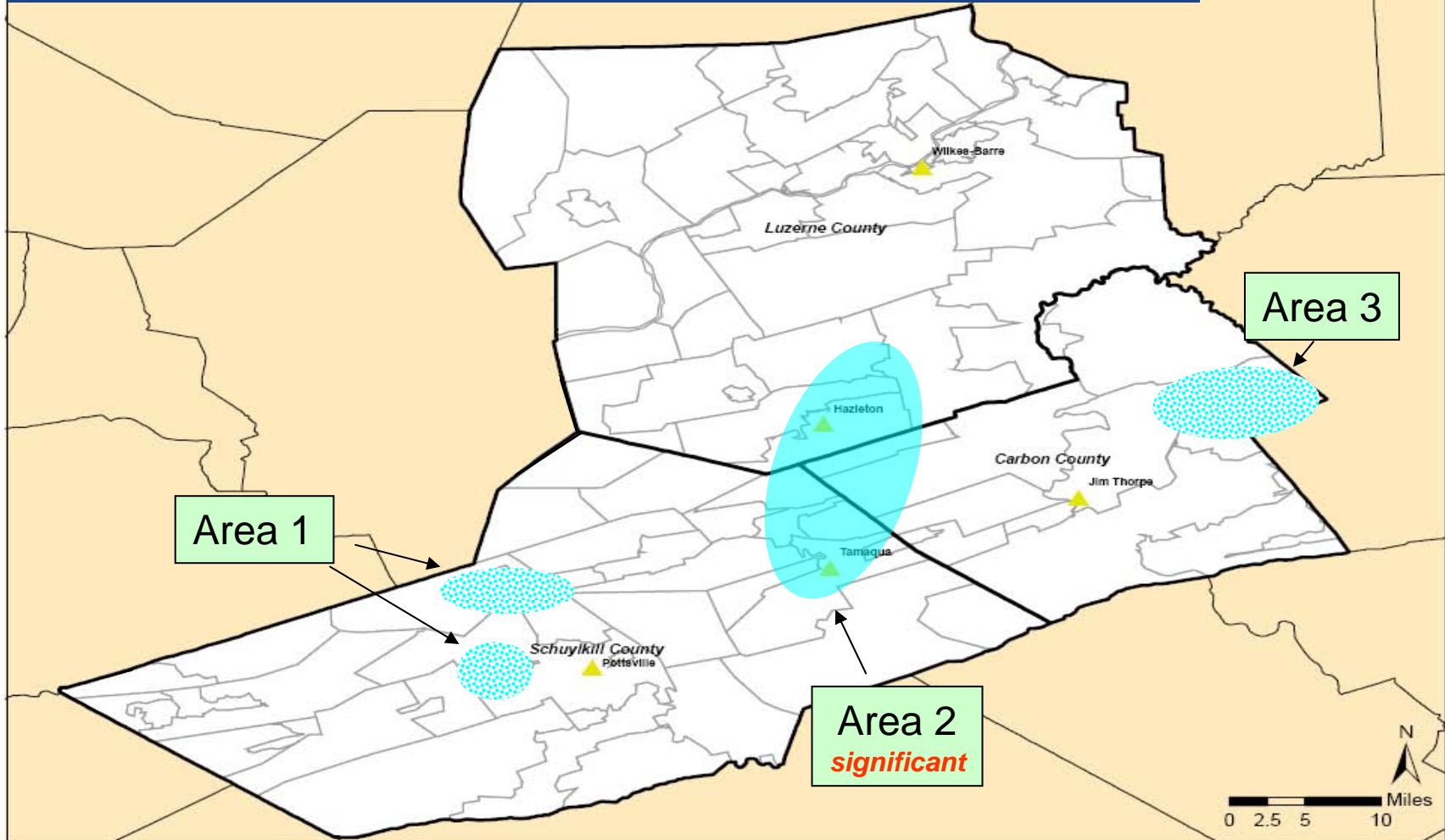
- ❖ **Spatial distribution of cases**
- ❖ **Analysis of high-rate areas**
- ❖ **Environmental assessment**
- ❖ **Areas for further work**



Is There a Pattern?



High-Density confirmed case zones in Identified High Rate Areas of Polycythemia Vera in Carbon, Luzerne and Schuylkill Counties



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Environmental Assessment

What kinds of data were evaluated?



Landfills



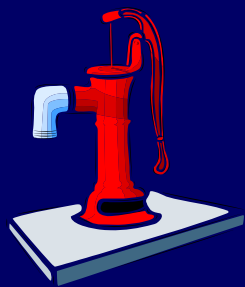
Ground contamination



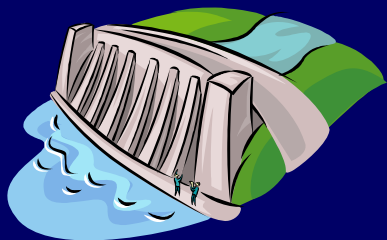
Water pollution



Hazardous waste sites



Drinking water sources



Air pollution sources



Mining operations

Is the risk of acquiring PV higher in high-risk areas?

Unlikely:



Coal mining operations

No evidence of current exposure:



Unknown:

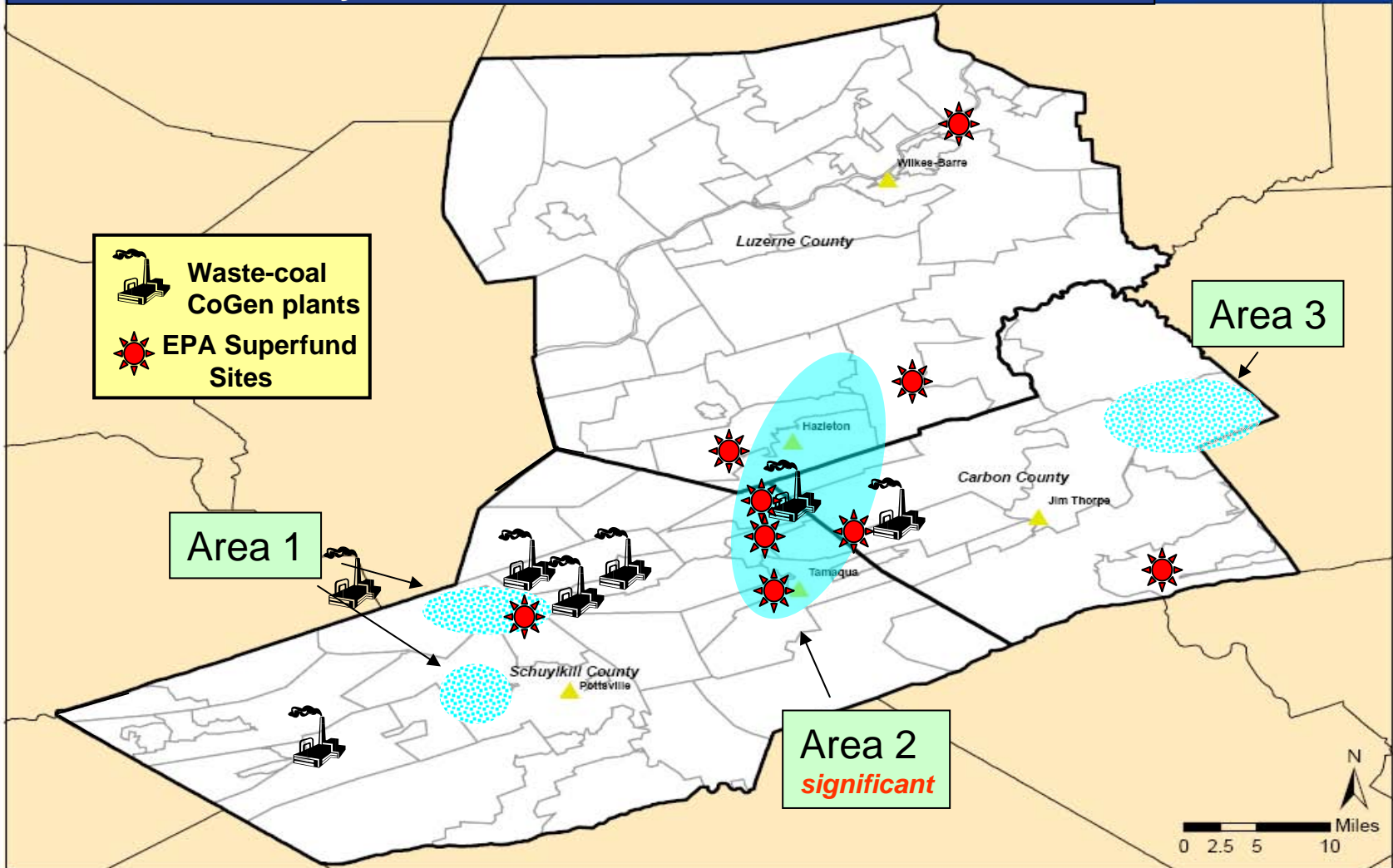


**7 CoGen power plants
operating since 1988 -92**

7 EPA Superfund sites

- Contained or being remediated
- Recent tests negative for off-site toxics
- Exposures may have occurred in the past

High-Rate PV areas, Superfund sites, and CoGen plants in Carbon, Luzerne, and Schuylkill Counties

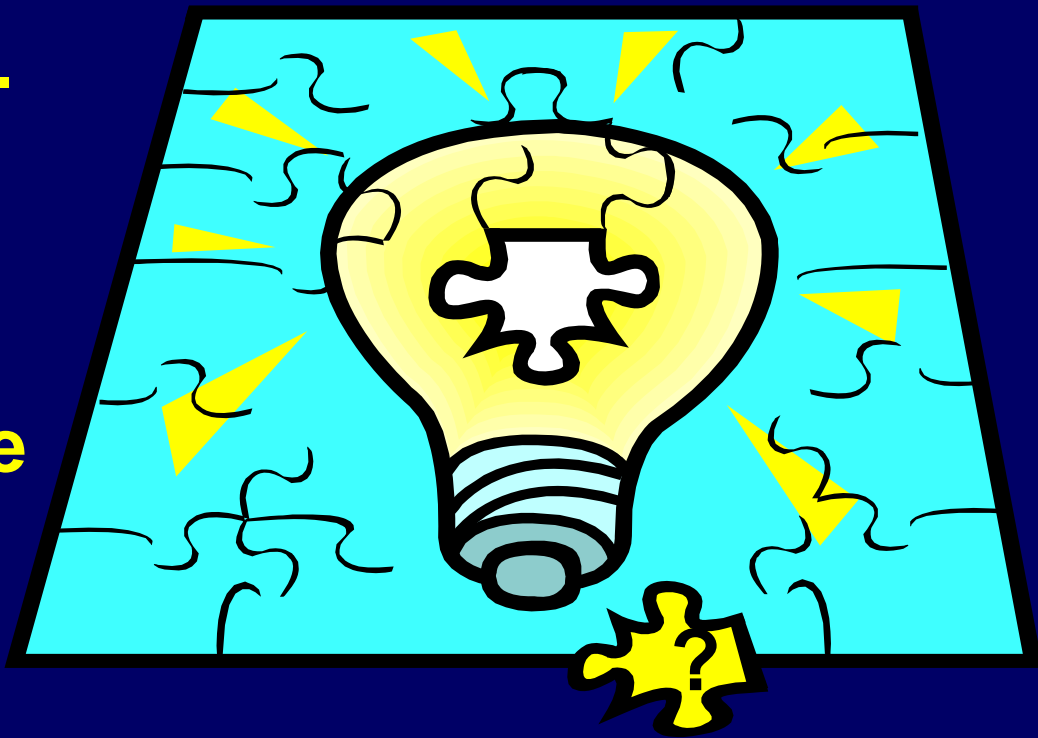


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What causes PV?

- ❖ If environmental . . .
 - ❖ What?
 - ❖ How?
 - ❖ When?
- ❖ Do other areas have high rates?
- ❖ Can other illnesses be linked to PV?



Next Steps

❖ **Research priorities recommended by Expert PV Panel convened on 8/25/08 include:**

- case-control study to identify PV risk factors
- characterize environmental hazards and evaluate exposure pathways
- determine incidence of related blood cancers in the high-rate area



Next Steps

(continued)

- ❖ PADOH will continue to monitor PV occurrence
- ❖ CDC evaluating state/national registry reporting systems for PV and other diseases



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