

# Tobacco Use and its Impact on Cancer Cluster Investigations in Indiana



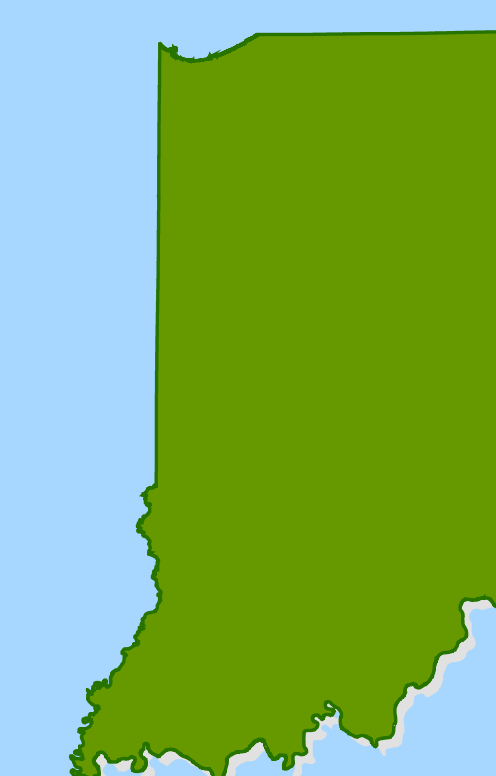
Indiana State  
Department of Health

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## The Problem in Indiana

11,100 deaths/annually can be contributed to tobacco use  
Over one in five adults smoke (22%-2013 BRFSS)

(Source: Tobacco Prevention and Cessation Commission, Indiana State Department of Health)



## 1 Background

The public often expects a cancer cluster investigation to yield a causal agent related to contaminants in water, air or soil. However, it is well known that tobacco use is tied to various cancers - one of every three cancer deaths in the U.S. is linked to smoking.

Thus, identifying a true cancer cluster proves to be a difficult process. A comprehensive approach designed to seriously consider tobacco use of reported cases should be implemented.

**Table 1. Cancers with Increased Risk of Occurrence Due to Tobacco Use**

Lung	Pancreas
Mouth	Kidney
Lips	Bladder
Nose and sinuses	Uterus
Larynx (voice box)	Cervix
Pharynx (throat)	Colon/rectum
Esophagus (swallowing tube)	Ovary (mucinous)
Stomach	Acute myeloid leukemia

(Source: American Cancer Society, *Cancer Facts & Figures 2014*)

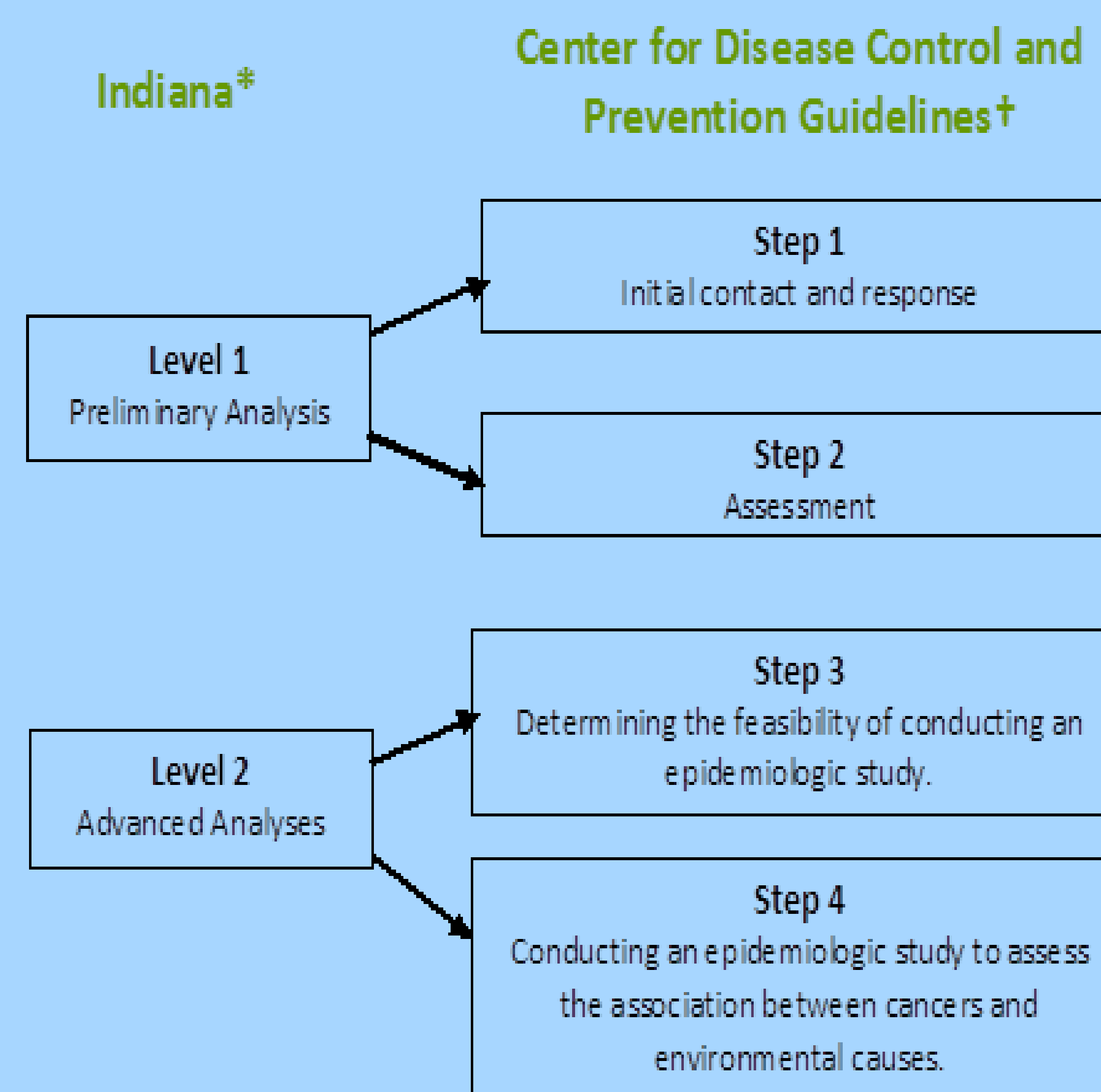
## 2 Purpose

An investigation into a suspected cancer cluster includes an approach that weighs public concerns, provides statistical analysis, and includes assessment of tobacco use. Tobacco use information is readily available from the Indiana State Cancer Registry. In 2012, Indiana had the sixth highest prevalence of adult smokers. Therefore, it was of interest to determine the impact tobacco use had among reported cases.

## 3 Methods

Indiana's protocol for cancer cluster investigations is a four-tiered process. Level one being the most basic level to determine an excess of cancers with level two involving more complex analyses. In Indiana, from June 2011 to November 2014, 12 of the 25 inquiries developed into a level one investigation; none proceeded to level two. Verification of cases and tobacco use occurred via the Indiana State Cancer Registry or through medical record ascertainment.

**Figure 1. Suspected Cancer Cluster Investigation Protocol Comparison**



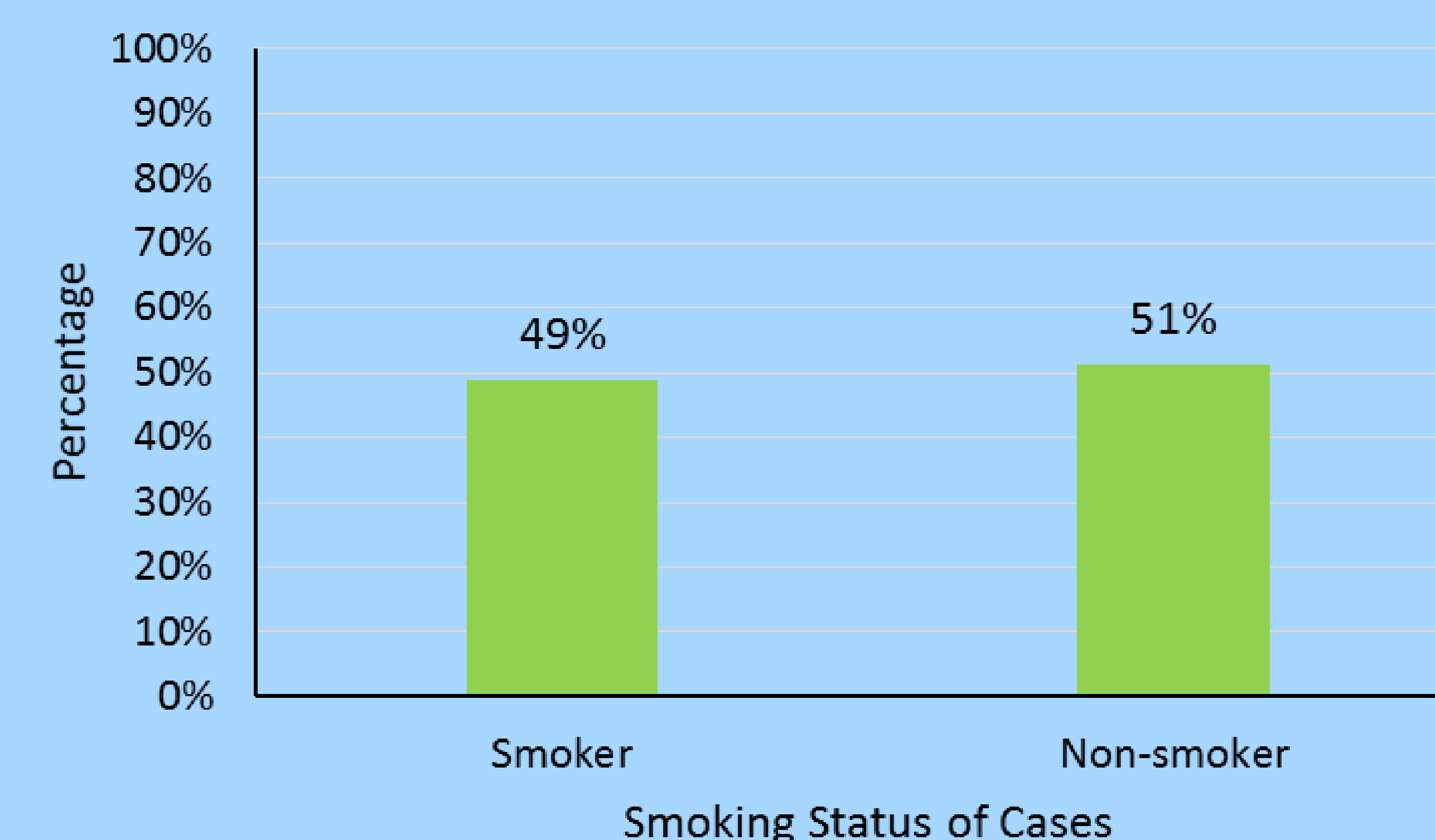
\*Indiana State Department of Health, Indianapolis, Indiana

†CDC. Investigating Suspected Cancer Clusters and Responding to Community Concerns: Guidelines from CDC and the Council of State and Territorial Epidemiologists. *MMWR* September 27, 2013 / 62[RR08]; 1-14.

## 4 Results

Verification of reported cases led to the discovery of tobacco use (current or previous) among 49% of the 84 cases with documented status, leaving 51% who reportedly did not use tobacco.

**Figure 2. Smoking Status of Cases Verified during Suspected Cancer Cluster Investigations, Indiana 2011-2014**



(Source: Indiana State Department of Health)

## 5 Conclusion

Tobacco use among cases reported in cancer clusters needs to be considered when weighing the impact of exposures. Exploration into the tobacco use of cases may diminish or eliminate fears regarding chemical or environmental exposures and offers an opportunity for education on the risks of tobacco use. Limitations include the lack of information in records about personal tobacco use.

## 6 References

Indiana State Cancer Registry <http://www.in.gov/24360.htm>

## 7 Contact Information

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