

Using local data and GIS to analyze county level comprehensive tobacco prevention in Indiana



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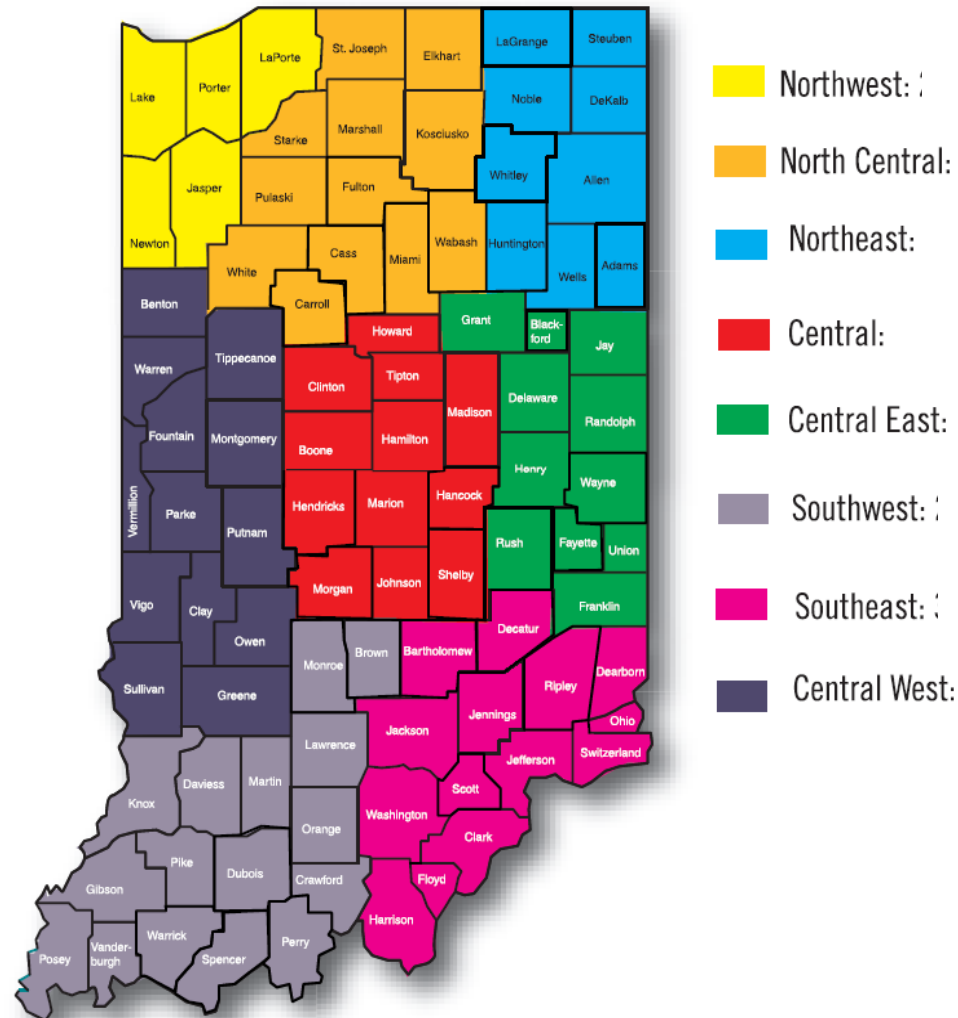


What you will learn



- ❖ **Describe the elements of a comprehensive tobacco prevention program**
- ❖ **Discuss how local data and GIS software can be used to evaluate the effectiveness of public health efforts**
- ❖ **Analyze morbidity and mortality to determine public health impact within the community**

Indiana Map



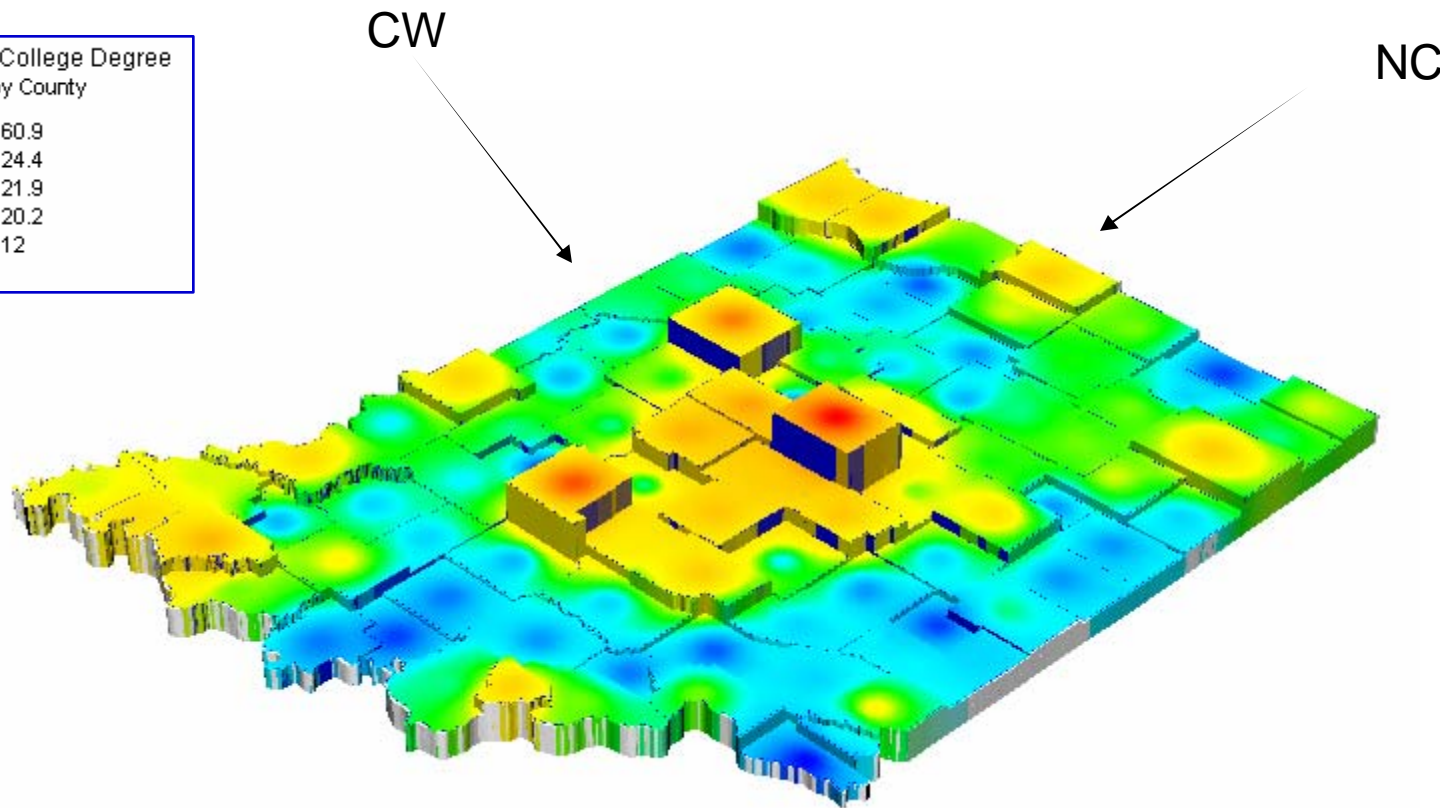
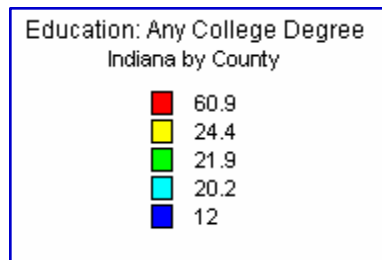
Source: <http://www.in.gov/itpc/Research2.asp?CatID=8>

Demographics: Education (Source: AGS, 2006 est., 2007)



Educational Attainment, Less Than a High School Diploma		
	Less Than a High School Diploma	RANK
North West	15%	7
North Central	18%	4
North East	17%	5
Central	14%	8
Central East	19%	2
South West	19%	2
South East	20%	1
Central West	16%	6

Map: Education: Any College Degree (prism map)



AGS, Core Demographics,
2005 estimates (2006)

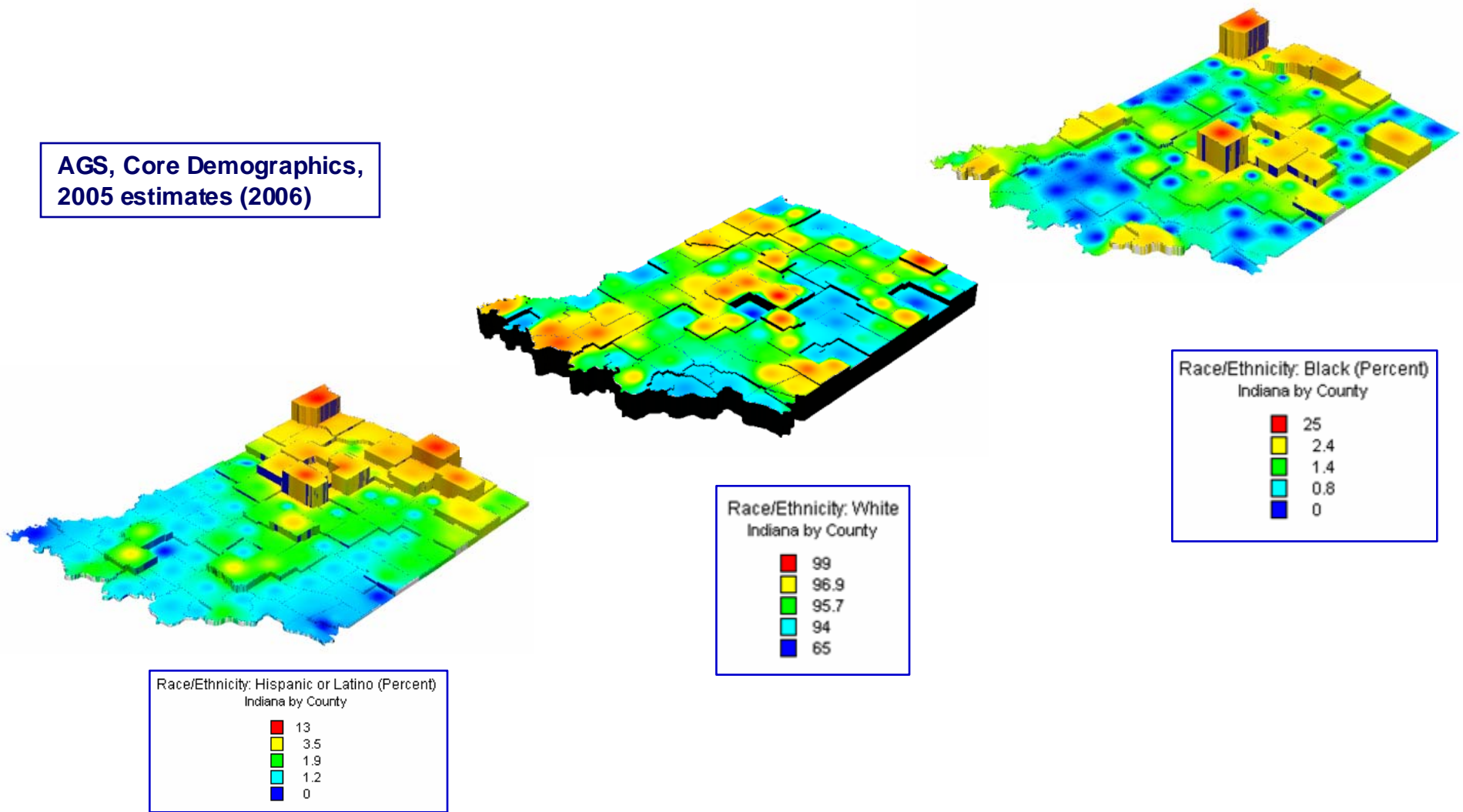
Demographics: Race/Ethnicity (AGS, 2005 est., 2006)



Race/Ethnicity as Percent				
	White	Black	Hispanic	Other
North West	88%	7%	6%	2%
North Central	93%	2%	5%	1%
North East	95%	1%	3%	1%
Central	93%	3%	3%	2%
Central East	95%	2%	1%	1%
South West	96%	2%	1%	1%
South East	96%	1%	1%	0%
Central West	95%	2%	1%	1%
State of Indiana	87%	8%	4%	3%

Map: Race/Ethnicity by County (prism)

AGS, Core Demographics,
2005 estimates (2006)



Demographics: Income (Source: AGS, 2006 est., 2007)



Income : Median Household, Median Family and Rankings				
	Median Household Income	RANK, Median Household Income	Less Than a High School Diploma	RANK, High School Diploma or higher
North West	\$58,919	2	15%	2
North Central	\$53,495	4	18%	5
North East	\$53,026	5	17%	4
Central	\$66,189	1	14%	1
Central East	\$44,933	8	19%	6
South West	\$50,541	6	19%	6
South East	\$54,290	3	20%	8
Central West	\$49,427	7	16%	3
State of Indiana	\$58,575			

Demographics: Income (Source: AGS, 2006 est., 2007)

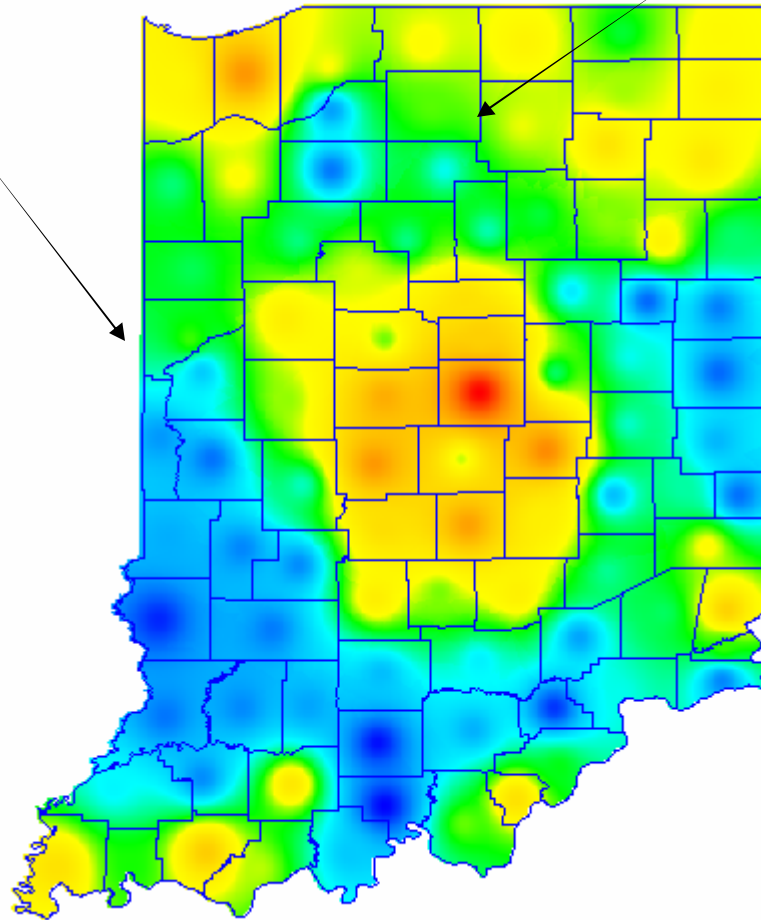
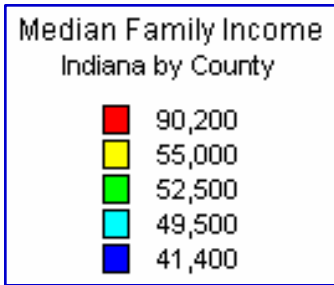


Income : Median Household, Median Family and Rankings				
	RANK, Diversity	RANK, Median Household Income	RANK, High School Diploma or higher	RANK, Tobacco Use
North West	1	2	2	5
North Central	2	4	5	8
North East	4	5	4	7
Central	3	1	1	4
Central East	5	8	6	2
South West	7	6	6	6
South East	8	3	8	3
Central West	5	7	3	1

Map: Median Family Income (contour map)

NC

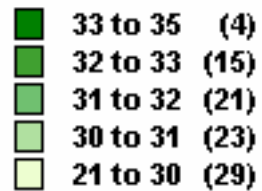
CW



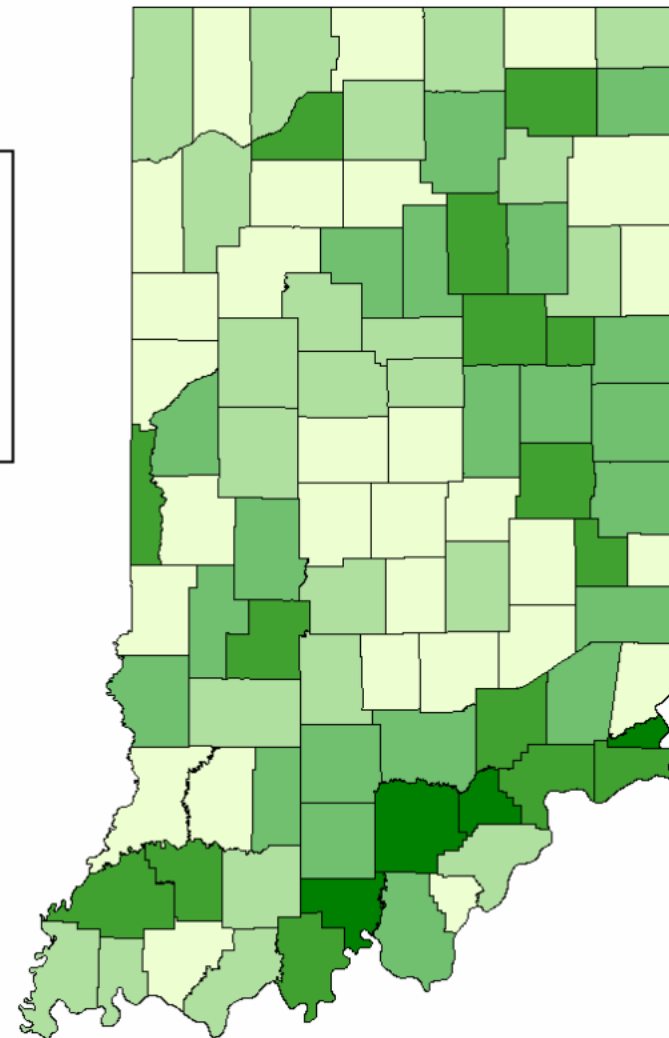
AGS, Core Demographics,
2005 estimates (2006)

Adult Cigarette Smokers

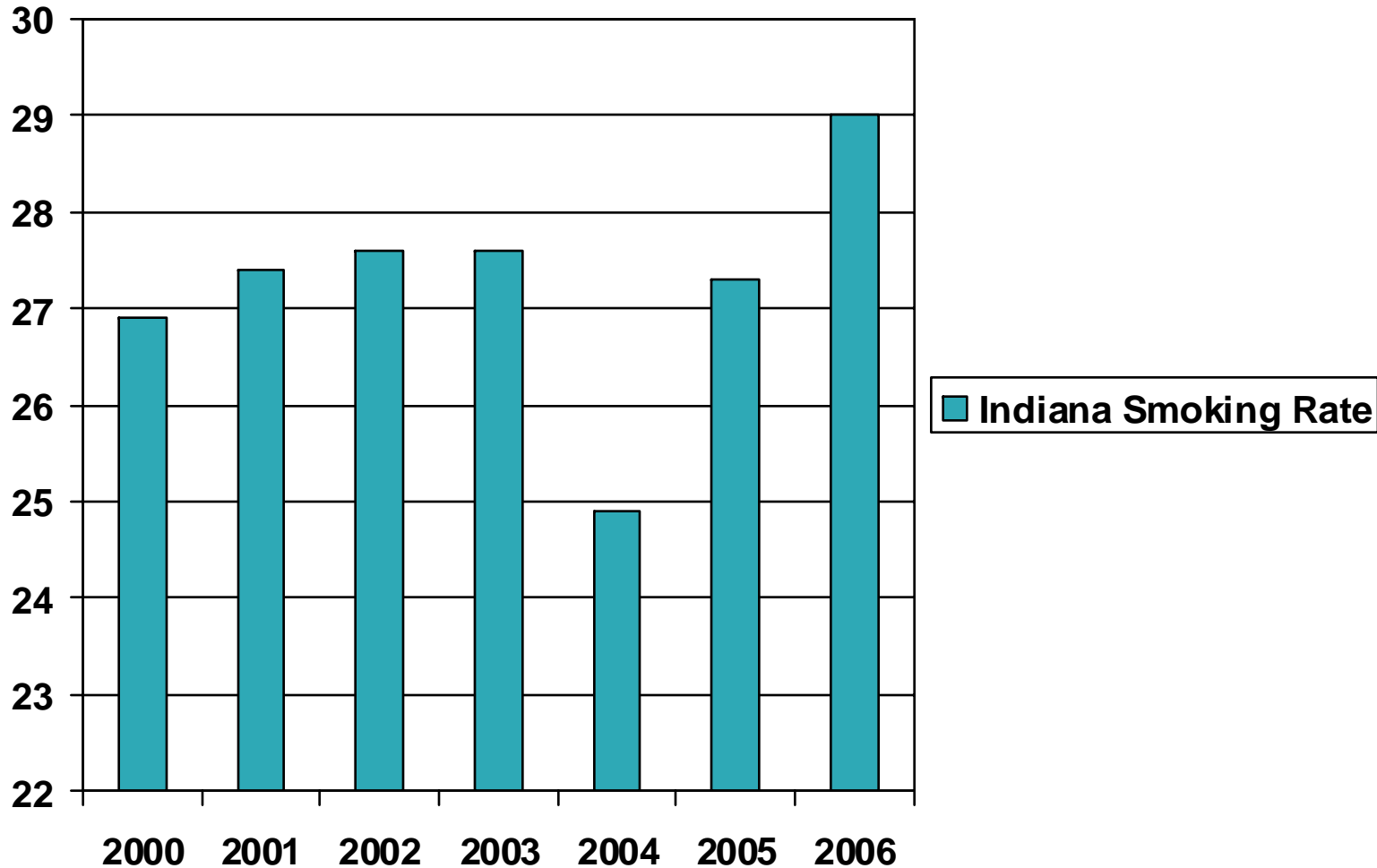
Percent of Adults Who Smoked Cigarettes in Last 12 Months
Indiana by County, 2003 estimates (AGS, 2004)



AGS, Core Demographics,
2003 estimates (2004)

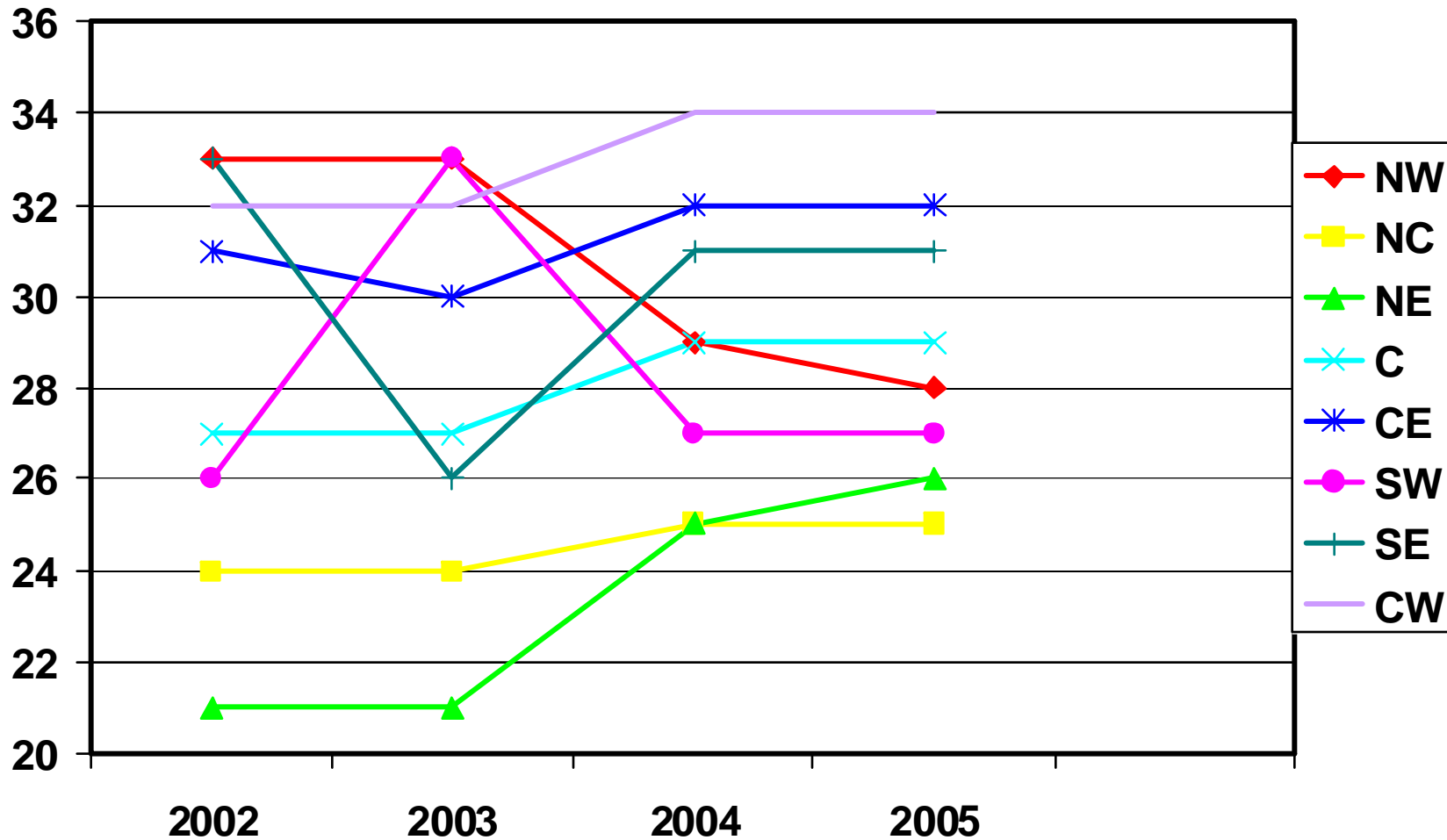


Indiana Adult Smoking Rates



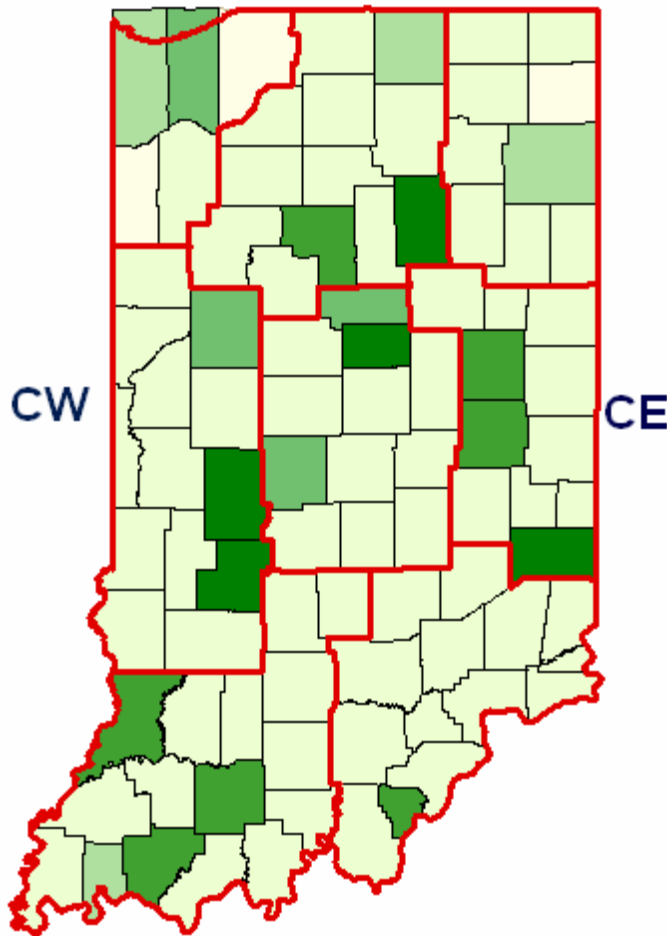
<http://www.in.gov/itpc/Research2.asp?CatID=8>

Smoking Rates by Region



Source: <http://www.in.gov/itpc/Research2.asp?CatID=8>
www.drugs.indiana.edu

Bronchitis

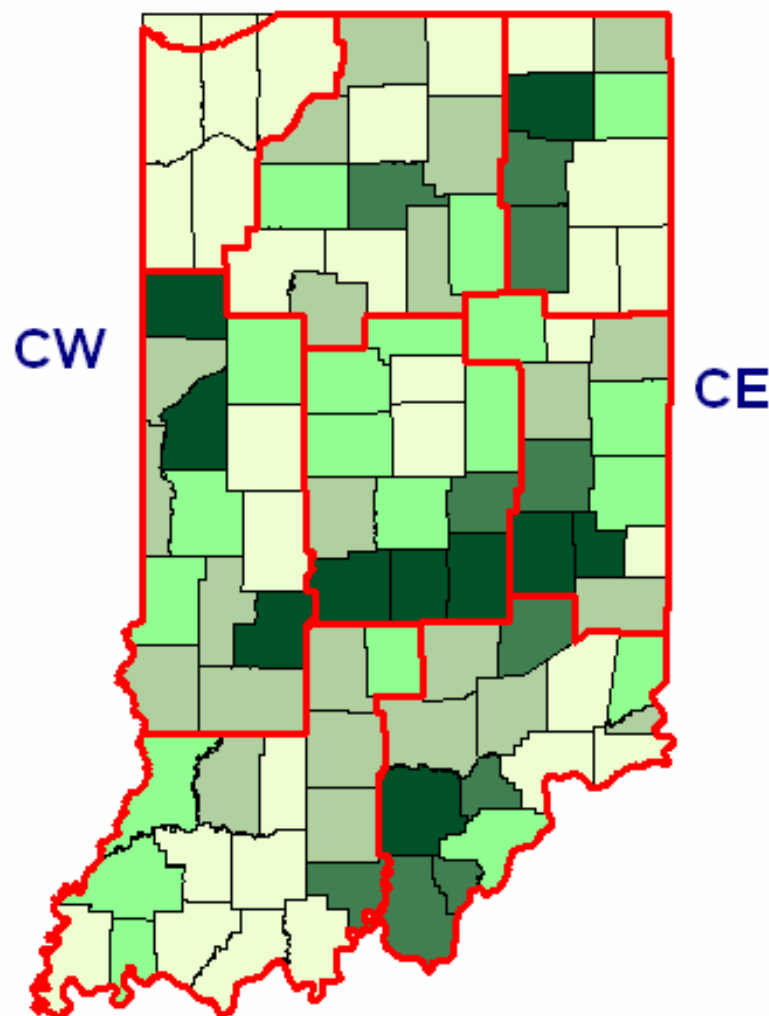


Region	Deaths	Mean Age-Adj Rate/ _{100,000}
CW+CE	8	3.05
Other 6 regions	15	2.0

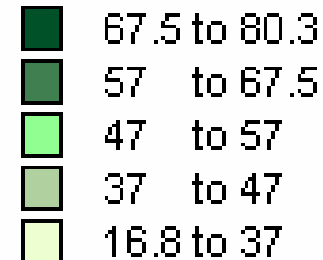
CW and CE regions
 Top 2 counties (CW)
 3 of the top 5 counties

Only 20 counties reported deaths from bronchitis. All reported less than 5 deaths, making the rates “unstable.” But by using 2 regions, CW+CE compared to the rest of the state, the results are more reliable.

Chronic Airway Obstruction



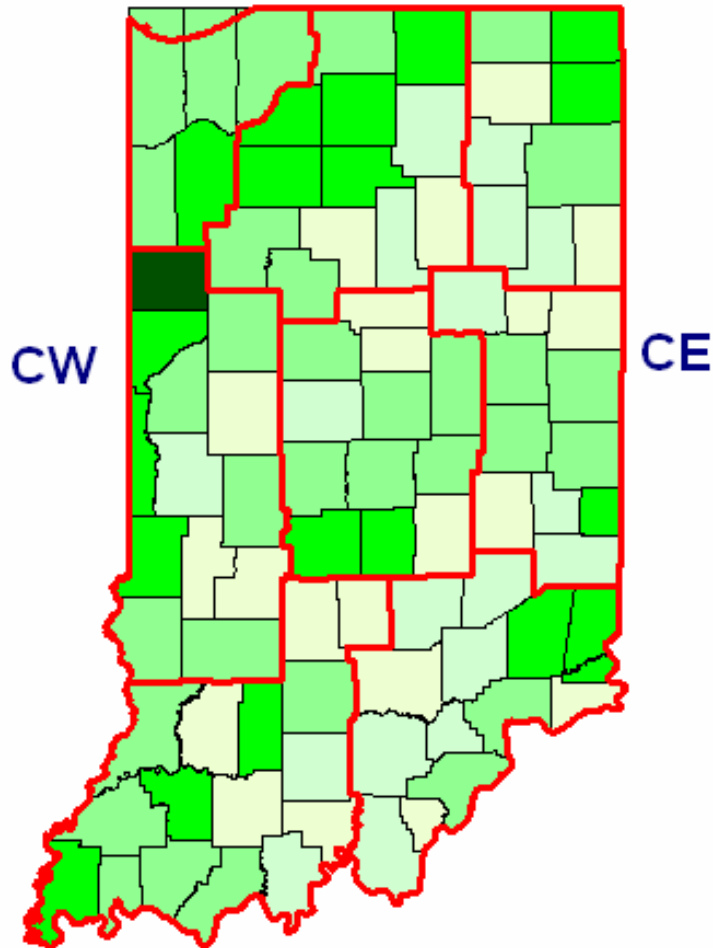
Age-adjusted chronic airway obstruction mortality rate, 2005



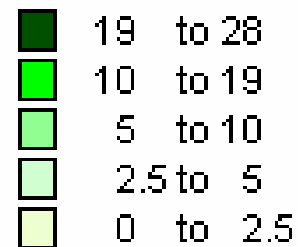
CW and CE regions

- 3 of the top 4 counties
- 4 of the top 6 counties
- 5 of the top 9 (=10% of IN counties)
- 2 more of these 9 border these regions
- 7 of the top 9 counties in or border

Emphysema



Age-adjusted emphysema mortality rate, 2005

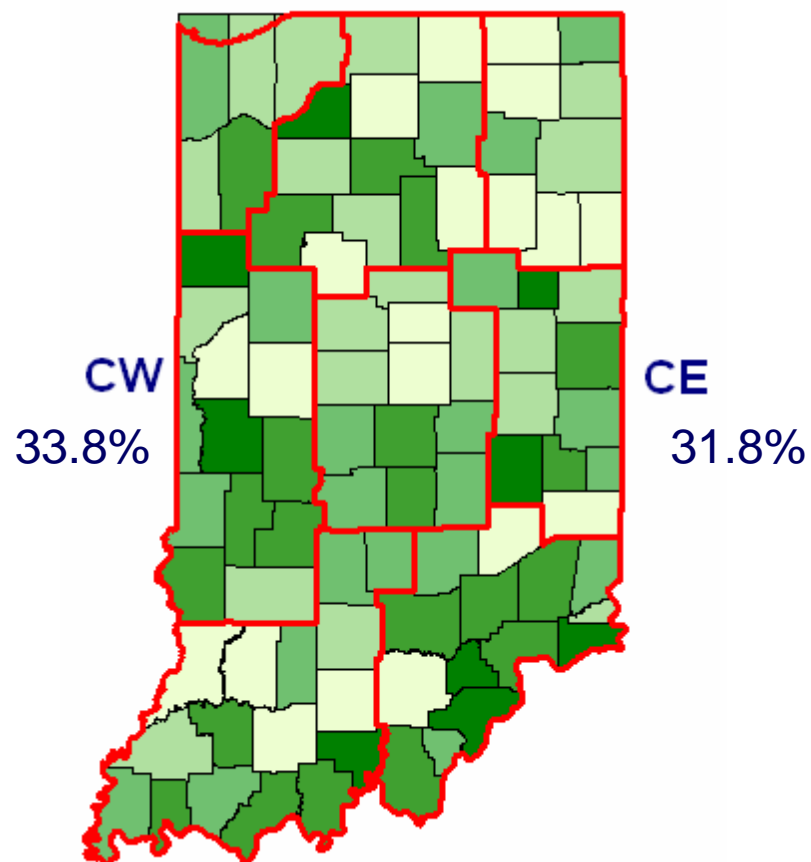
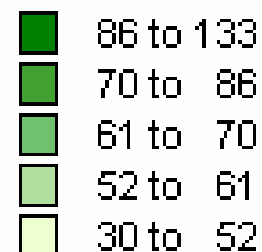


CW region
Top county by more than 8 points

Source: Indiana State Department of Health, October 19, 2007

Malignant Neoplasm of the Trachea, Lung, Bronchus

Age-adjusted lung cancer mortality rate, 2005



CW and CE regions
4 of the top 10% of counties (9)
4 of the top 6 counties

Source: Indiana State Department of Health, October 19, 2007

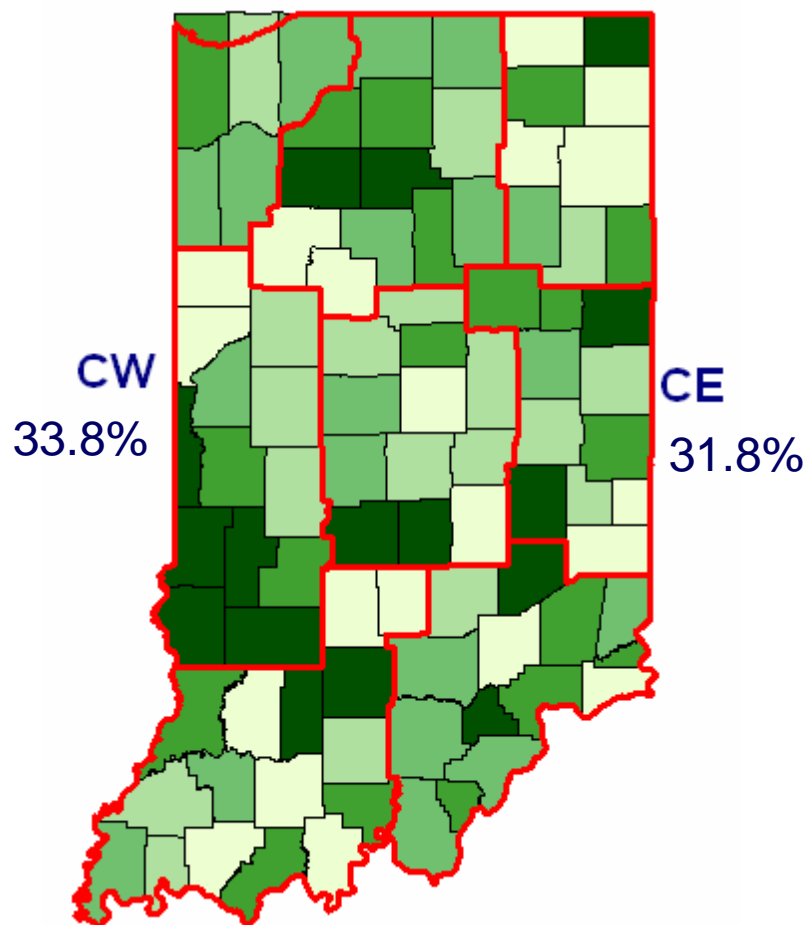
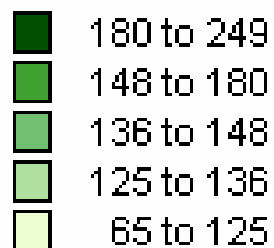
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Ischemic Heart Disease

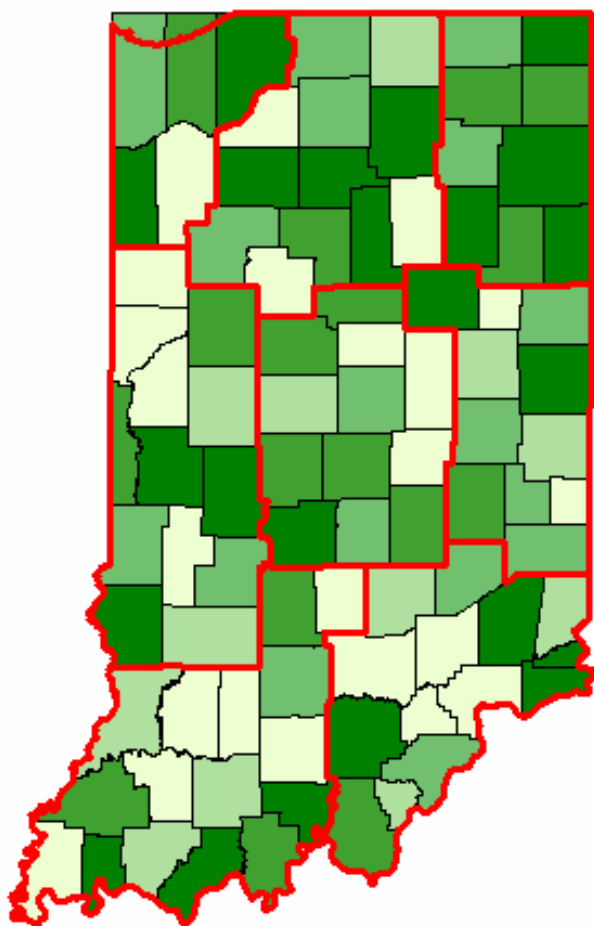
Age-adjusted Ischemic Heart Disease mortality rate, 2005



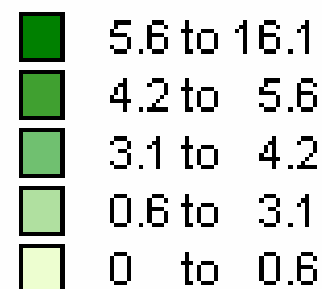
CW and CE regions
Top county in CW
3 of the top 4 counties in CW
5 of the top 10 in CW or CE
8 of the top 16 in CW or CE
12 of the top 16 either in or bordering the CW or CE regions.

Source: Indiana State Department of Health, October 19, 2007

Malignant Neoplasm of the Esophagus



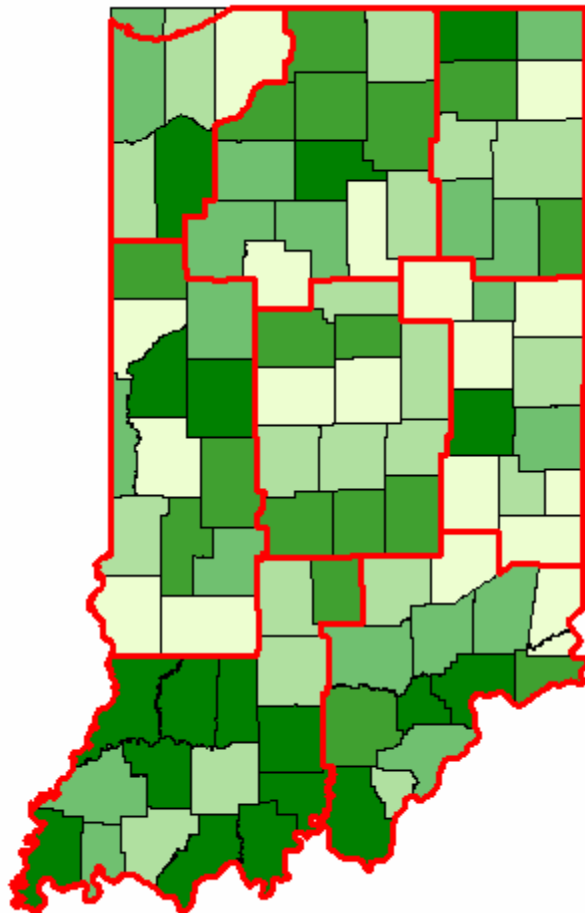
Age-adjusted malignant neoplasm of the esophagus mortality rate, 2005



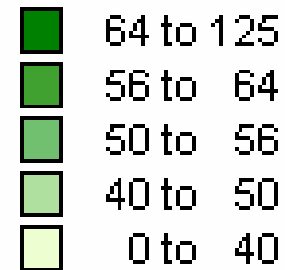
Malignant Neoplasm of the Esophagus
Does not SEEM REMARKABLE.

Source: Indiana State Department of Health, October 19, 2007

CVD



Age-adjusted CVD mortality rate, 2005



CVD SEEMS NOT REMARKABLE.

Source: Indiana State Department of Health, October 19, 2007

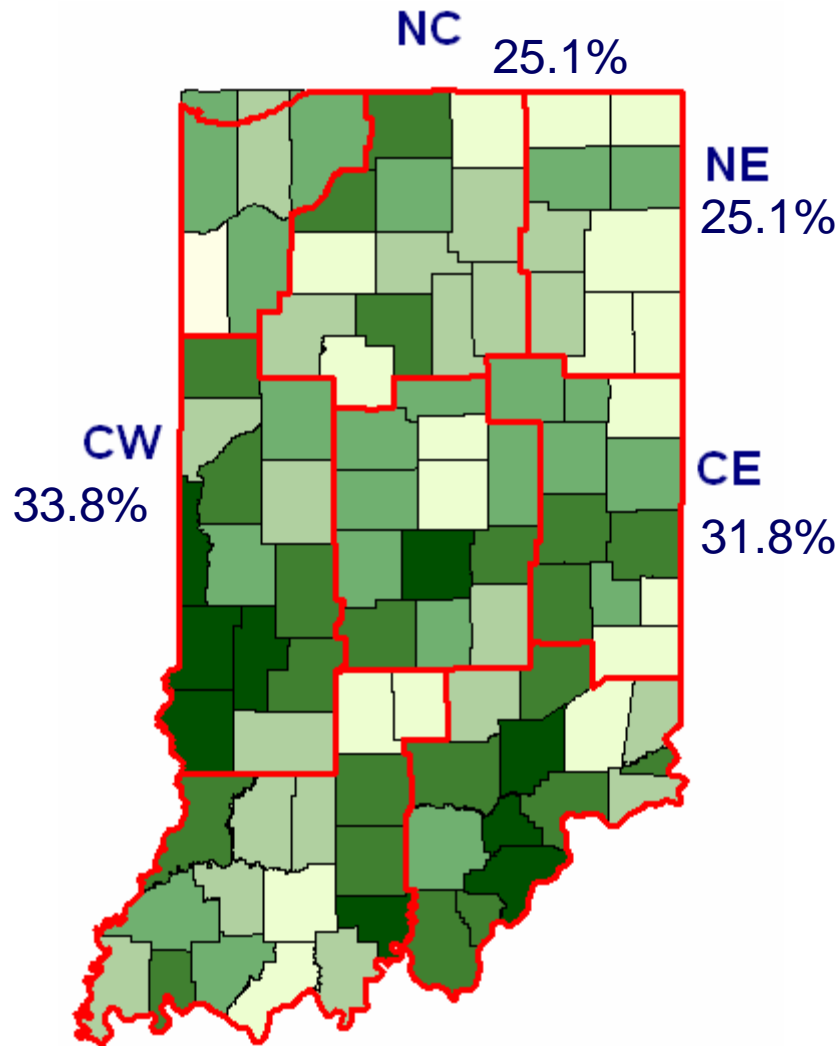
www.drugs.indiana.edu

Morbidity Data

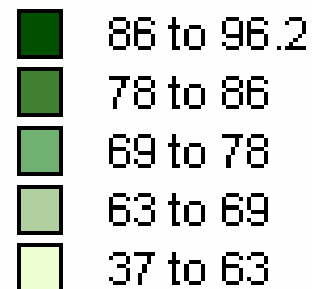
- ❖ Cancer of Trachea, Lung, Bronchus
- ❖ Chronic Airway Obstruction
- ❖ Bronchitis/Emphysema
- ❖ Cancer of the Lip
- ❖ Cancer of the Esophagus
- ❖ Cancer of the Larynx
- ❖ Aortic Aneurysm
- ❖ SIDS

Source: Indiana State Department of Health, October 19, 2007

Lung Cancer Incidence



Rank for rate of lung cancer incidence, 2003



CW region – rate of lung cancer incidence
 top county
 2 of the top 5 counties
 3 of the top 7 counties

NE and NC region
 2 lowest counties (NE)
 3 of the 4 lowest counties
 4 of the 6 lowest counties

Source: Health Service Demand Estimates 2005. Franking, TN: Planning 2.0, 2006.

Lung Cancer Incidence

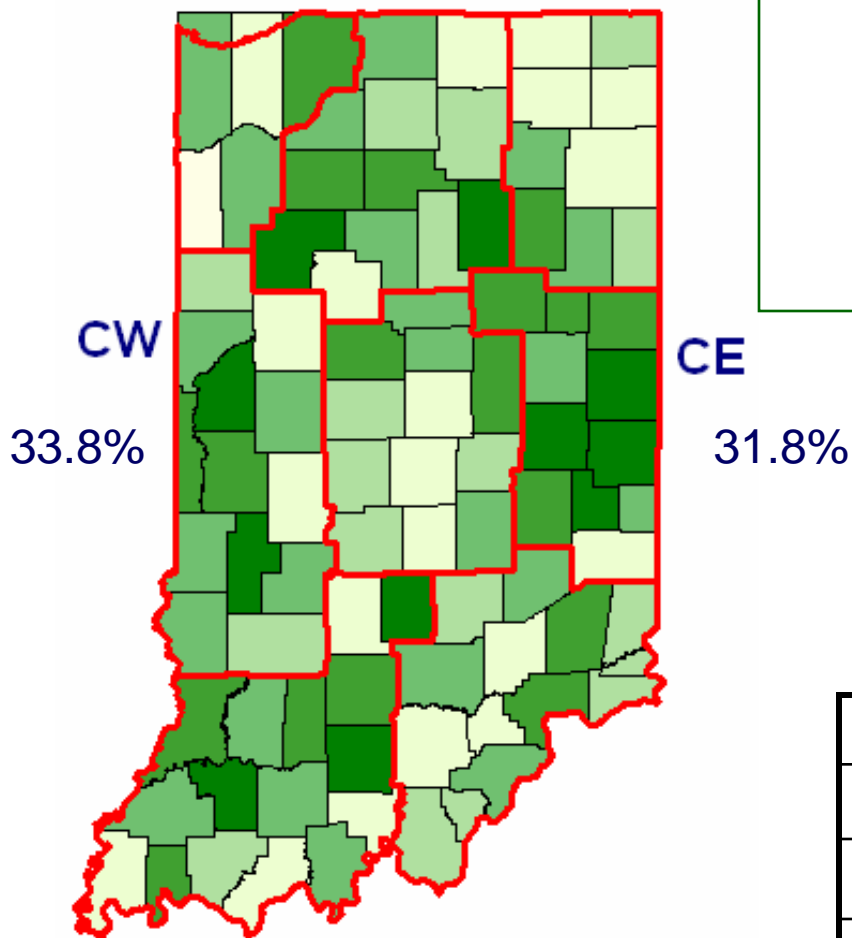
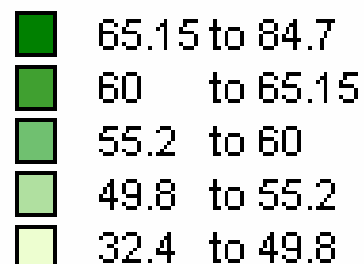
Region	Smoking	Mean Rate	Tob-PrCos
CW	34%	79.7	1/12
CE	31%	70.2	3/11
SE	31%	78.1	13/14
C	29%	73.3	1/12
NW	28%	70.1	0/5
SW	27%	70.2	7/16
NC	25%	67.6	0/5
NE	26%	60	0/9

Perhaps tobacco production is associated with heavier smoking?

IN State Department of Health, published in: Indiana Cancer Facts & Figures, 2006. American Cancer Society, Great Lakes Division, Inc., 2006.

Cancer of the Trachea, Lung, Bronchus

Rate/100,000 of DRG082 (C33), Cancer, 2005



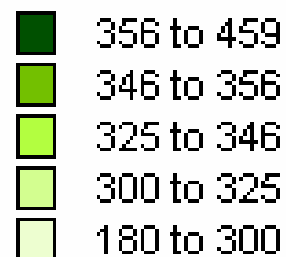
CW and CE regions
 2 of top 3 (CW)
 4 of top 9 counties (CW or CE)
 6 of top 11 counties (CW or CE)
 8 of top 11 counties (in or bordering CW or CE)

Region	Counties	% IN Cos	% T-R
CW/CE	24	26% of 92	66% of 3
CW/CE	24	26% of 92	44% of 9
CW/CE	24	26% of 92	54% of 11

Source: Health Service Demand Estimates 2005. Franking, TN: Planning 2.0, 2006.

DRG088 Bronchitis, Emphysema and Chronic Airway Obstruction

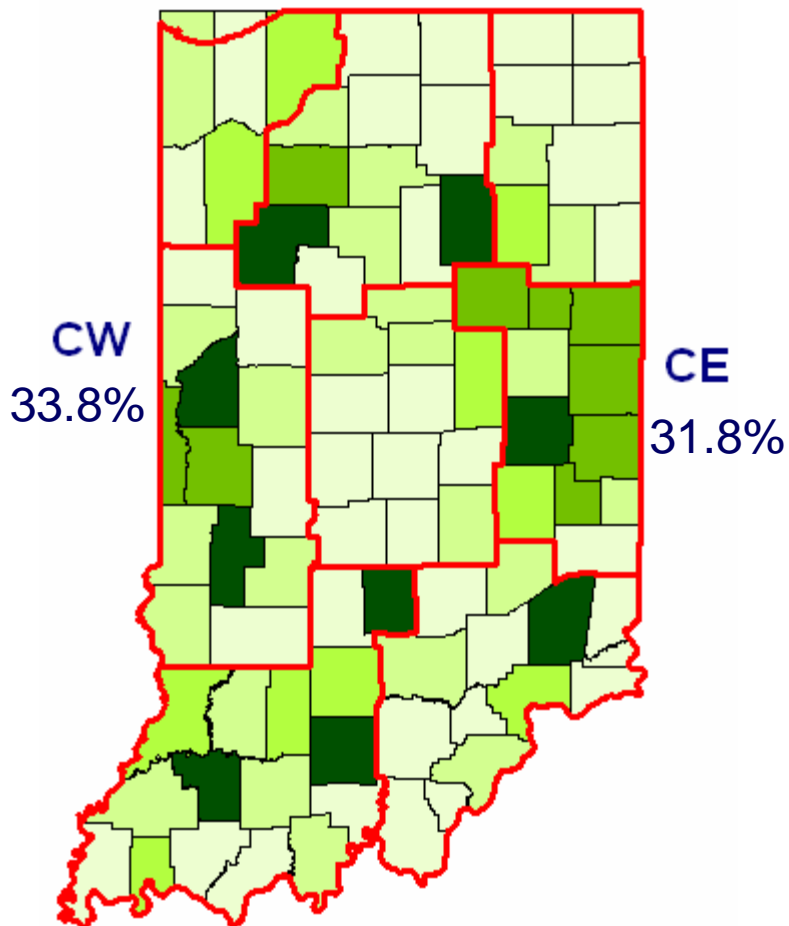
Rate/100,000 of DRG088, 2005



CW and CE regions

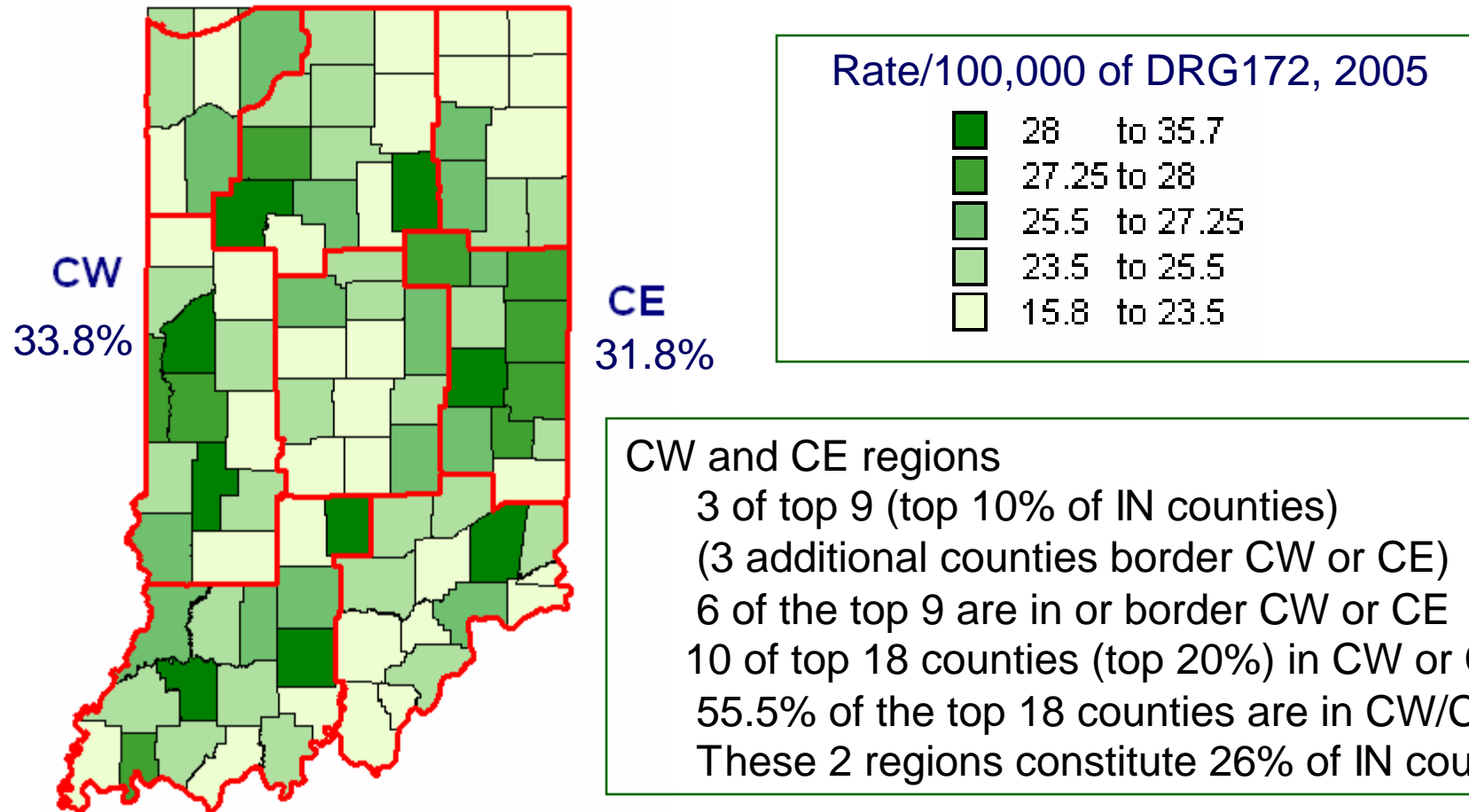
3 of top 9 (top 10% of IN counties)
 (3 additional counties border CW or CE)
 6 of the top 9 are in or border CW or CE
 11 of top 18 counties (top 20%) in CW or CE

Region	Counties	% IN Cos	% T-R
CW/CE	24	26% of 92	33% of 9
CW/CE	24	26% of 92	61% of 18



Source: Health Service Demand Estimates 2005. Franking, TN: Planning 2.0, 2006.

DRG172 Malignant Neoplasm of the Esophagus



Source: Health Service Demand Estimates 2005. Franking, TN: Planning 2.0, 2006.

Comprehensive Tobacco Prevention Components



CDC Best Practices:

- ❖ Community Programs
- ❖ School Programs
- ❖ Policy Enforcement
- ❖ Counter Marketing
- ❖ Cessation Programs
- ❖ Chronic Disease
- ❖ Statewide Programs
- ❖ Evaluation
- ❖ Administration & Management

Tobacco – Free Kids:

- ❖ Public Education
- ❖ Community – Based Programs
- ❖ Cessation Programs
- ❖ School – Based Programs
- ❖ Law Enforcement
- ❖ Evaluation
- ❖ Related Policy Efforts (such as indoor air laws)

Source: http://www.cdc.gov/tobacco/tobacco_control_programs/stateandcommunity/best_practices/index.htm & <http://www.tobaccofreekids.org/research/factsheets/pdf/0245.pdf>

Elements Used for this Study



- ❖ Community Coalition
- ❖ Public Education / Marketing
- ❖ Cessation Programs
- ❖ School – Based Programs
- ❖ Indoor Air Policies
- ❖ Youth Use Law Enforcement
- ❖ High Risk Population
- ❖ Funding Level

Measurement



- ❖ Community Coalition
 - Contact person, meetings posted
- ❖ Public Education / Marketing
 - Display at fair, website, billboards, brochure
- ❖ Cessation Programs
 - Adult, Youth, both?
- ❖ School – Based Programs
 - TAP, TEG, Teens Against Tobacco Use (TATU)
- ❖ Indoor Air Policies
 - City, County, Hospitals, Schools, Parks, Restaurants
- ❖ Youth Use Law Enforcement
 - Tobacco Retailer Inspection Program
- ❖ High Risk Population
 - Pregnant Women, Hispanic
- ❖ Funding Level
 - Indiana Tobacco Prevention & Cessation

Guiding Principles

- ❖ Is it comprehensive?
- ❖ Is it well funded?
- ❖ Is it sustainable over time?
- ❖ Does it operate free of the tobacco industry?
- ❖ Does it address high risk populations?

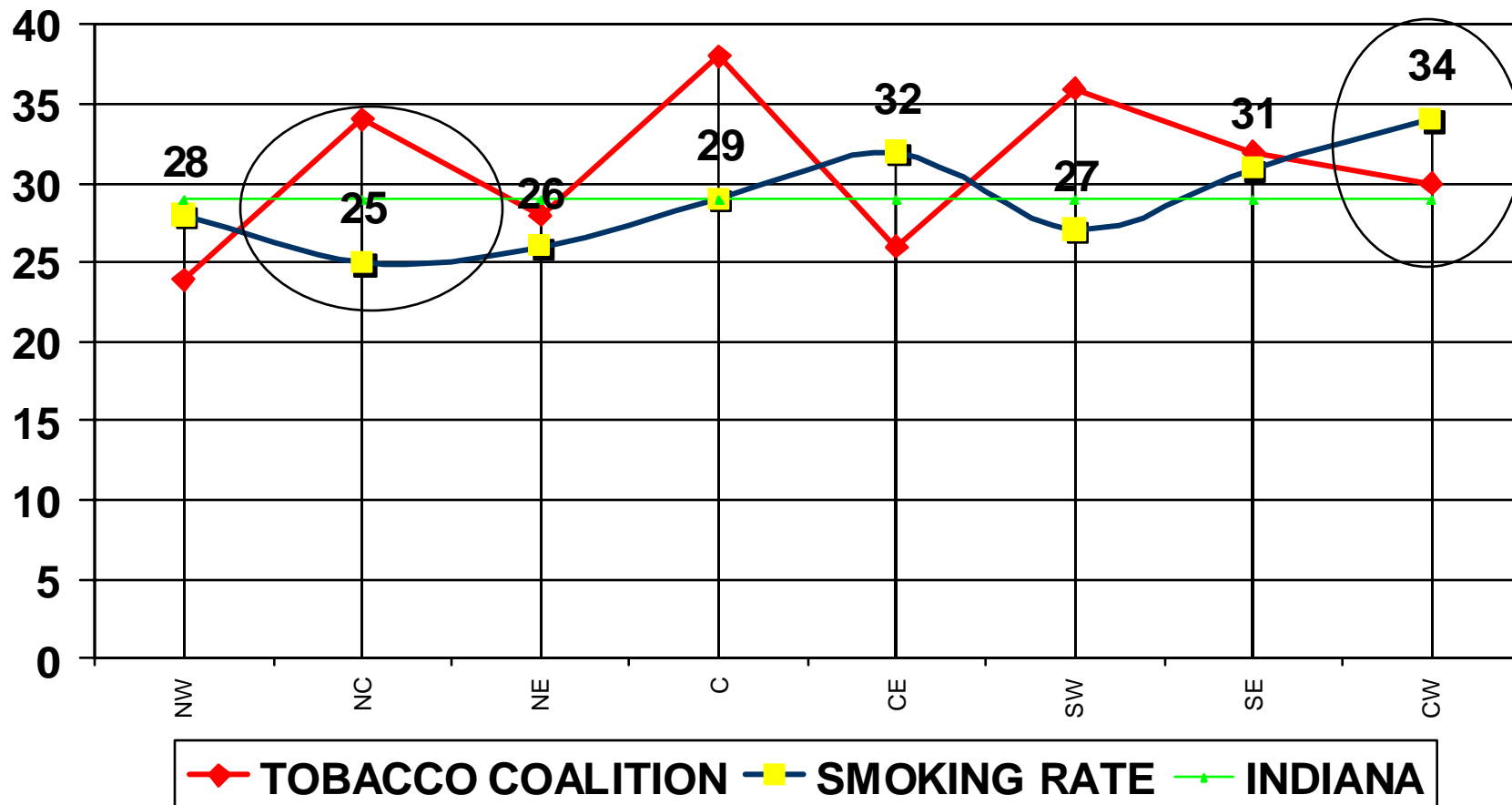
Regional Findings



COUNTY	SMOKING RATE	SMOKING RATE RANK (1 = low)	COALITION STRENGTH RANK (1 = high)
NORTHWEST	28%	4	8
NORTH CENTRAL	25%	1	3
NORTH EAST	26%	2	6
CENTRAL	29%	5	1
CENTRAL EAST	32%	7	7
SOUTH WEST	27%	3	2
SOUTH EAST	31%	6	4
CENTRAL WEST	34%	8	5

<http://www.in.gov/itpc/Research2.asp?CatID=8>

Tobacco Coalition Strength



<http://www.in.gov/itpc/Research2.asp?CatID=8>

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Comparison NC vs. CW



❖ NORTH CENTRAL

- 25% SMOKING
- 18% LESS THAN HIGH SCHOOL DIPLOMA
- \$53,495 MED INCOME
- 5% HISPANIC, 2% BLACK
- TOP 40% COALITION STRENGTH
- HIGHER # OF PLACES OF WORSHIP & YOUTH SERVING AGENCIES
- HIGHER CASINO GAMBLING
- HIGHER # KIDS ON FREE LUNCH

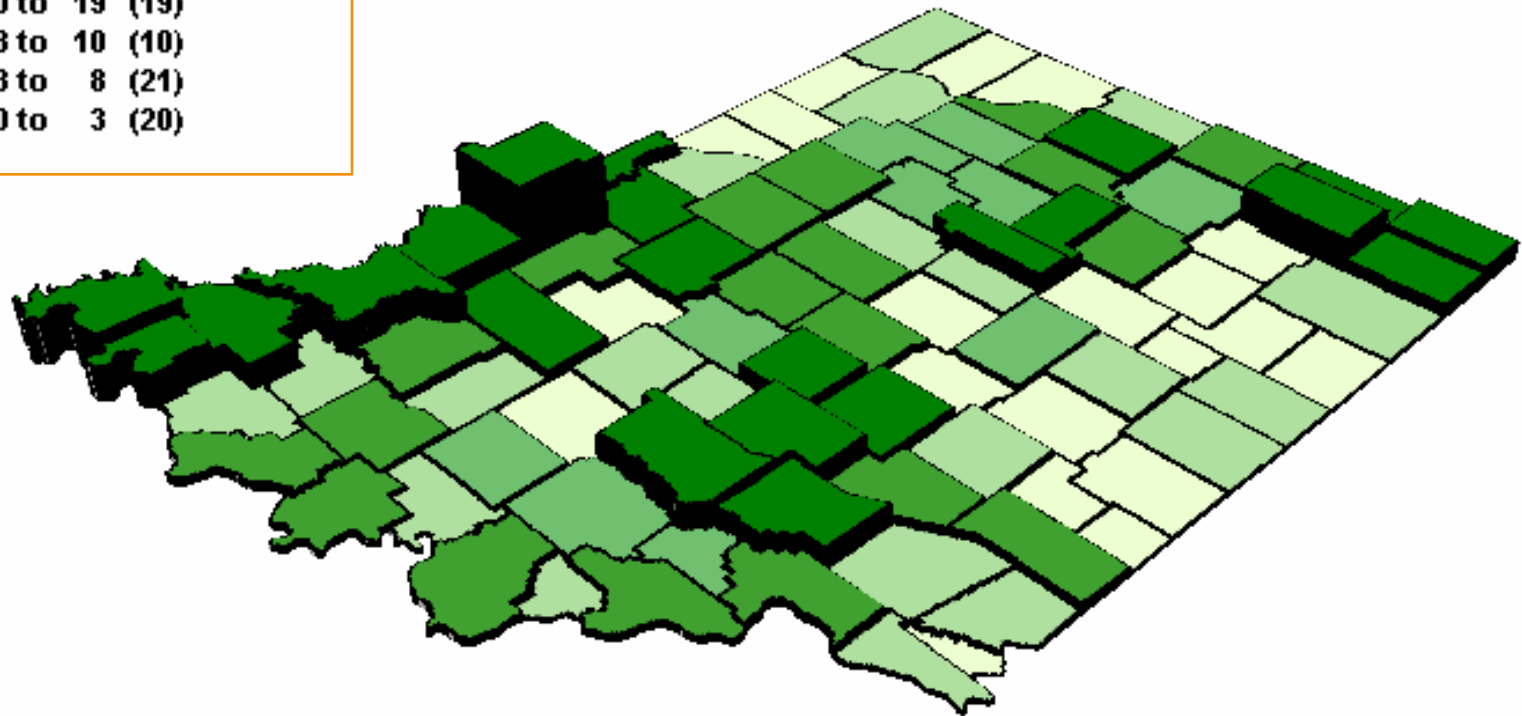
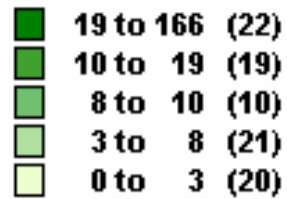
❖ CENTRAL WEST

- 34% SMOKING
- 16% LESS THAN HIGH SCHOOL DIPLOMA
- \$49,427 MED INCOME
- 1% HISPANIC, 2% BLACK
- BOTTOM 40% COALITION STRENGTH
- HIGHER METH USE
- HIGHER UNEMPLOYMENT
- MORE RURAL COUNTIES

Source: <http://www.drugs.indiana.edu/data-prevstat-factsheet04.html>

Map: Meth Lab Busts (prism)

Methamphetamine Lab Busts, 2004 Indiana by County (ISP, 2005)

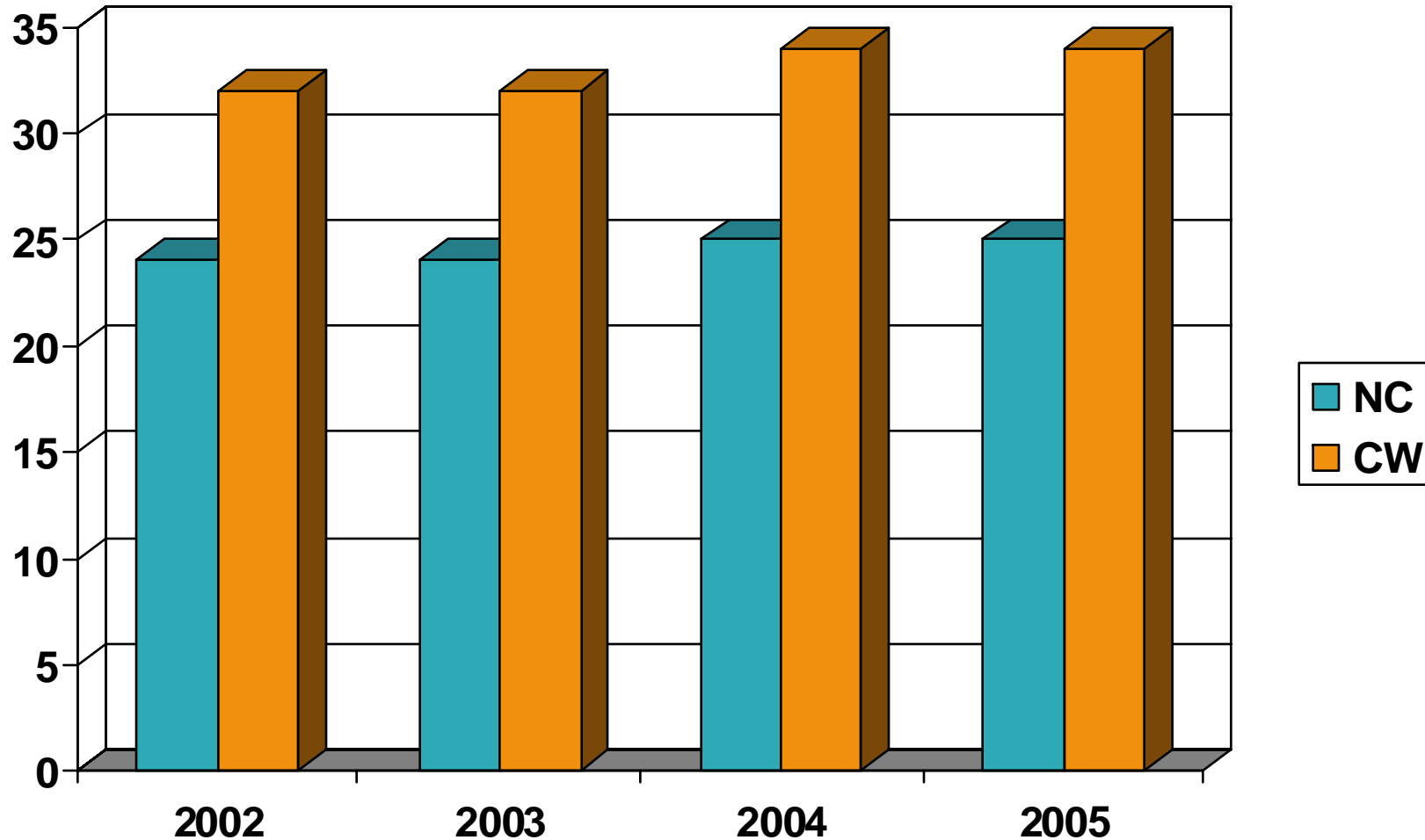


Total lab busts, 1539

Indiana Prevention Resource Center

Source: IN State Police, 2005

NC & CW Regional Smoking Rates



<http://www.in.gov/itpc/Research2.asp?CatID=8>

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Limitations

- ❖ Sample size too small for inferential statistics
- ❖ Data gathered from multiple sources
- ❖ Not taken into account:
 - Other drug use in the regions
 - Comprehensive risk & protective factor data analysis
 - Regional norms
- ❖ Infancy of coalition capacity
- ❖ Coalition component parameters
- ❖ Geographic division too large

Thank You !

Indiana Prevention Resource Center

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