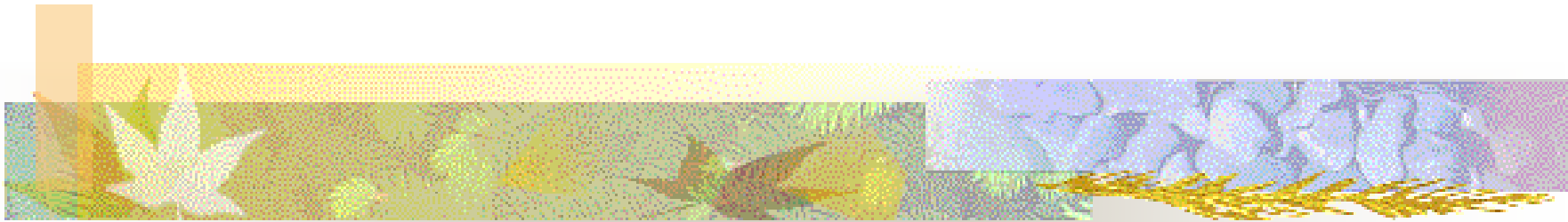




# Cancer and Jefferson County

## A Presentation



Prepared by the University of Louisville, School of Public Health Depts. of Epidemiology and Clinical Investigation Sciences and Occupational and Environmental Health, and the Lung Cancer Project



# Should I be concerned?

- We all should be concerned about air quality and look for ways to reduce emissions of chemicals, especially air toxics
- And we should keep the risks in perspective



“Good surveillance does not necessarily ensure the making of right decision, but it reduces the chances of the wrong ones.”

Alexander Langmuir, MD, MPH; Director of Epidemiology for CDC from 1949-1969



## Problem Chemicals & Community Concerns

### ■ Butadiene

- Sources: Vehicles, 3 manufacturers (plans in place to reduce)

### ■ Chromium

- Sources: Electricity generation, boilers, plating

### ■ Acrylonitrile

- Sources: 2 manufacturers (plans in place to reduce)

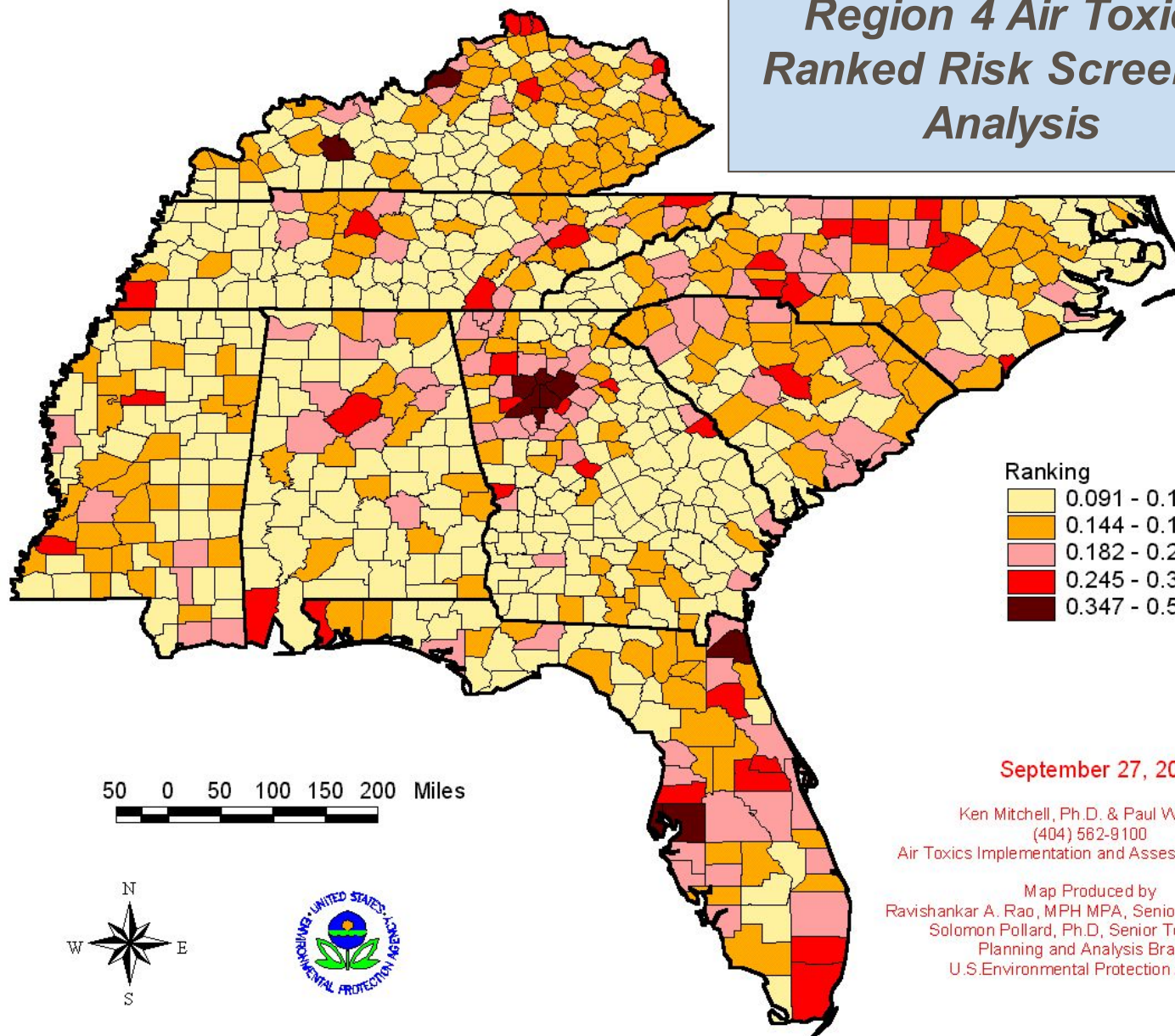


# Understanding cancer risk

## “one-in-a-million”

- Cancer risk is enormous
- “Everybody wants to go to heaven, but nobody wants to die” – Aging is a critical factor in cancer increase & risk
- Environmental risk is incredibly small
- 1/1,000,000 is an enormous prevention goal, NOT a useful thing to fear

# Region 4 Air Toxics Ranked Risk Screening Analysis



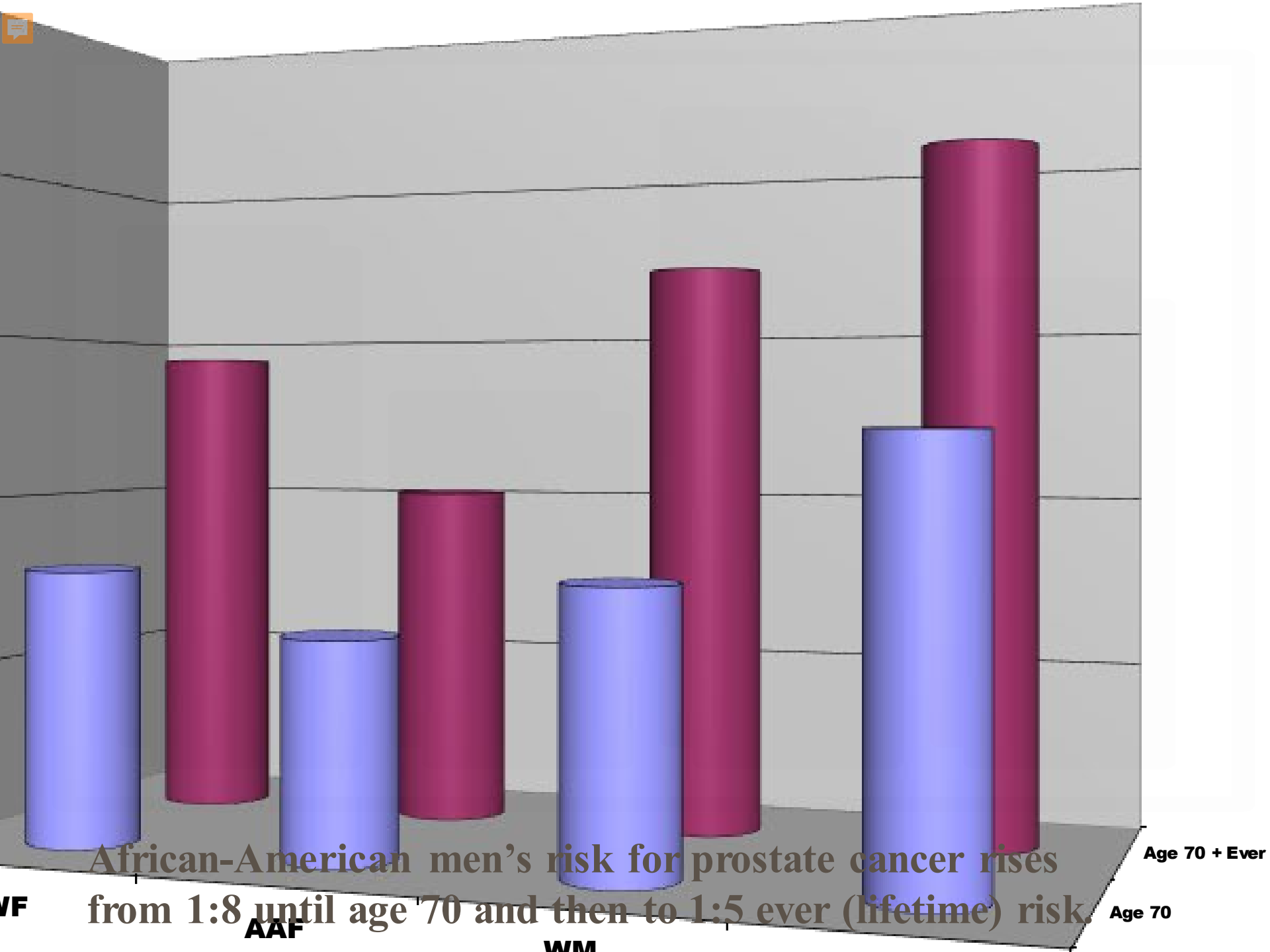
Ranking

|              |               |
|--------------|---------------|
| Light Yellow | 0.091 - 0.144 |
| Orange       | 0.144 - 0.182 |
| Pink         | 0.182 - 0.245 |
| Red          | 0.245 - 0.347 |
| Dark Red     | 0.347 - 0.579 |

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Map Produced by  
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U.S.Environmental Protection Agency



African-American men's risk for prostate cancer rises from 1:8 until age 70 and then to 1:5 ever (lifetime) risk.

Age 70 + Ever

Age 70

WF

AAF

WM



....



**Risk to age 70 is 215,000/1,000,000; environmental protection aims to keep that to 215,001/1,000,000**





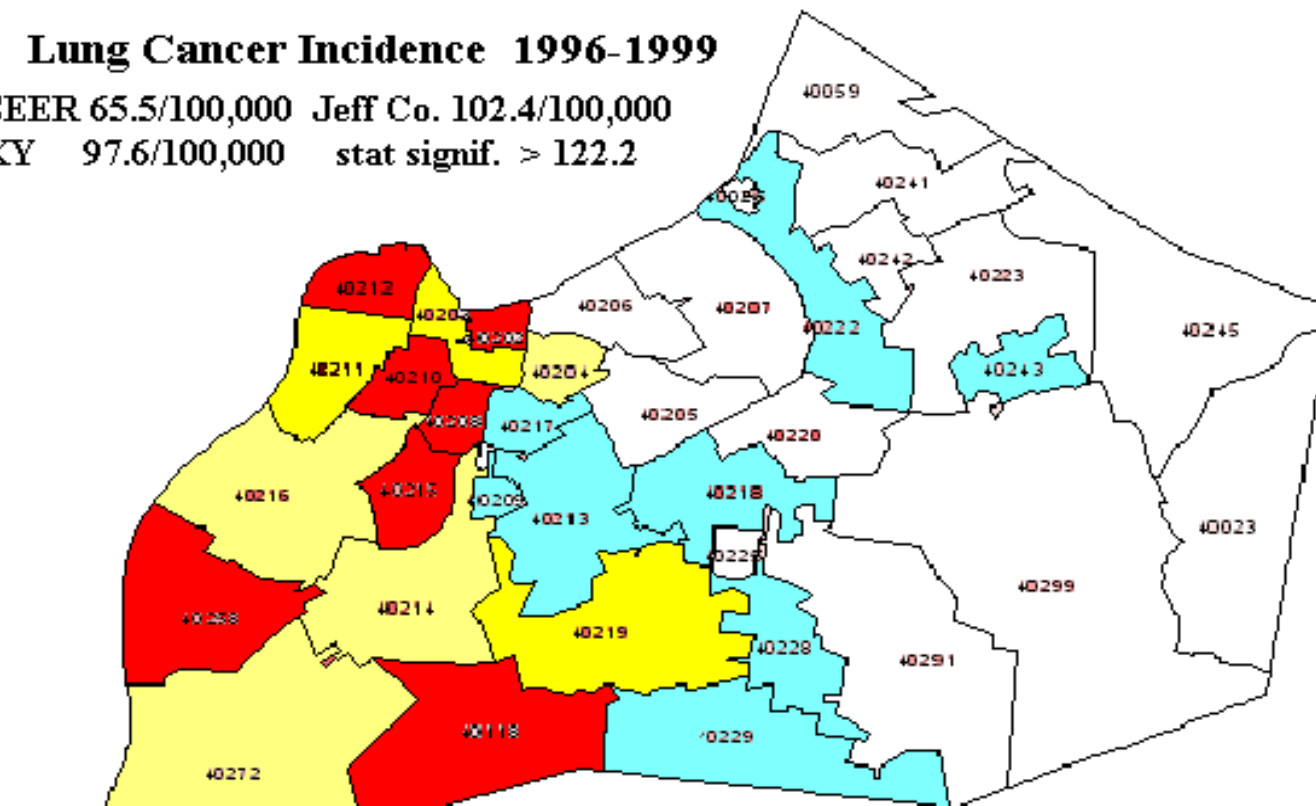
# Data Monitoring in Rubbertown

- EPA monitoring identified Jefferson County as having the highest health risk posed by air quality, in the Southeastern US.
- State funding permitted follow-up air monitoring studies to be performed in the Rubbertown area during 2001
- Disease risk is also able to be assessed for asthma and cancer.

## Lung Cancer Incidence 1996-1999

SEER 65.5/100,000 Jeff Co. 102.4/100,000

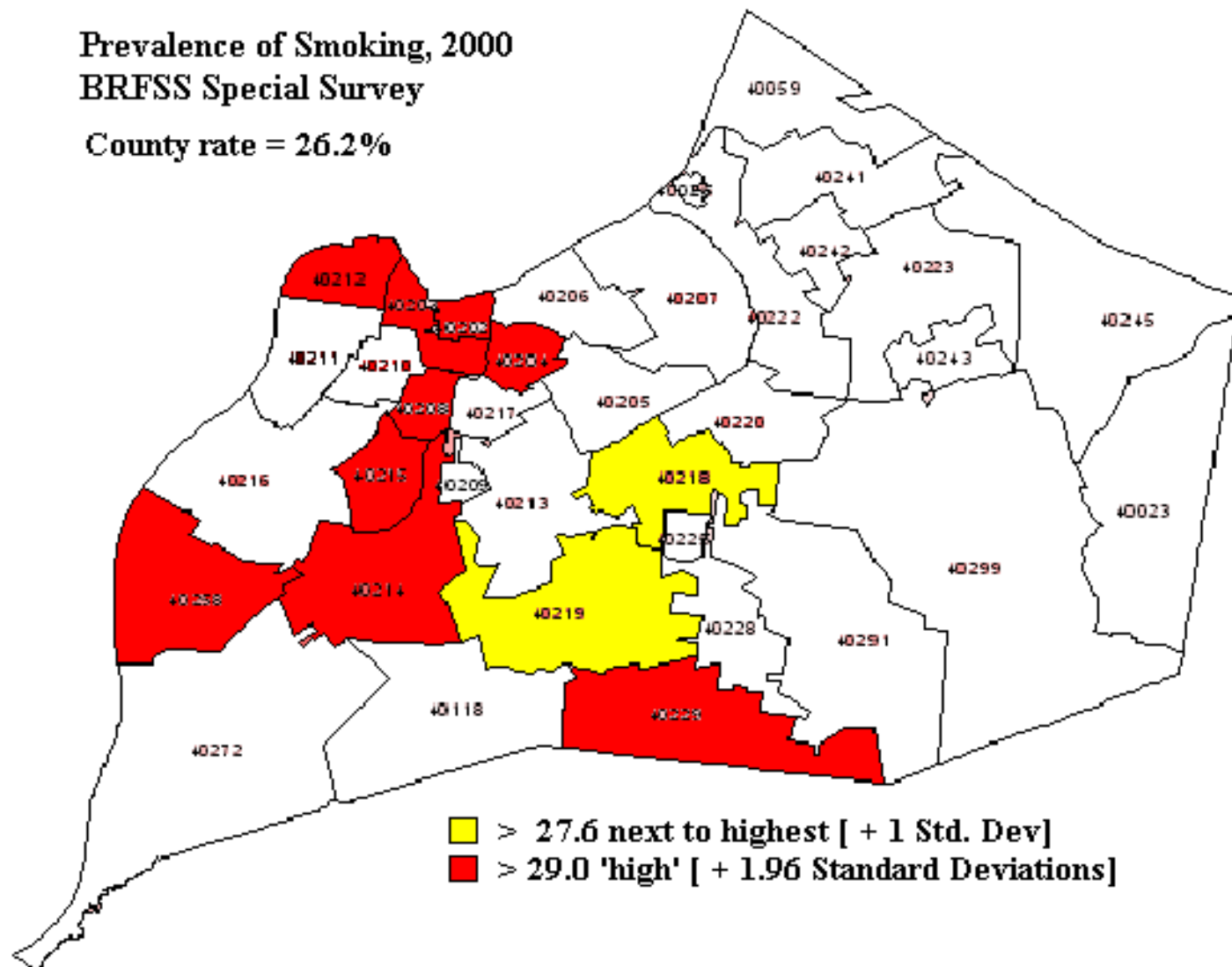
KY 97.6/100,000 stat signif. > 122.2



- Greater Jeff Co. > 122.2 2 Adjacencies  $p < 0.50$
  - Next Greater Jeff Co. > 112.5 26 Adjacencies  $p < 0.001$
  - Greater than SEER > 81.8 43 Adjacencies  $p < 0.01$
- (with 'close' ZIPs > 120.0 10 adjacencies,  $p < 0.05$  was found)

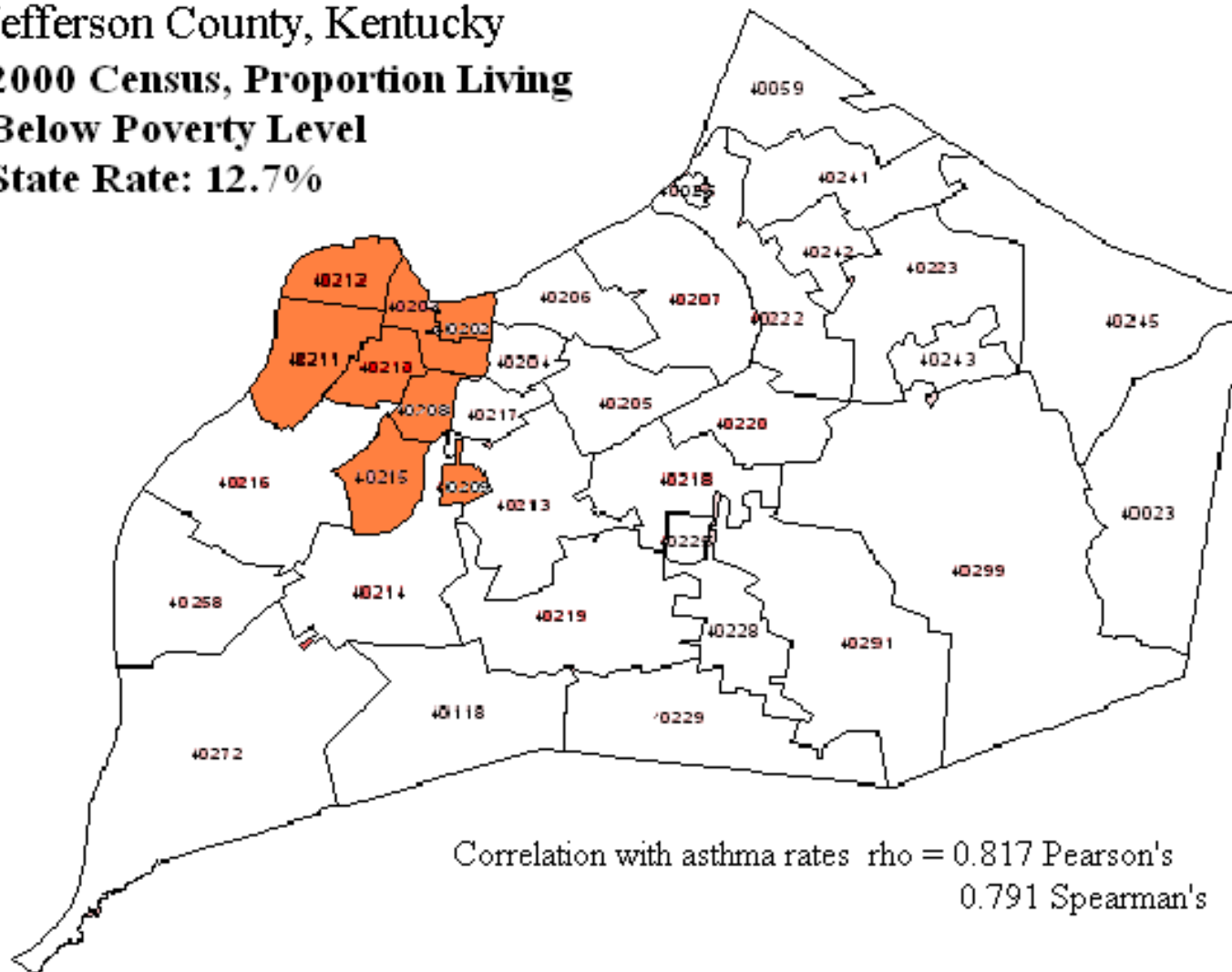
## Prevalence of Smoking, 2000 BRFSS Special Survey

County rate = 26.2%



Yellow > 27.6 next to highest [ + 1 Std. Dev]  
Red > 29.0 'high' [ + 1.96 Standard Deviations]

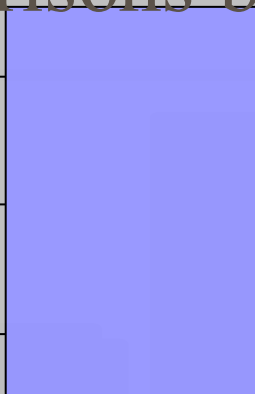
Jefferson County, Kentucky  
2000 Census, Proportion Living  
Below Poverty Level  
State Rate: 12.7%





# Comparisons by Race for Stage, Treatment, Payor

65.4

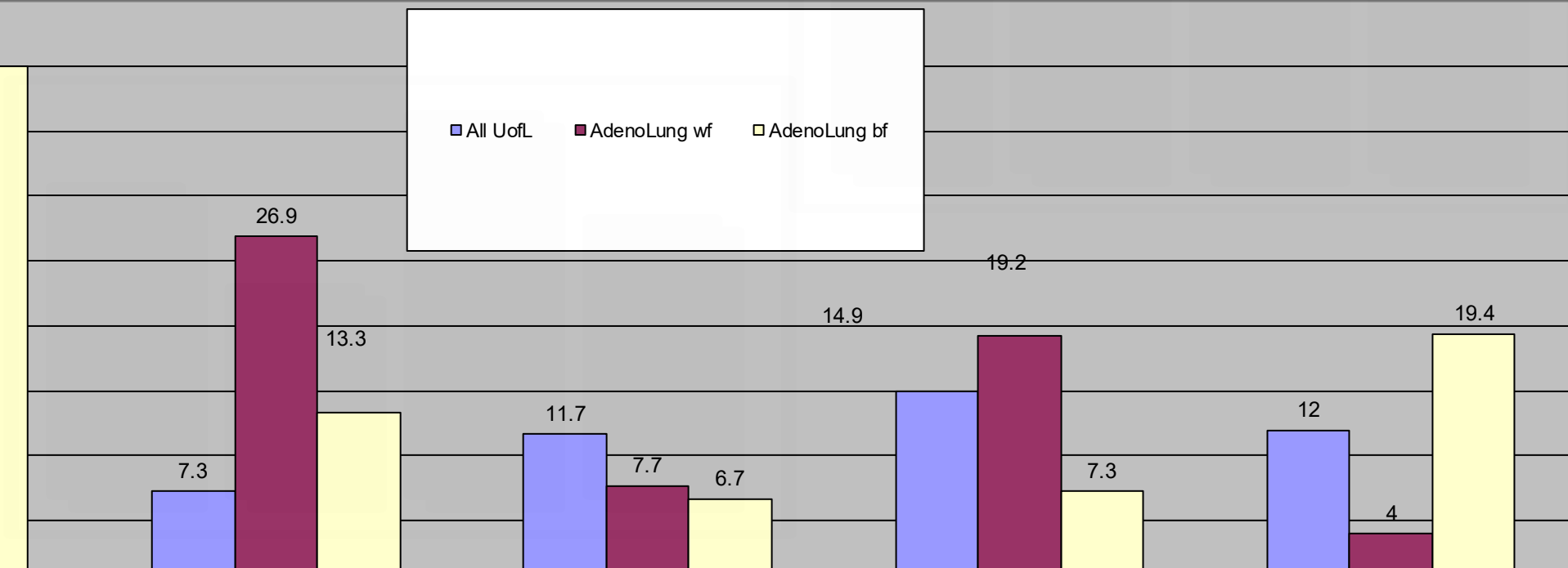


← WF AAF

Considerable Stage Difference

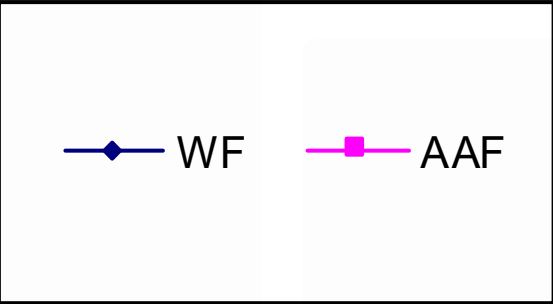
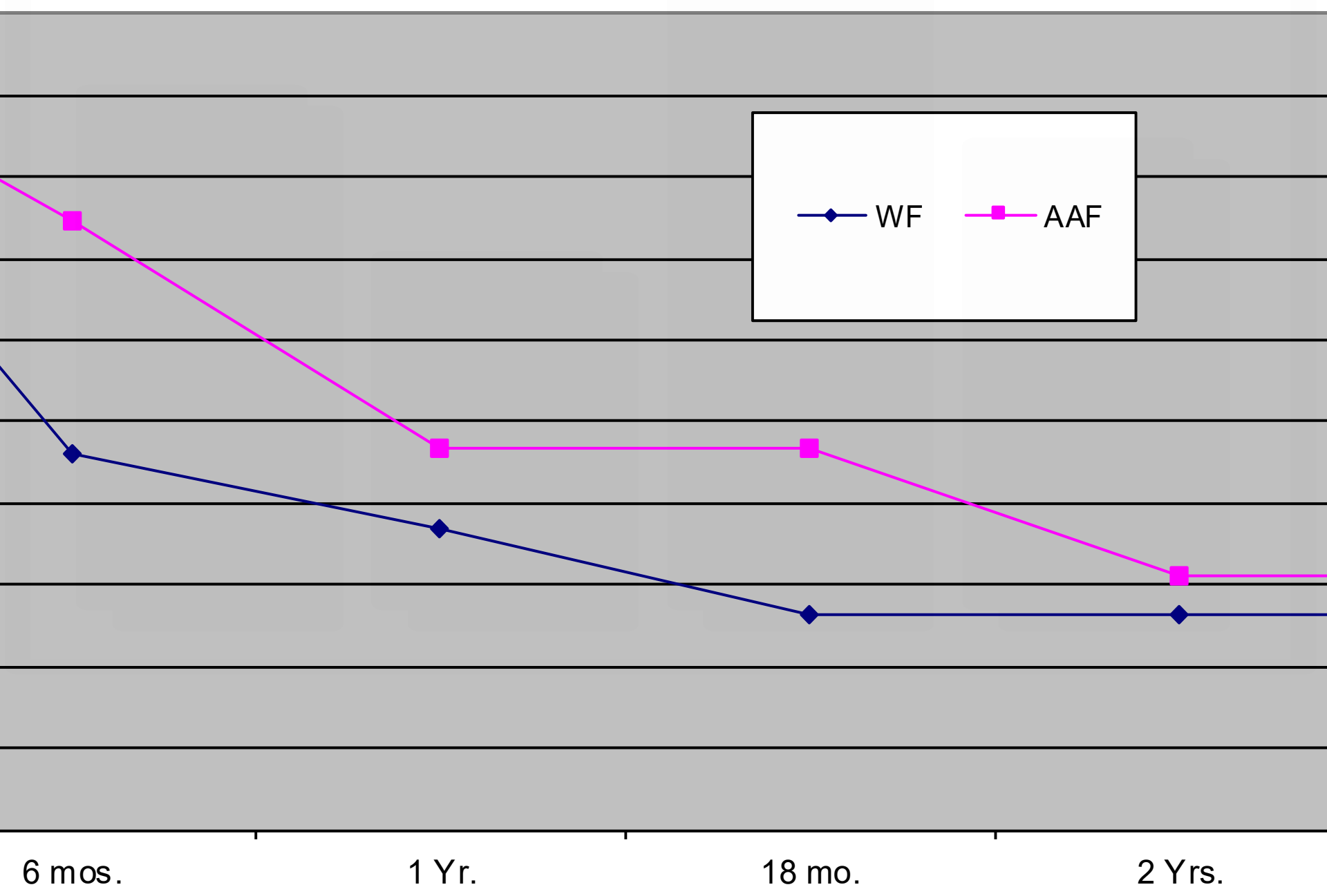
33.3

missions] vs Adencarcinoma of the Lung 1999-2001



19.4

4



6 mos.

1 Yr.

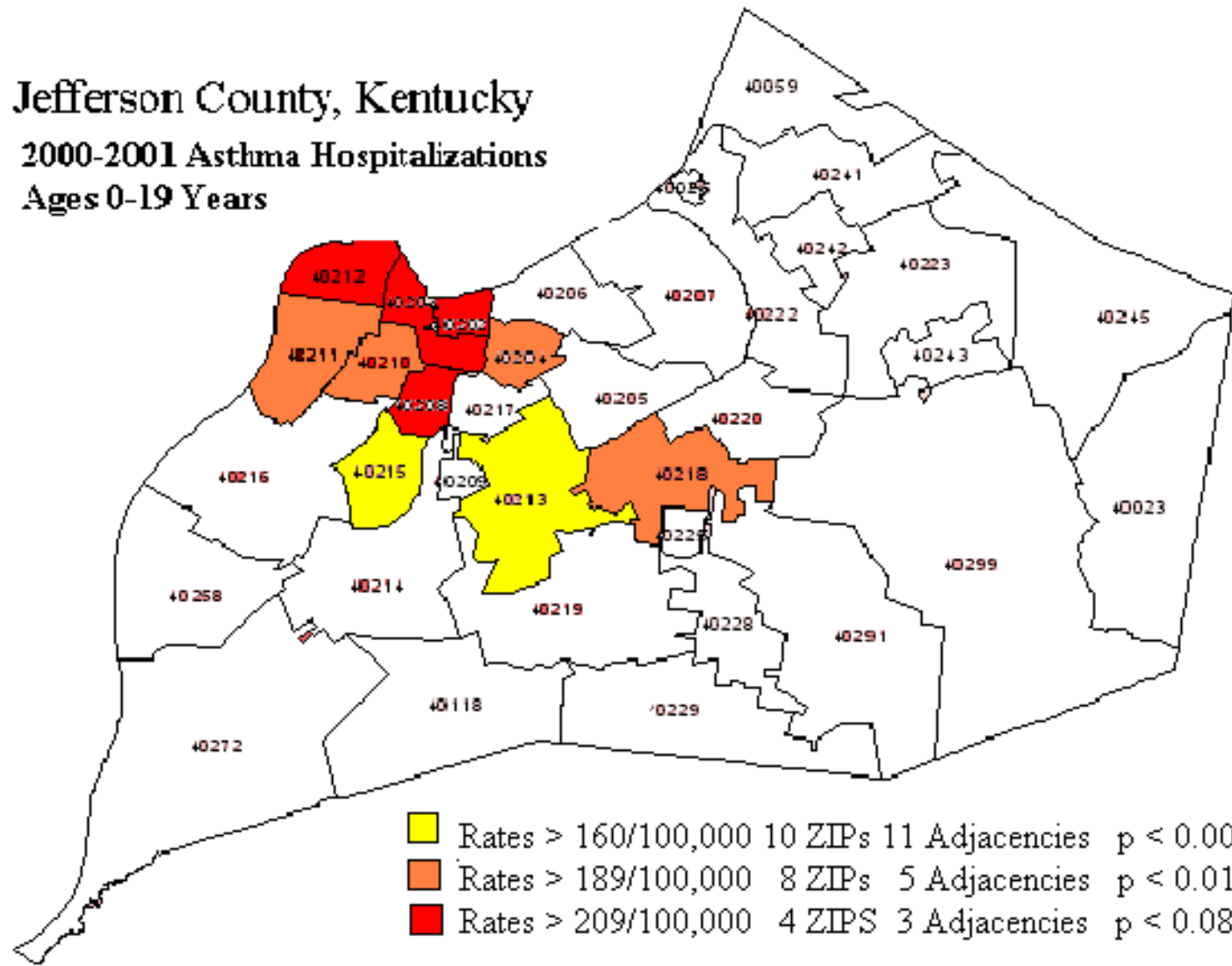
18 mo.

2 Yrs.

# Jefferson County, Kentucky

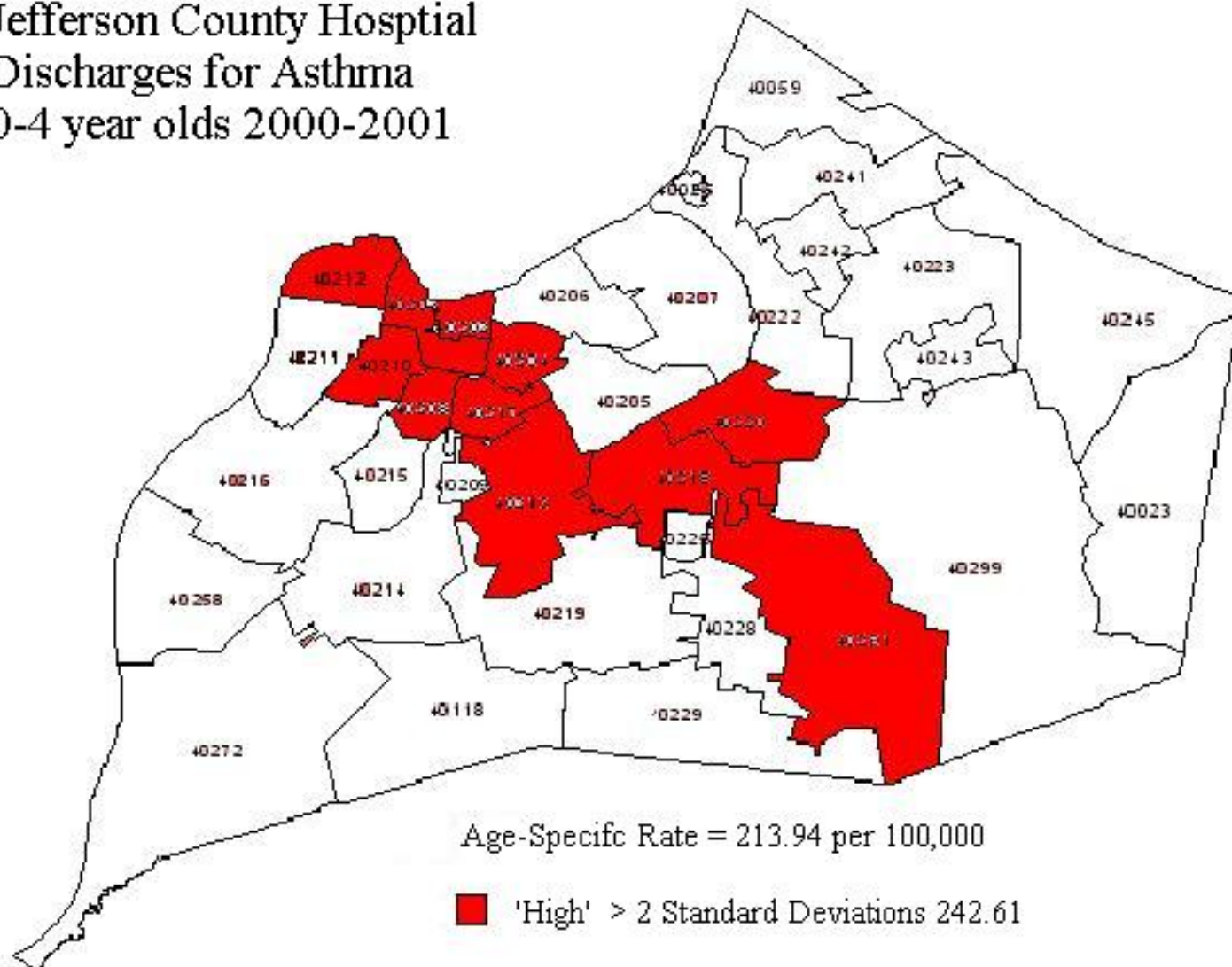
## 2000-2001 Asthma Hospitalizations

### Ages 0-19 Years



- Rates > 160/100,000 10 ZIPs 11 Adjacencies p < 0.001
- Rates > 189/100,000 8 ZIPs 5 Adjacencies p < 0.010
- Rates > 209/100,000 4 ZIPs 3 Adjacencies p < 0.081

## Jefferson County Hospital Discharges for Asthma 0-4 year olds 2000-2001





# Est. % of Cancer Deaths

| Factor                        | Best Est. | Accptbl. Ests. |
|-------------------------------|-----------|----------------|
| Tobacco                       | 30        | 25 - 40        |
| Diet                          | 35        | 10 - 70        |
| Infection                     | 10?       | 1 - ?          |
| Reproductive & Sexual History | 7         | 1 - 13         |
| Occupation                    | 4         | 2 - 8          |
| Geophysical                   | 3         | 2 - 4          |
| Alcohol                       | 3         | 2 - 4          |
| Pollution                     | 2         | 1 - 5          |
| Medicines/Medical Procedures  | 1         | 0.5 - 2        |
| Industrial Products           | 1         | 1 - 2          |

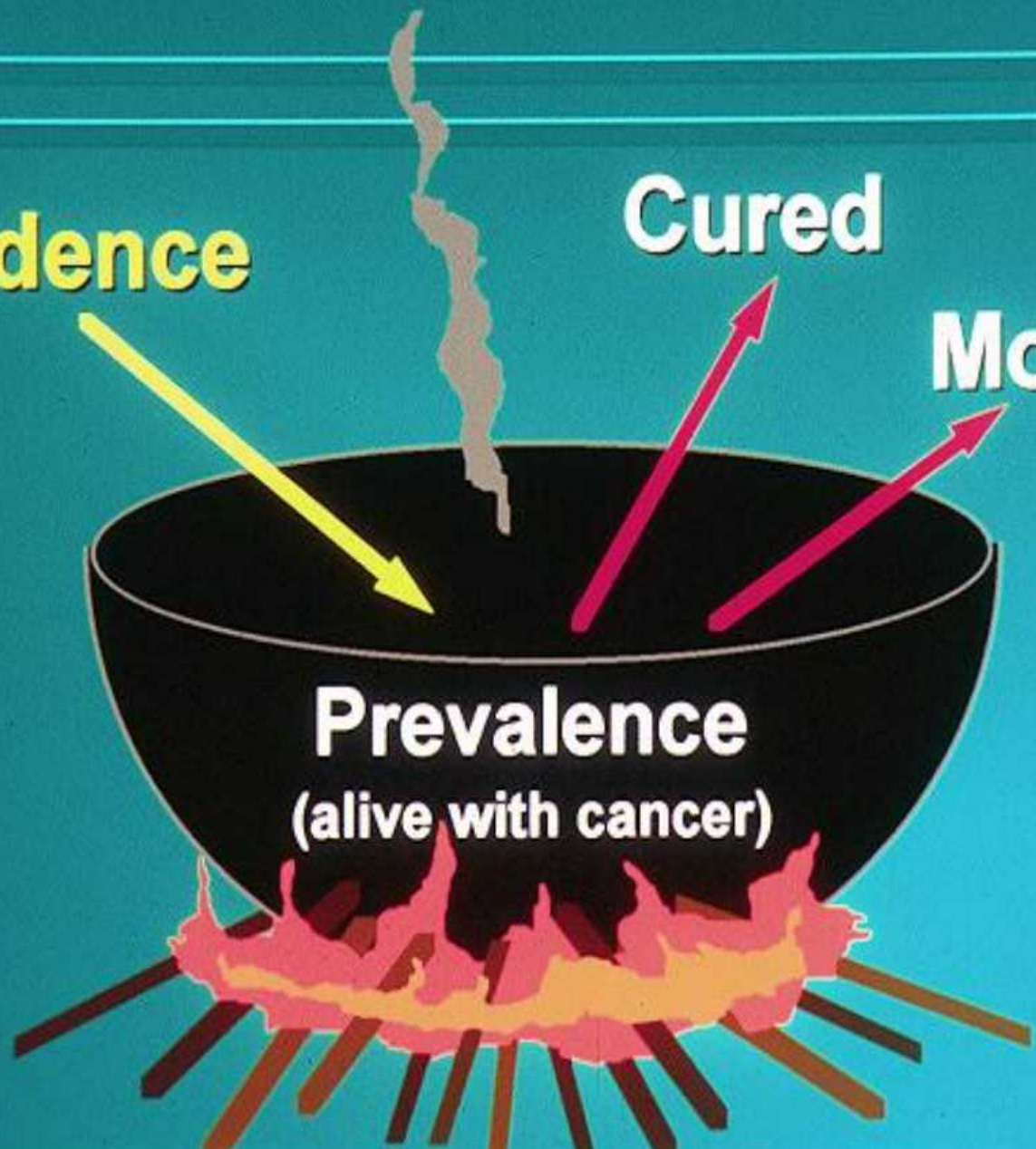
Derived from Doll & Peto, J.N.C.I., June '81

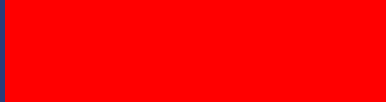

**Incidence**

**Cured**

**Mortality**

**Prevalence**  
(alive with cancer)





“The reason for collecting, analyzing, and disseminating information on a disease is to control that disease. Collection and analysis should not be allowed to consume resources if action does not follow.”

Foege, Hagan, Newton: *International Journal of Epidemiology*, 5: 29-37. 1976.



*‘Its amazing what you can see when you look...’* Yogi Berra

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