

# **Economic Impact of Smoke-Free Air Policies**

**Frank J. Chaloupka  
Distinguished Professor  
University of Illinois at Chicago**

**All In Coalition Meeting  
Orlando, FL, August 4, 2011**

# Overview

- Smoke-Free Air Policies
  - Evolution
  - Compliance with
  - Impact on exposure
  - Impact on tobacco use
  - Impact on health
  - Economic impact
- Economic analysis of Florida Clean Indoor Air Act of 2003

# Evolution of Smoke-Free Air Policies

# What Is Secondhand Smoke (SHS)?

**Mainstream Smoke (MS):**  
The smoke drawn through the mouthpiece of the cigarette when puffs are taken

**Sidestream Smoke (SS):**  
The smoke emitted from the smoldering cigarette between puffs



**Secondhand Smoke (SHS):**  
Combination of SS and exhaled MS



# Terminology

- Active smoking
- Passive smoking
- Involuntary smoking
- **SHS** or **ETS**?
  - SHS preferred
  - ETS originated with industry
- Tobacco Smoke Pollution (TSP)
  - Emerging term

# Early Evidence & Action

- 1972 Surgeon General's report:
  - "An atmosphere contaminated with tobacco smoke can contribute to the discomfort of many individuals"
  - "The level of carbon monoxide attained in experiments using rooms filled with tobacco smoke has been shown to equal, and at times exceed, the legal limits for maximum air pollution permitted for ambient air quality...."
  - "The presence of such levels (of CO) indicates that the effect...may be sufficient to be harmful to the health of the exposed person."

# Early Evidence & Action

- 1972 Surgeon General's report:
  - "Other components of tobacco smoke, such as particulate matter and the oxides of nitrogen, have been shown in various concentrations to affect adversely animal pulmonary and cardiac structure and function."
  - "The extent of the contributions of these substances to illness in humans exposed to the concentrations present in an atmosphere contaminated with tobacco smoke is not presently known."

# Early Evidence & Action

- Leading up to the report, Surgeon General Jesse Steinfeld stated:
  - “Nonsmokers have as much right to clean air and wholesome air as smokers have to their so-called right to smoke, which I would define as a ‘right to pollute.’ It is high time to ban smoking from all confined public places such as restaurants, theaters, airplanes, trains, and buses.”

The “Non-smokers’ Rights”  
movement is born

# Early Evidence & Action

- Smoke-free policies start to emerge:
  - Some early policies existed limiting smoking in some venues (e.g. theaters, food preparation areas) but intent was not to protect nonsmokers – instead for fire safety and to prevent food contamination
  - 1973 – Arizona first state to limit smoking in public places
  - 1974 – Connecticut first to limit smoking in restaurants
  - 1975 – Minnesota first to limit smoking in private worksites

# Early Evidence & Action

- Smoke-free policies start to emerge:
  - 1978, 1980 – efforts to adopt state-wide “clean indoor air act” in California defeated
    - Surprising given CA’s leadership on tobacco control
    - Led to emergence of “grass roots” efforts and adoption of policies at local level
    - Early 1980s, local policies in LA, Sacramento, San Diego, San Francisco, and more
    - Led to similar action in others states (most notably Massachusetts)
  - Emergence of state “pre-emption” policies
    - Restrict ability of local jurisdictions to adopt stronger restrictions than contained in state law



# Early Evidence & Action

- Smoke-free policies start to emerge:
  - Early policies were generally restrictions on smoking, not bans on smoking
    - Smoking and non-smoking sections in restaurants; usually specified minimum seating percentages for non-smoking sections (25%, 50% common), in contrast to earlier policies that just allowed non-smoking sections
    - Designated smoking areas in public places
    - Smoking rooms in private worksites; often no constraints on smoking in non-public areas; preference to nonsmoker in disputes over shared space
    - New policies differed from existing policies by clearly stating that the intent was to protect safety and comfort of non-smokers





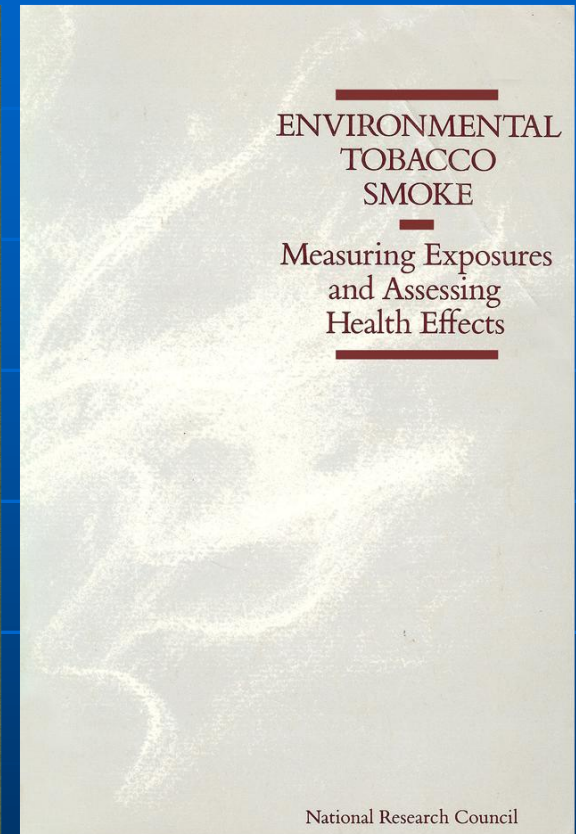
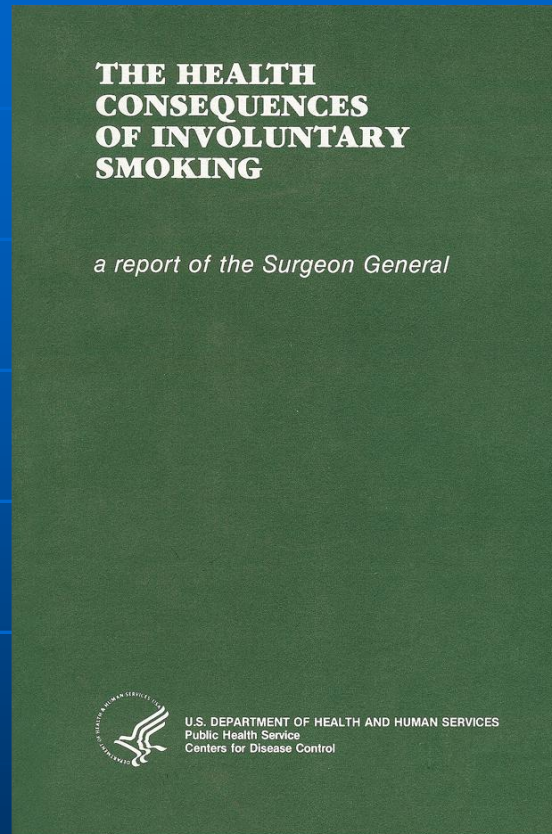
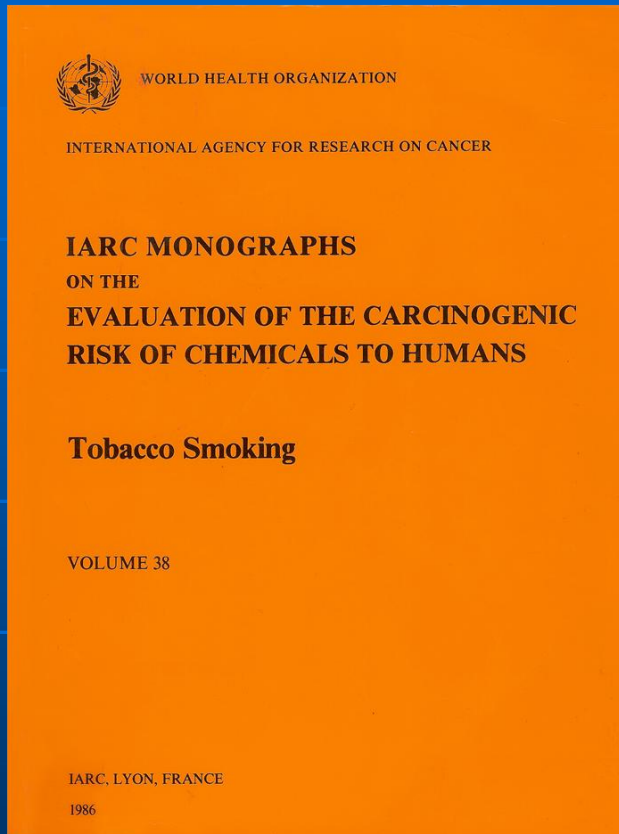


*The non-smoking section of a restaurant is like a non-peeing section in a pool.*

# Early Evidence & Action

- By 1985, state policies covered:
  - Public transportation (35 states)
  - Elevators (31 states)
  - Indoor recreational/cultural facilities (29 states)
  - Retail stores (18 states)
  - Restaurants (18 states)
  - Schools (27 states)
  - Health care facilities (35 states)
  - Public meeting rooms (21 states)
  - Libraries (19 states)
  - Public worksites (22 states)
  - Private worksites (9 states)
- 217 local ordinances (mostly CA, MA)

# 1986: Three Key Reports



# 1986 Surgeon General's Report

## ■ Key conclusions:

- “Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers”
- “The children of parents who smoke compared with the children of nonsmoking parents have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lung matures.”
- “The simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, the exposure of nonsmokers to environmental tobacco smoke.”



# Policy Development

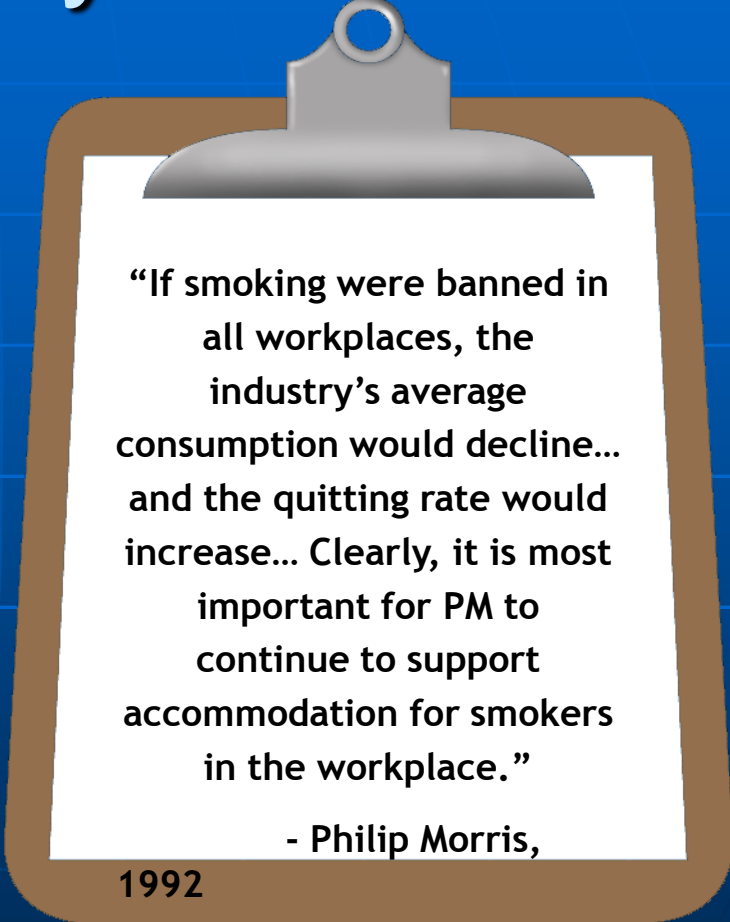
- Federal policy actions limited:
  - Initial ban on smoking on domestic flights less than 2 hours
  - Extended to all domestic flights in 1990
  - Extended to all international arrivals/departures in 2000
- State laws strengthen
  - Complete bans begin to emerge in some venues (e.g. hospitals, schools)
- Private policies spread banning or significantly restricting workplace smoking

# Industry Strikes Back

- Creation of the “smokers rights” movement
  - State laws appear in late 1980s
    - IL (1987), OR (1989), VA (1989)
    - By 1991 – 17 states; currently 30 states
    - Prevent “discrimination” against smokers, including:
      - termination for smoking outside the workplace
      - Company policies prohibiting hiring of smokers
      - Charging differential health and other insurance premiums for smokers and nonsmokers
  - Variety of industry front groups emerge

# Challenge to Smoke-Free Policies: Industry Tactics

- Industry promotes ineffective policies
  - Accommodation
  - Ventilation
- Influence on legislation
- Negation or minimization of health effects



“If smoking were banned in all workplaces, the industry’s average consumption would decline... and the quitting rate would increase... Clearly, it is most important for PM to continue to support accommodation for smokers in the workplace.”

- Philip Morris,

1992

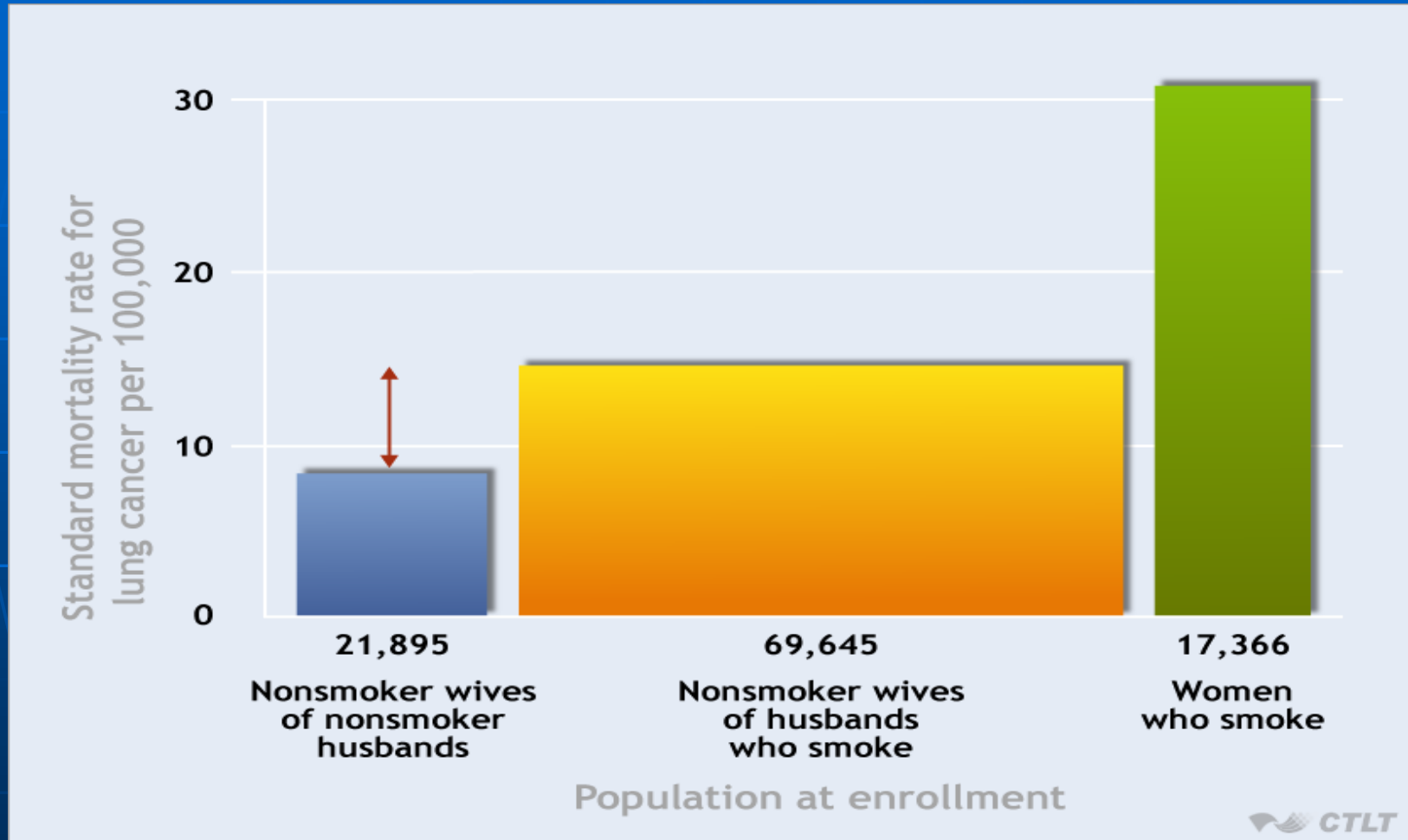
# Challenge to Smoke-Free Policies: Industry Tactics

“According to PAHO, the report reveals that tobacco companies hired scientists throughout Latin America and the Caribbean to misrepresent the science linking second-hand smoke to serious diseases, while cloaking in secrecy any connection of these scientists with the tobacco industry”

—S. Ramsey, 2002



# Hirayama's Study



# California EPA, 1997

- Ties ETS exposure to:
  - Cardiovascular disease
  - Adverse birth outcomes
  - SIDS
  - Asthma
  - Emphasizes adverse impact of children's exposure at home

## Health Effects of Exposure to Environmental Tobacco Smoke

Final Report  
September 1997



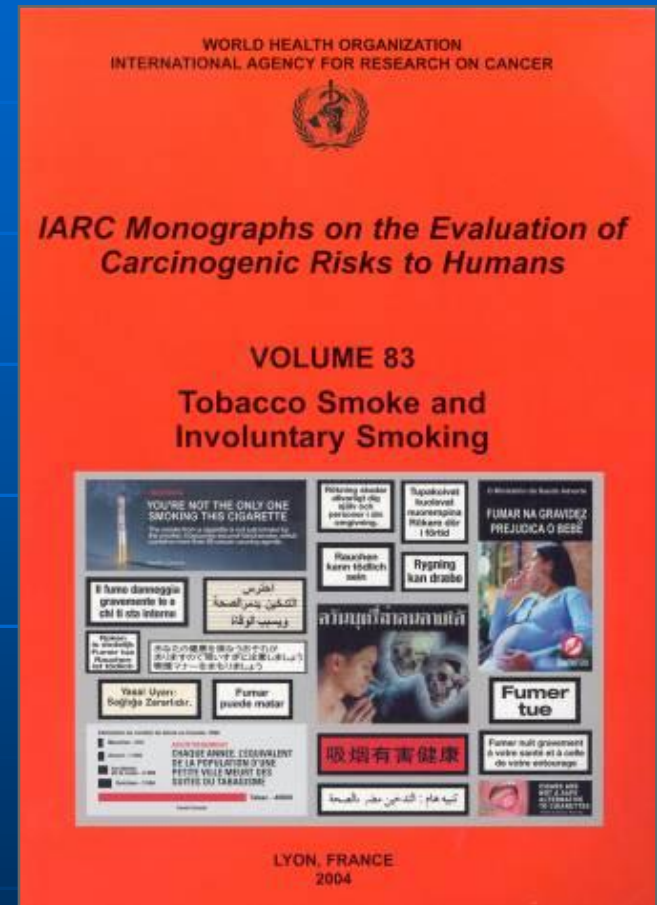
**CALIFORNIA**  
ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

# Policy Development

- State/local policies get stronger:
  - 1998 California bans smoking in public places, including restaurants and bars without separately ventilated areas
  - 2002 New York city bans smoking in bars, restaurants and virtually all other public places and private workplaces
  - 2003 Florida ballot initiative with relatively comprehensive ban passes easily
  - By 2003 all states have at least some restrictions on smoking in public places
    - Thousands of local policies

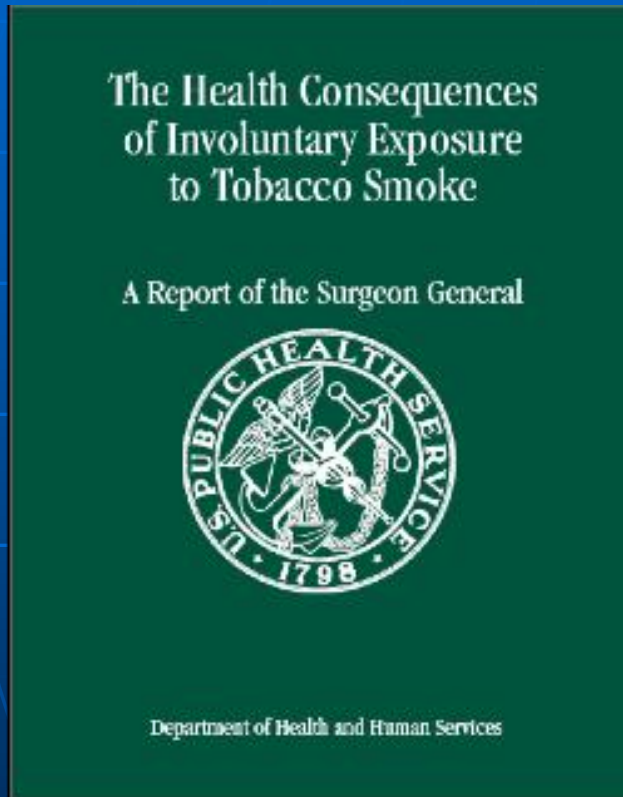
# IARC, 2004

- Involuntary smoking (exposure to secondhand or “environmental” tobacco smoke) is carcinogenic to humans (Group 1)





# The 2006 Surgeon General's Report



“The Surgeon General’s Report that we are releasing today, *The Health Consequences of Involuntary Exposure to Tobacco Smoke*, documents beyond any doubt that secondhand smoke harms people’s health. In the course of the past 20 years, the scientific community has reached consensus on this point.”

– Vice Admiral Richard H. Carmona,  
MD, MPH, FACS  
United States Surgeon General  
U.S. Department of Health and  
Human Services, June 27, 2006



# 2006 Surgeon General's Report: Major Conclusions

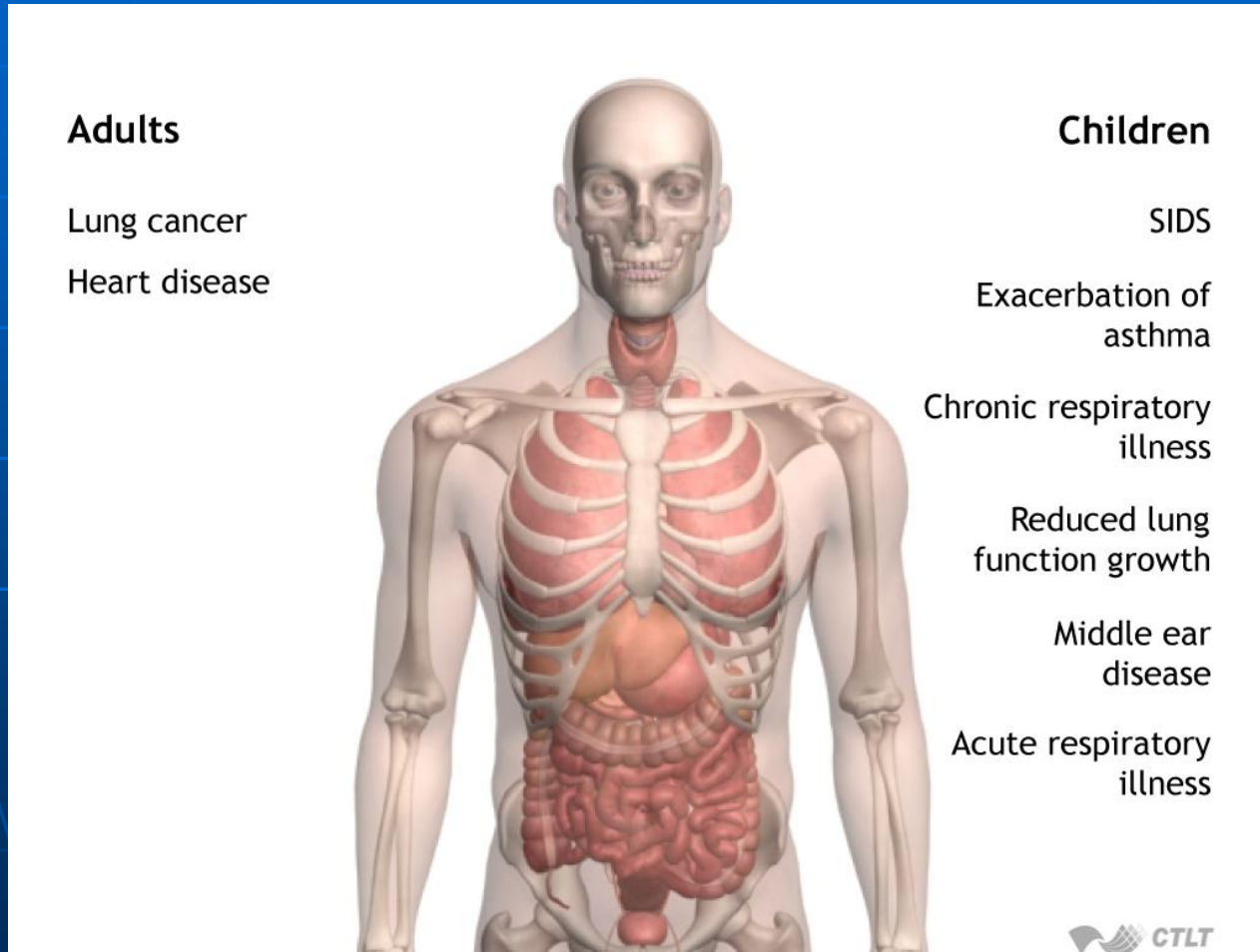
1. Secondhand smoke causes premature death and disease in children and in adults who do not smoke
2. Children exposed to secondhand smoke are at increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma (smoking by parents causes respiratory symptoms and slows lung growth in their children)
3. Exposure of adults to secondhand smoke has immediate adverse effects on the cardiovascular system and causes coronary heart disease and lung cancer

# 2006 Surgeon General's Report: Major Conclusions

4. The scientific evidence indicates that there is no risk-free level of exposure to secondhand smoke
5. Many millions of Americans, both children and adults, are still exposed to secondhand smoke in their homes and workplaces, despite substantial progress in tobacco control
6. Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to secondhand smoke (separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot eliminate exposure of nonsmokers to secondhand smoke)



# Diseases and Adverse Health Effects Caused by SHS

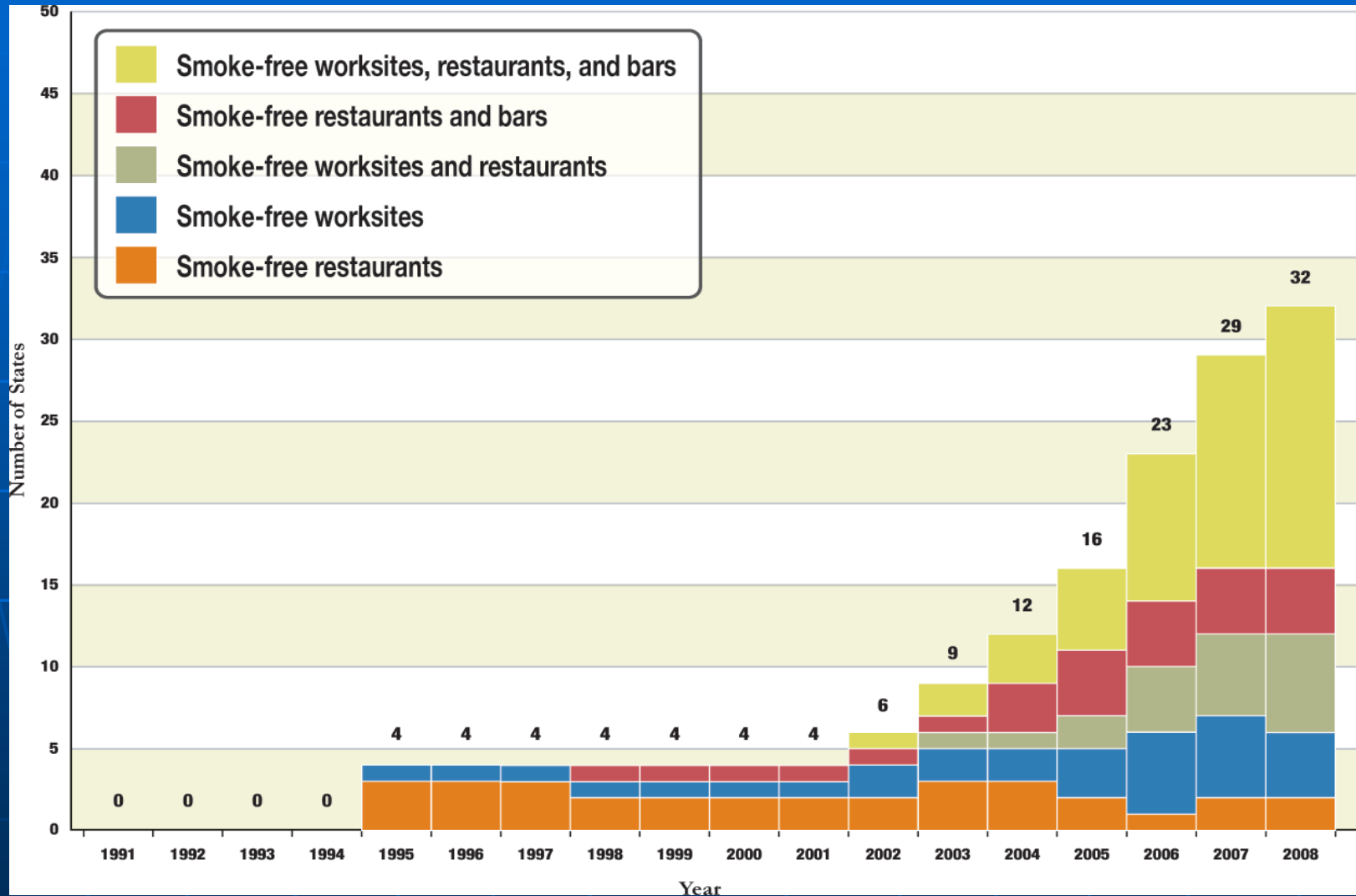


# Health Effects of Secondhand Smoke in Children

- Sudden infant death syndrome (SIDS)
- Risk factors for SIDS include the following:
  - Active maternal smoking: risk increases with increased maternal smoking during pregnancy
  - Prematurity and low birthweight: both associated with maternal smoking
- SHS promotes direct irritation of the airways and respiratory infection
- Exposure to nicotine may alter an infant's response to hypoxia



# Major Smoke-free Air Legislation in the 50 States and the District of Columbia – 1991-2008



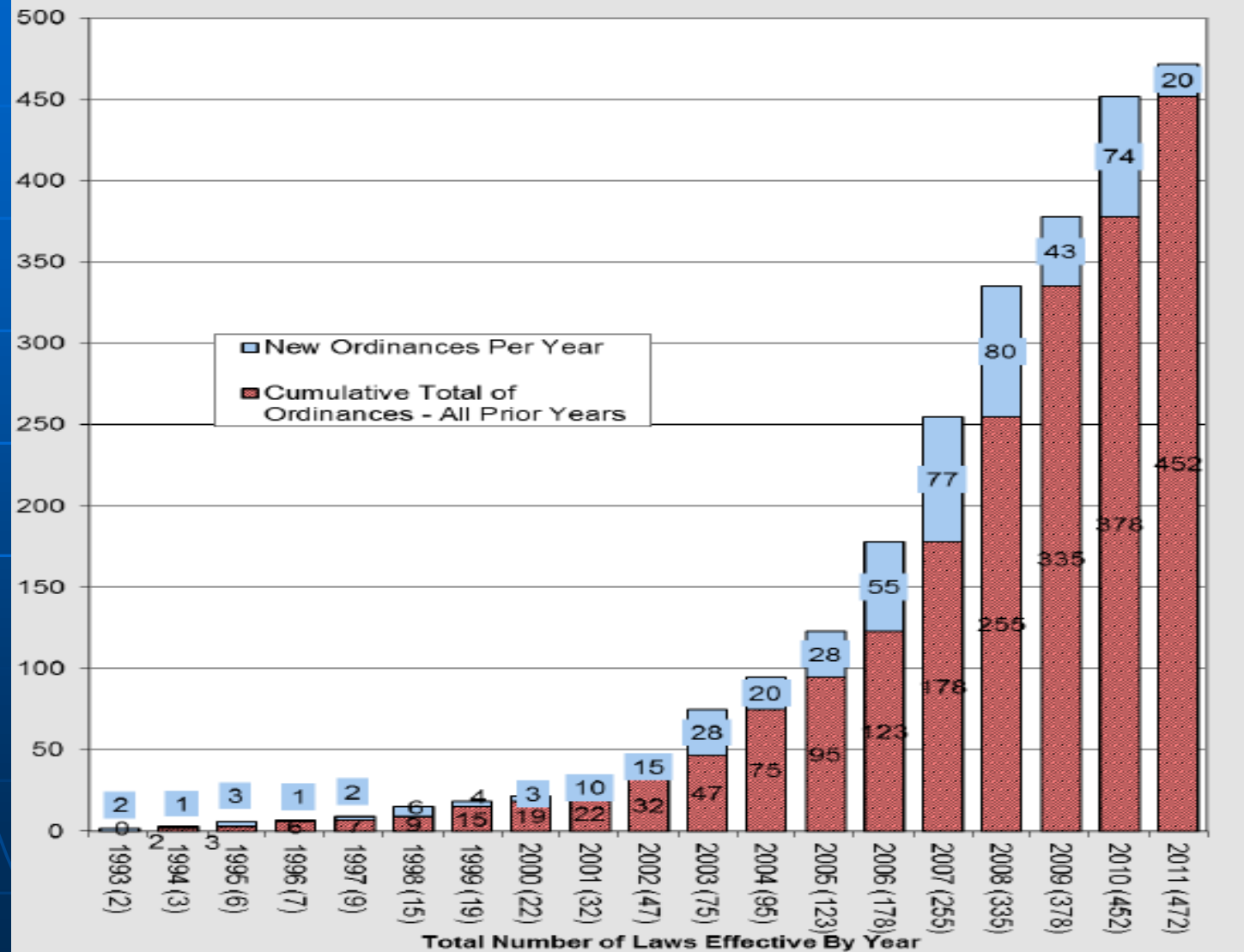
Source: The MayaTech Corporation.

Notes: data are for effective laws through 9/30/2008.

# Local Smoke-Free Policies

July 1, 2011

Local 100% Smokefree Laws in all Workplaces,\* Restaurants,\*\* and Bars: Effective by Year



# Smoke-Free Policies, 2011

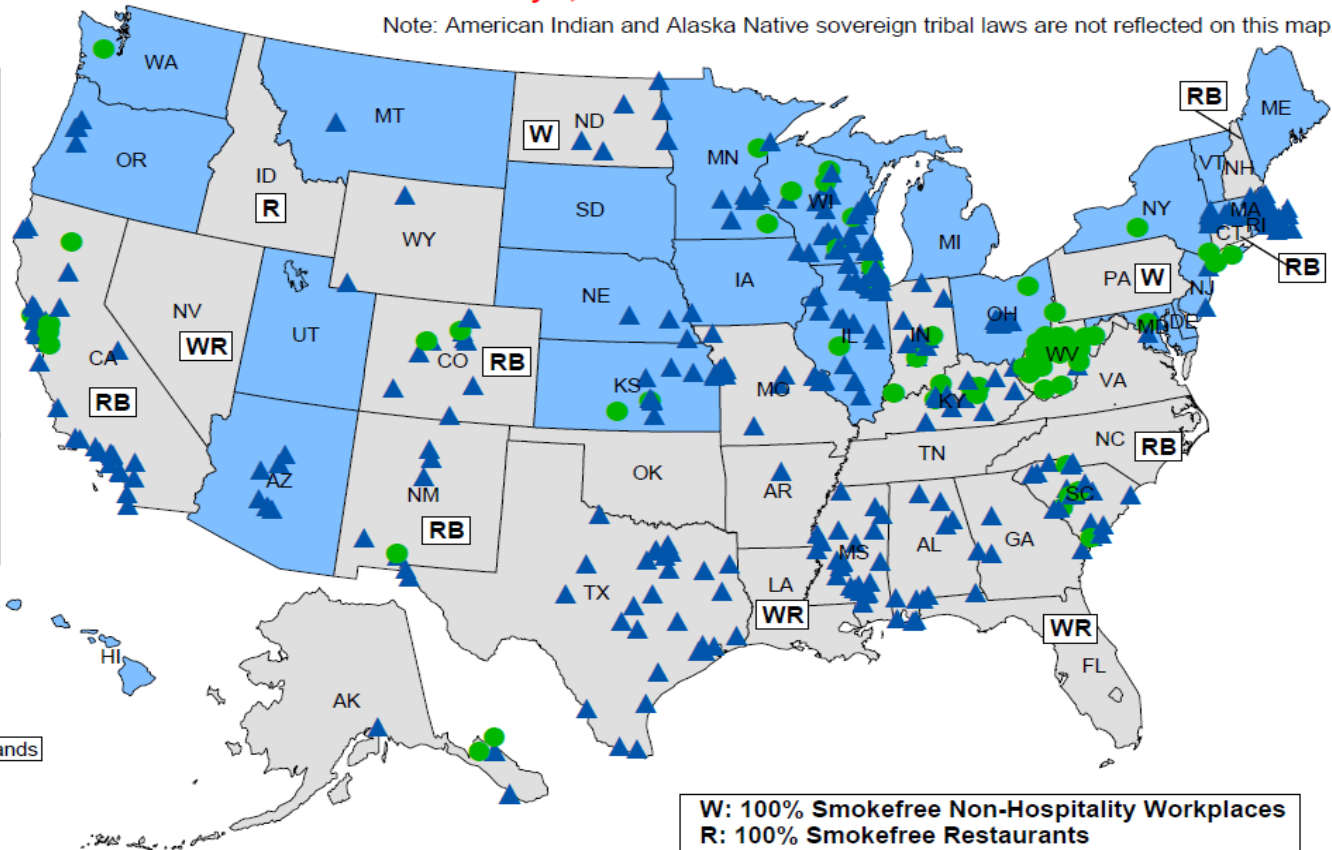
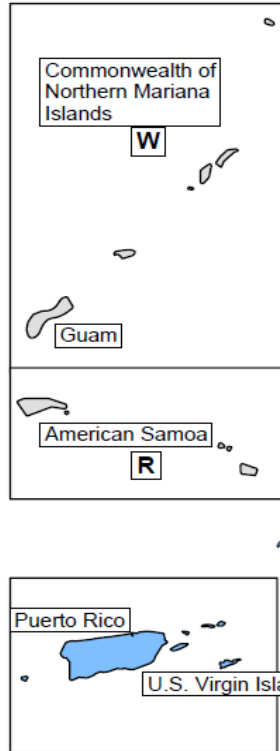
## U.S. 100% Smokefree Laws in Non-Hospitality Workplaces AND Restaurants AND Bars

American Nonsmokers' Rights Foundation

As of July 1, 2011

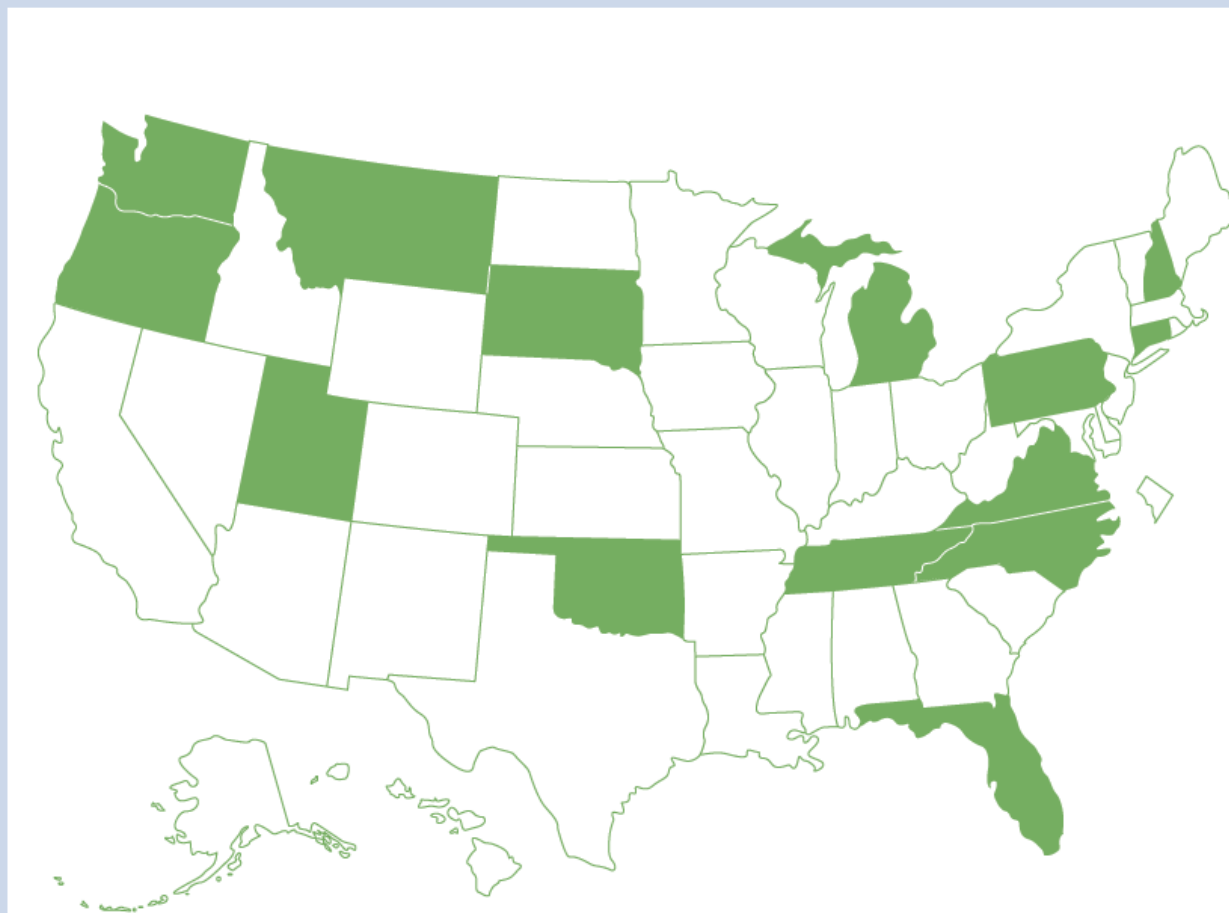
Note: American Indian and Alaska Native sovereign tribal laws are not reflected on this map.

### Territories and Commonwealths





# States that Preempt Local Jurisdictions from Passing Stronger Smoke-free Air Laws – as of September 30, 2008

impacTEEN



## Legend

-  State law preempts local smoke-free air laws
-  No preemption of local smoke-free air laws

Source: The MayaTech Corporation.

Preemption prevents local jurisdictions for providing stronger protection to residents and visitors in various locations.



# Global Policy Development

- Smoke-Free Policies go Global
- Article 8: Protection from exposure to tobacco smoke
  - “Parties recognize that scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability.
  - Each Party shall adopt and implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels the adoption and implementation of effective legislative, executive, administrative and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places.”

# Global Policy Development

- Norway first to adopt in 2003
  - Effective June 1 2004
- Ireland first to implement
  - March 29, 2004
    - After unsuccessful efforts to exempt bars and restaurants
- Spread rapidly to other HICs
  - New Zealand (2004), Scotland (2004), Italy (2005)....
- Spread to LMICs
  - Uruguay first in 2006
- Sub-national policies in many countries



# Smoke-Free Policies Globally

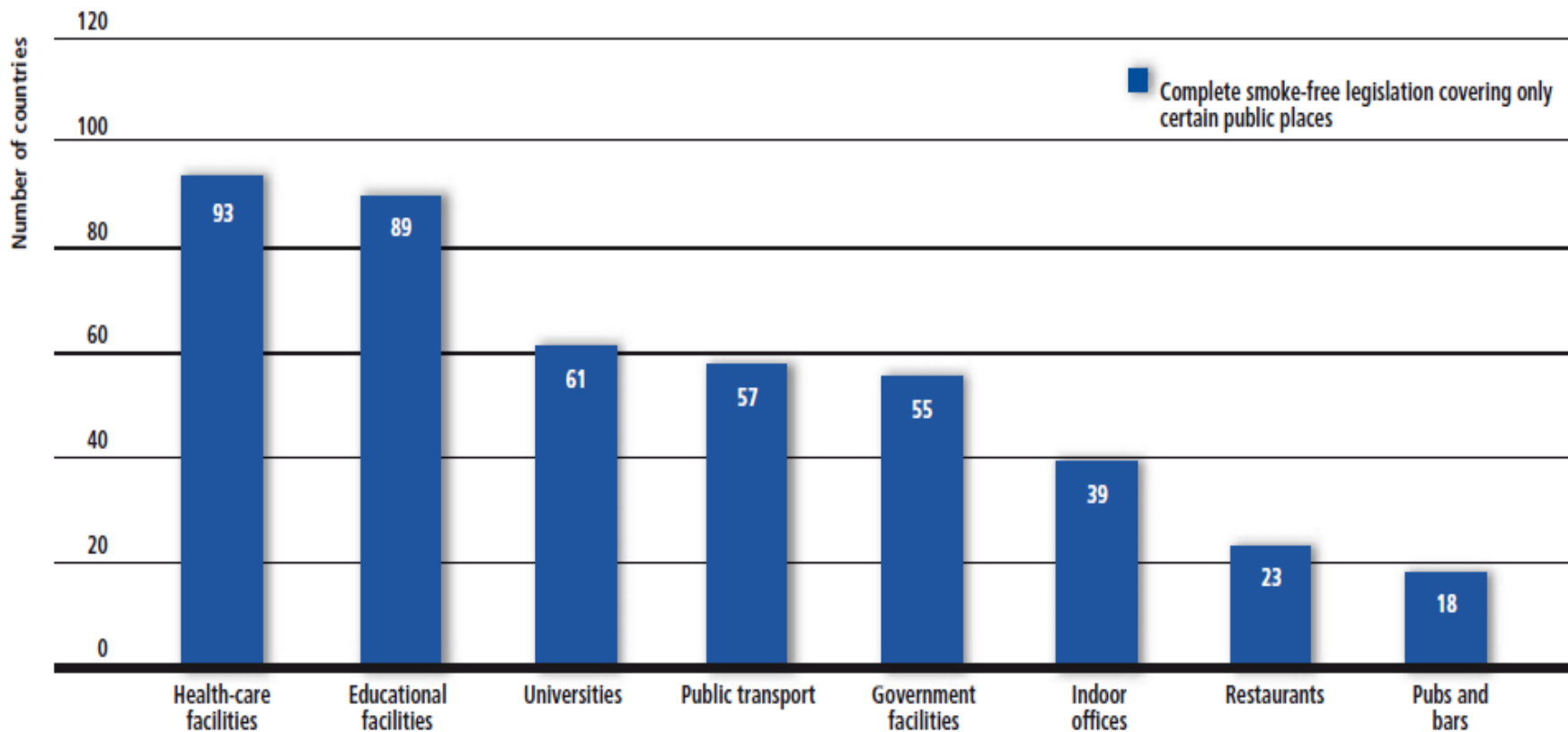
## SMOKE-FREE ENVIRONMENTS – HIGHEST ACHIEVING COUNTRIES, 2010



\* Country newly at the highest level since 31 December 2008.

# Smoke-Free Policies Globally

## STATUS OF SMOKE-FREE LEGISLATION COVERING VARIOUS TYPES OF PUBLIC PLACES



# Smoke-Free Air Policies

## Future Directions

- Multi-Unit Housing
  - Growing evidence of exposure in nonsmoking units from smoking in other units
  - Some state, local restrictions on smoking in multiunit housing
    - Some limited to common areas only
    - Some limited to public housing
    - Some complete bans
  - Private policies emerging
    - Conflict with smokers' rights laws?

# Smoke-Free Air Policies

## Future Directions

- Private cars with child passengers
  - 4 states (AR, CA, LA, ME)
- Outdoor Venues
  - Beaches, public parks, zoos
  - Outdoor dining
  - Sporting venues
  - Public transit stops
- Private policies expanding
  - Hotel chains going smoke-free
    - Westin in 2006, many since
  - Rental car companies going smoke-free
    - Avis, Budget in Oct. 2009, others following



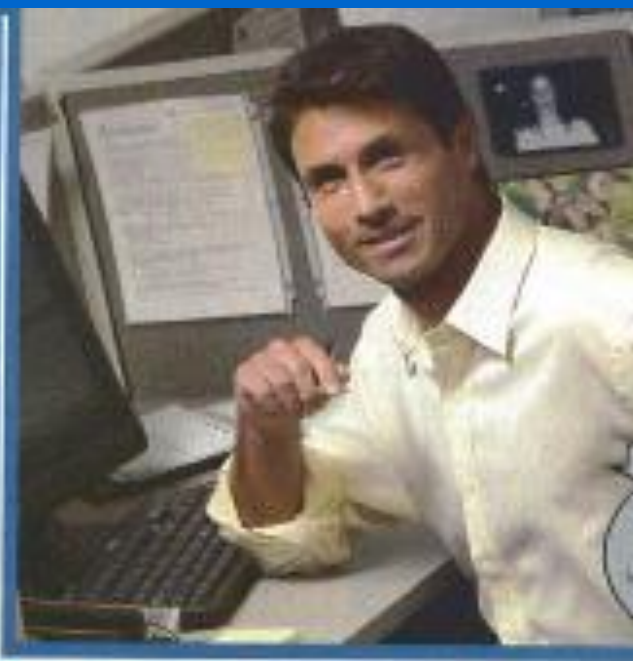
# Industry Responses

- Increased focus on new product development





**WITH ALL  
THE SMOKING  
AREAS REMOVED  
FROM THE  
BUILDING,  
PHIL KNEW  
HIS BEST  
OPTION WAS TO  
HEAD STRAIGHT FOR THE NEXT PAGE**



## THE SOLUTION.



Enjoy tobacco the smoke-free way with Skoal® or Copenhagen.® Copenhagen offers legendary natural tobacco flavor, while Skoal is available in a wide variety of great tasting flavors that are sure to satisfy. They also make it easy to enjoy tobacco on your own terms. Try a rich satisfying pinch of long cut, or enjoy the convenience of easy-to-use pouches. Maybe it's time you find your solution – and leave the smoke behind.

**BREAK FROM THE PACK.™**

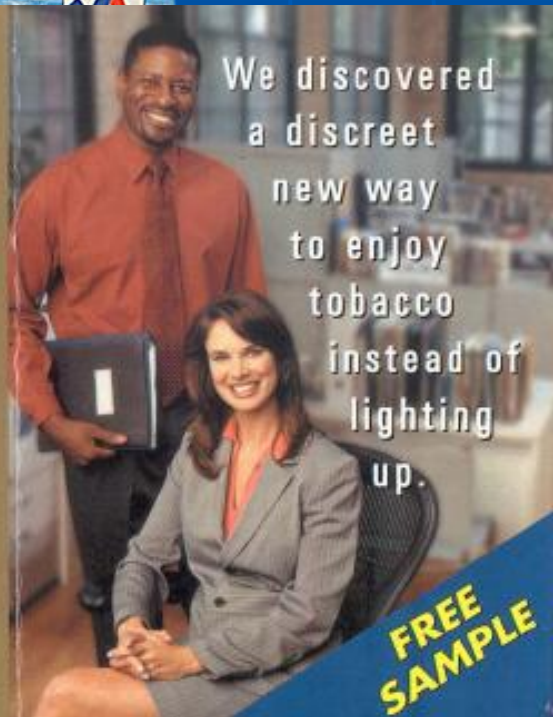
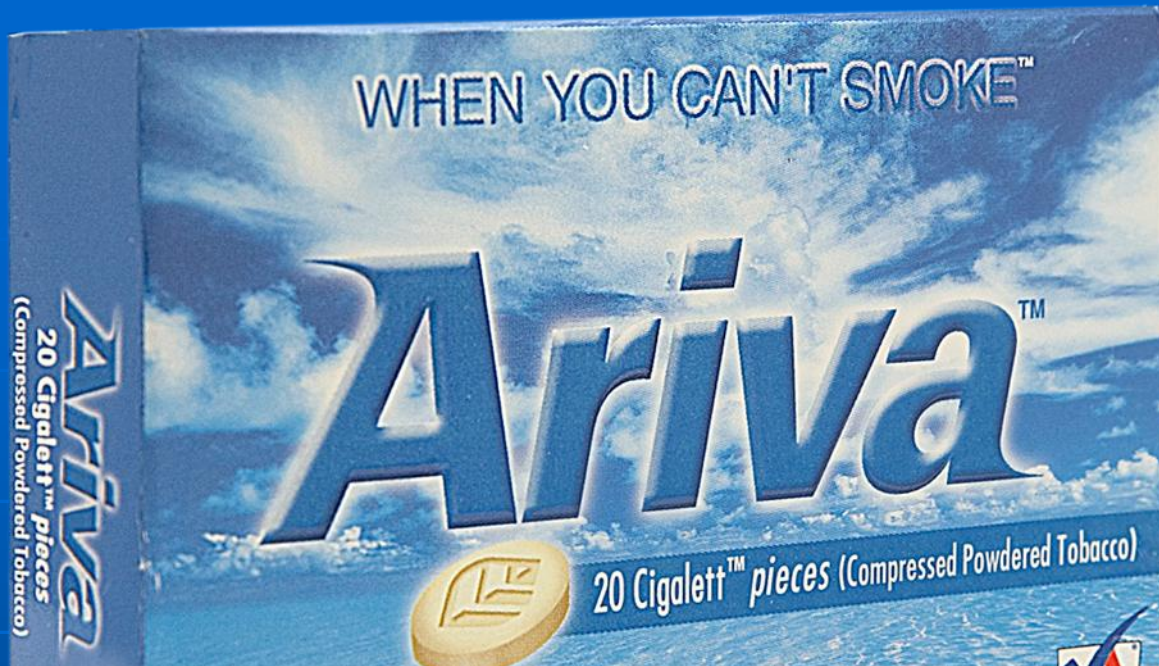
Visit [TrySmokeless.com](http://TrySmokeless.com) for more info and savings.



U.S. Smokeless  
TOBACCO CO.

®Trademark of U.S. Smokeless Tobacco Co. or an affiliate. ©2004 U.S. Smokeless Tobacco Co.


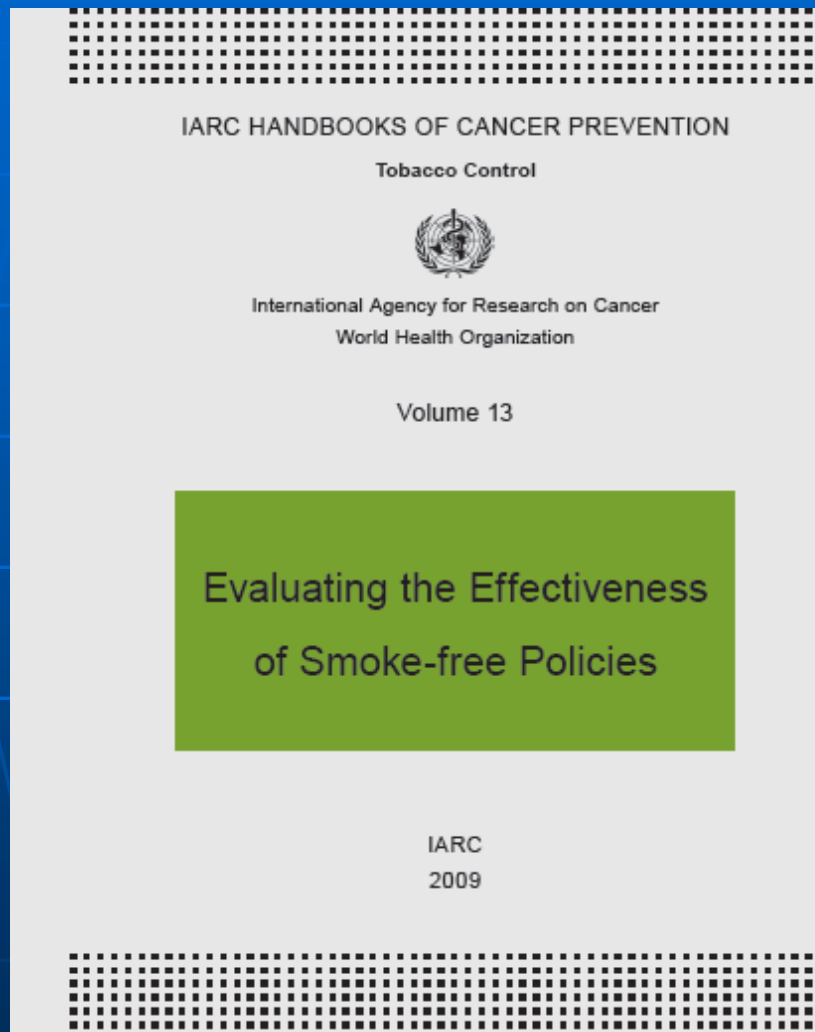







# Impact of Smoke-Free Air Policies

# Impact of Smoke-Free Policies




Robert Wood Johnson Foundation



**Cigarette Smoking Prevalence  
and Policies in the 50 States:  
An Era of Change**

Prepared by the Departments of Health Behavior at the University at Buffalo School of Public Health and Health Professions and the Roswell Park Cancer Institute



# IARC: Sufficient Evidence that:

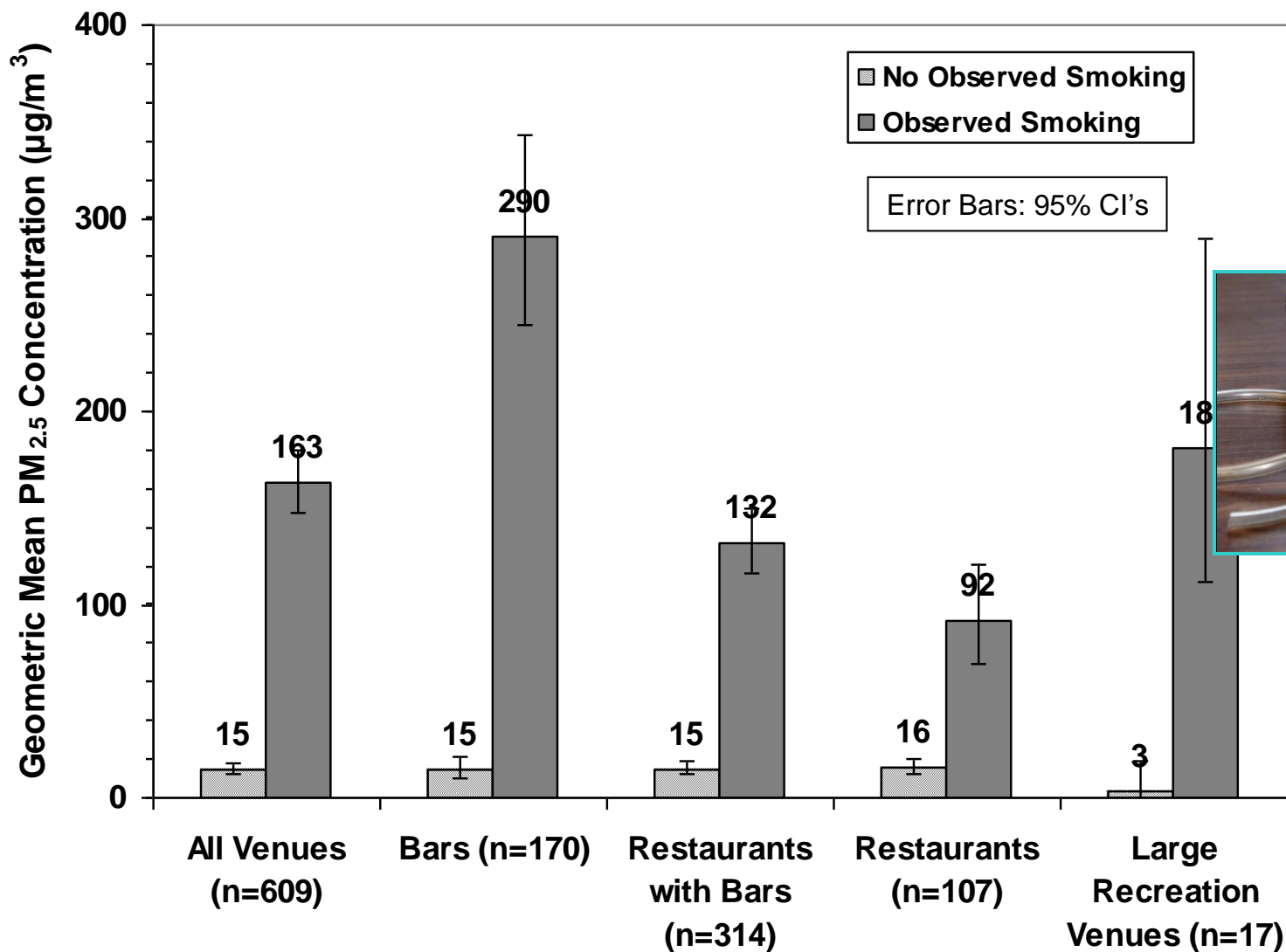
Implementation of smoke-free policies leads to a substantial decline in exposure to second hand smoke.



# IARC: Strong Evidence that:

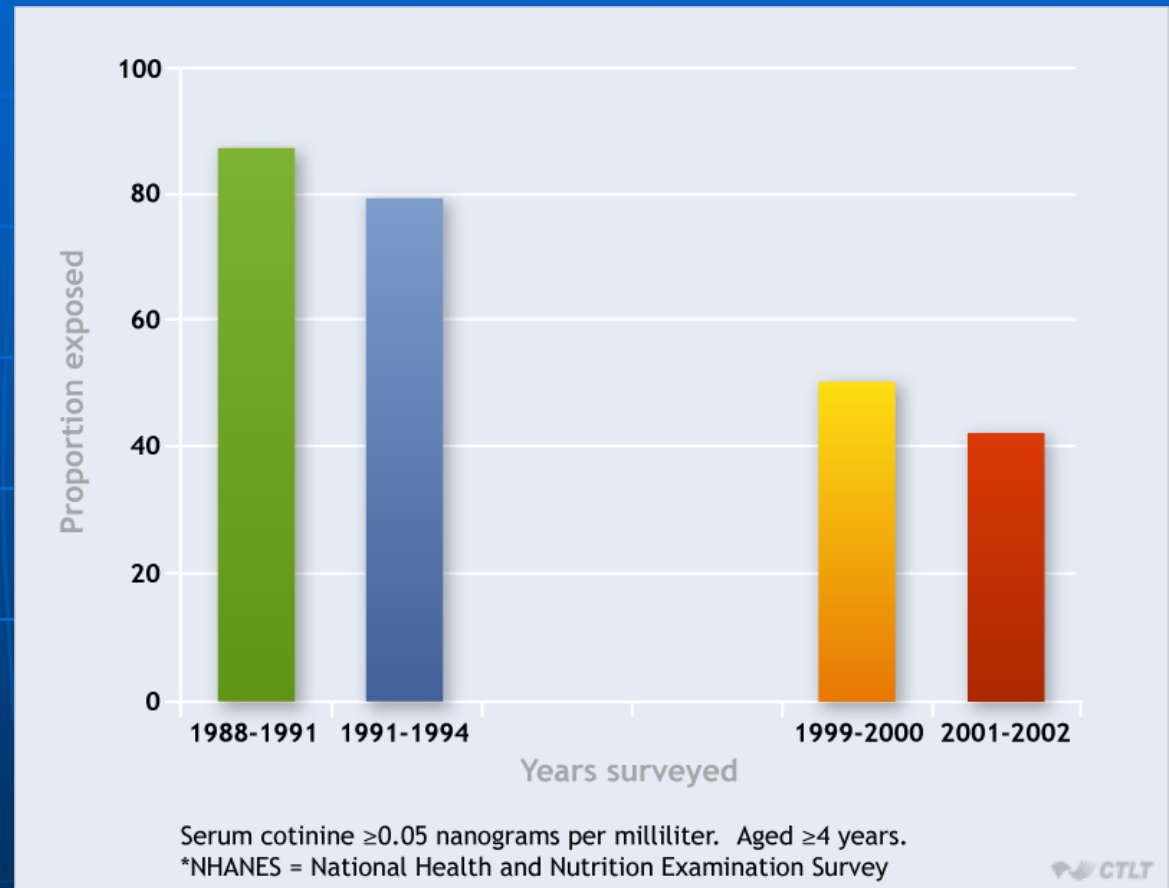
Implementation of smoke-free legislation reduces social inequalities in second hand smoke exposure at work.

# Particulate Matter Levels in the US

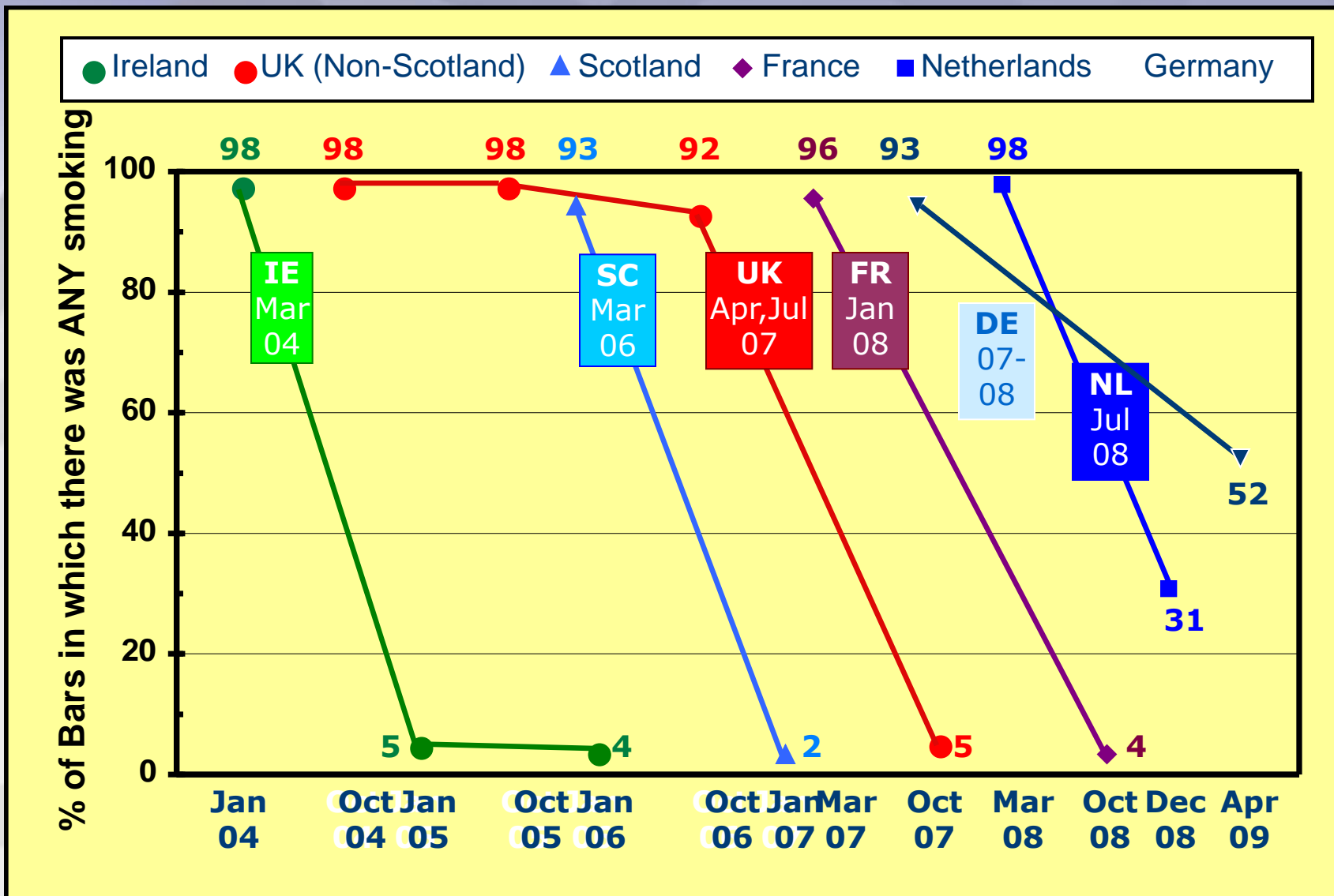


# Trends in Nonsmoker Exposure

- Trends in exposure of nonsmokers to secondhand smoke, NHANES\*, 1988 to 2002: cotinine levels



# Smoking Prevalence in Bars/Pubs Before & After Ban in Ireland (04), Scotland (06), UK (07), France (08), Netherlands (08), Germany (07-08)



# IARC: Sufficient Evidence that:

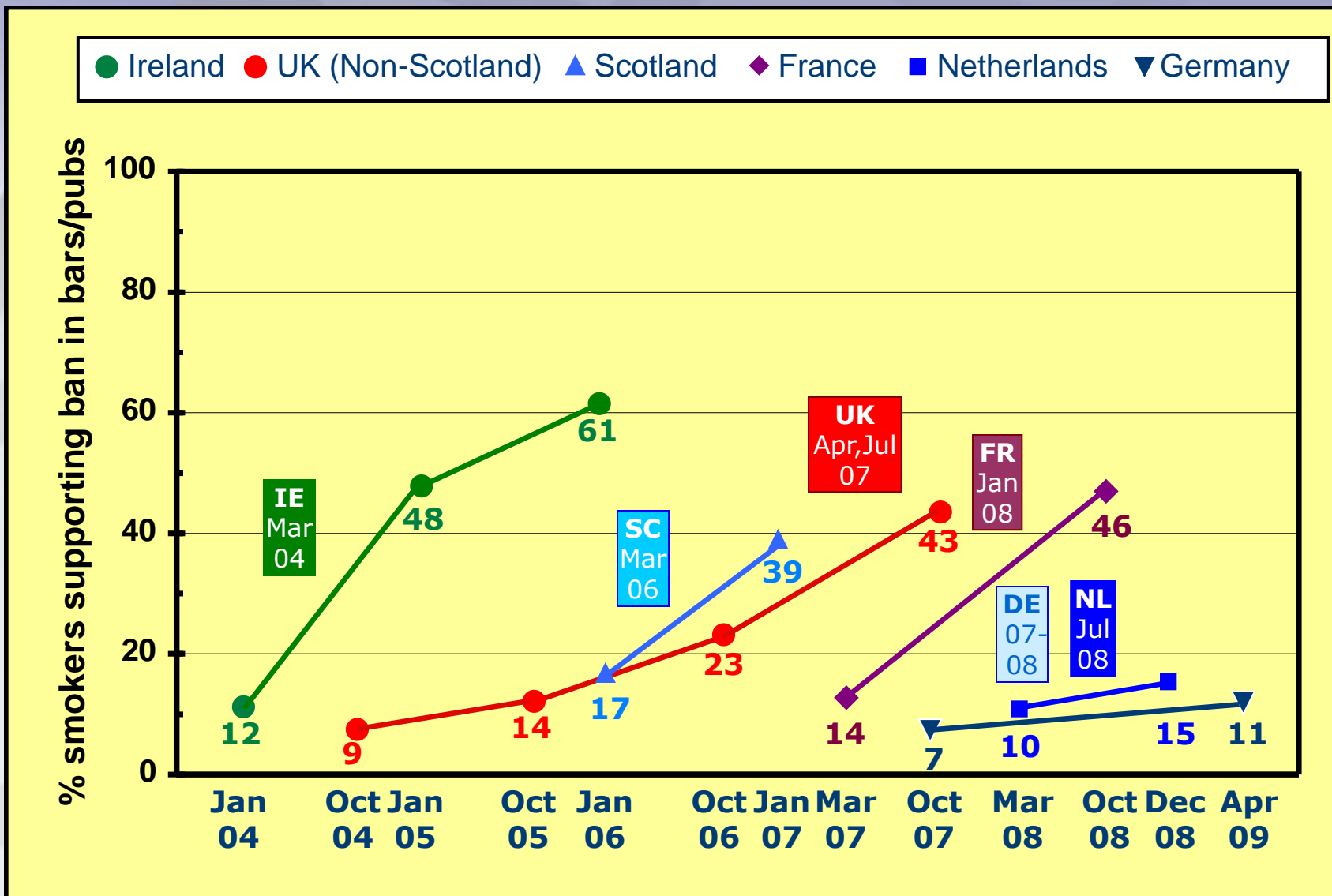
There is usually majority support for  
smoke-free workplaces and public  
places



# IARC: Sufficient Evidence that:

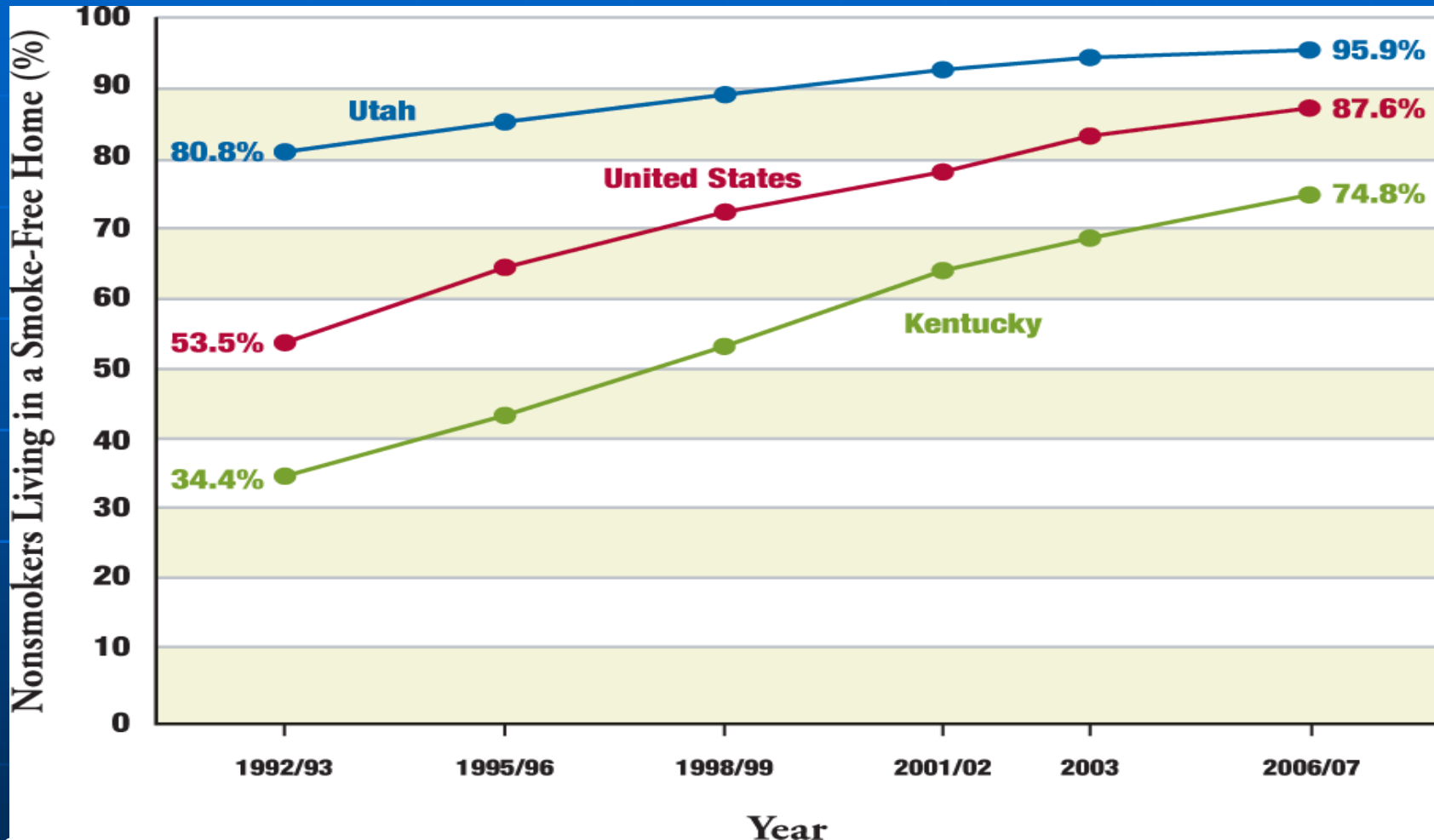
Public support among both smokers and non-smokers for smoke-free policies increases following implementation of legislation.

# SUPPORT for Bans in Bars/Pubs Before & After Ban in Ireland (04), Scotland (06), UK (07), France (08), Netherlands (08), Germany (07-08)



Source: Fong, 2009

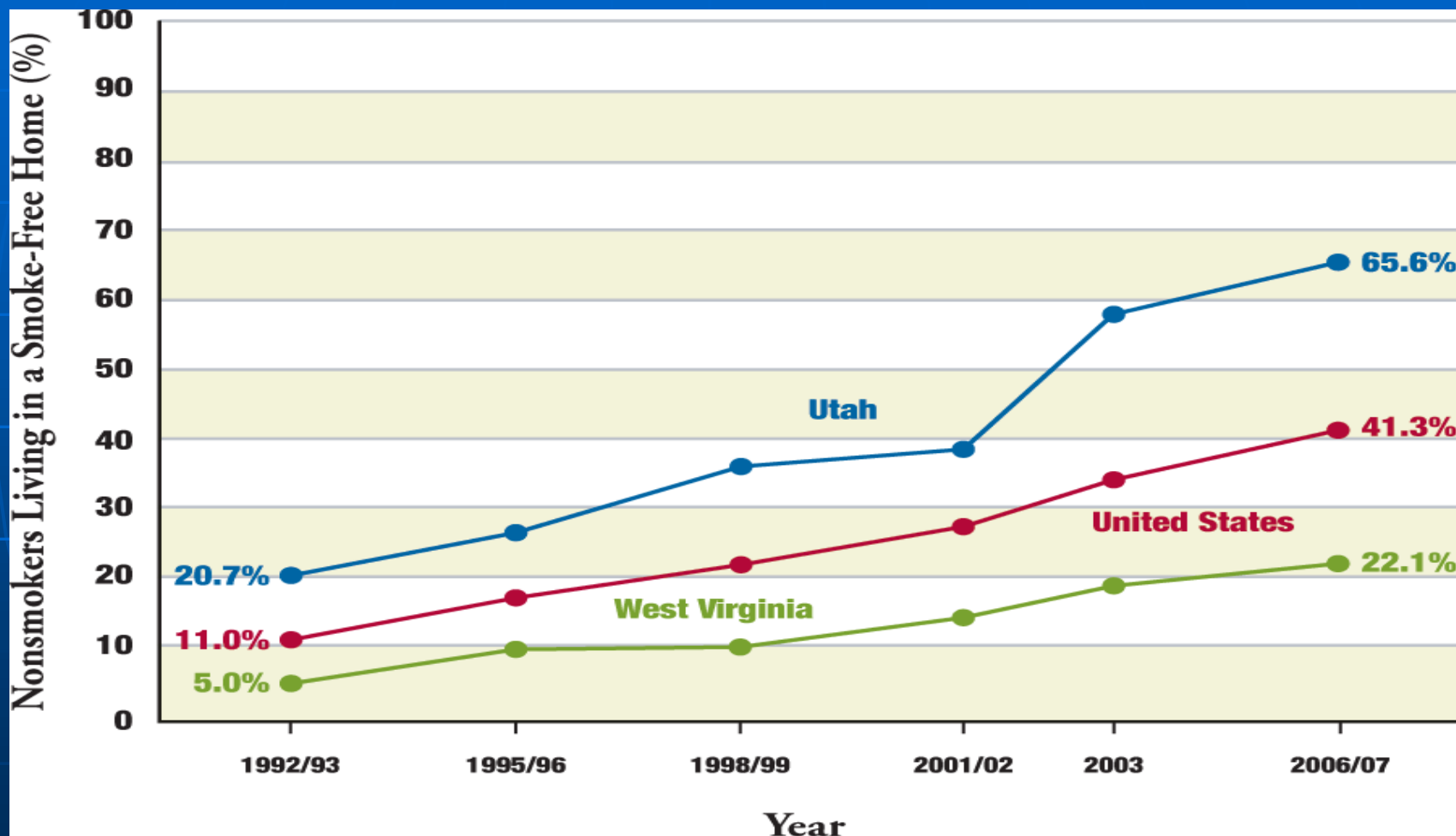
# Trends in the Percentage of Nonsmokers Living in a Smoke-free Home – US, UT, and KY (1992/93 to 2006/07)



See note 86.

Source: Tobacco Use Supplements to the Current Population Survey.

# Trends in the Percentage of Smokers Living in a Smoke-free Home – US, UT, and WV (1992/93 to 2006/07)



See note 86.

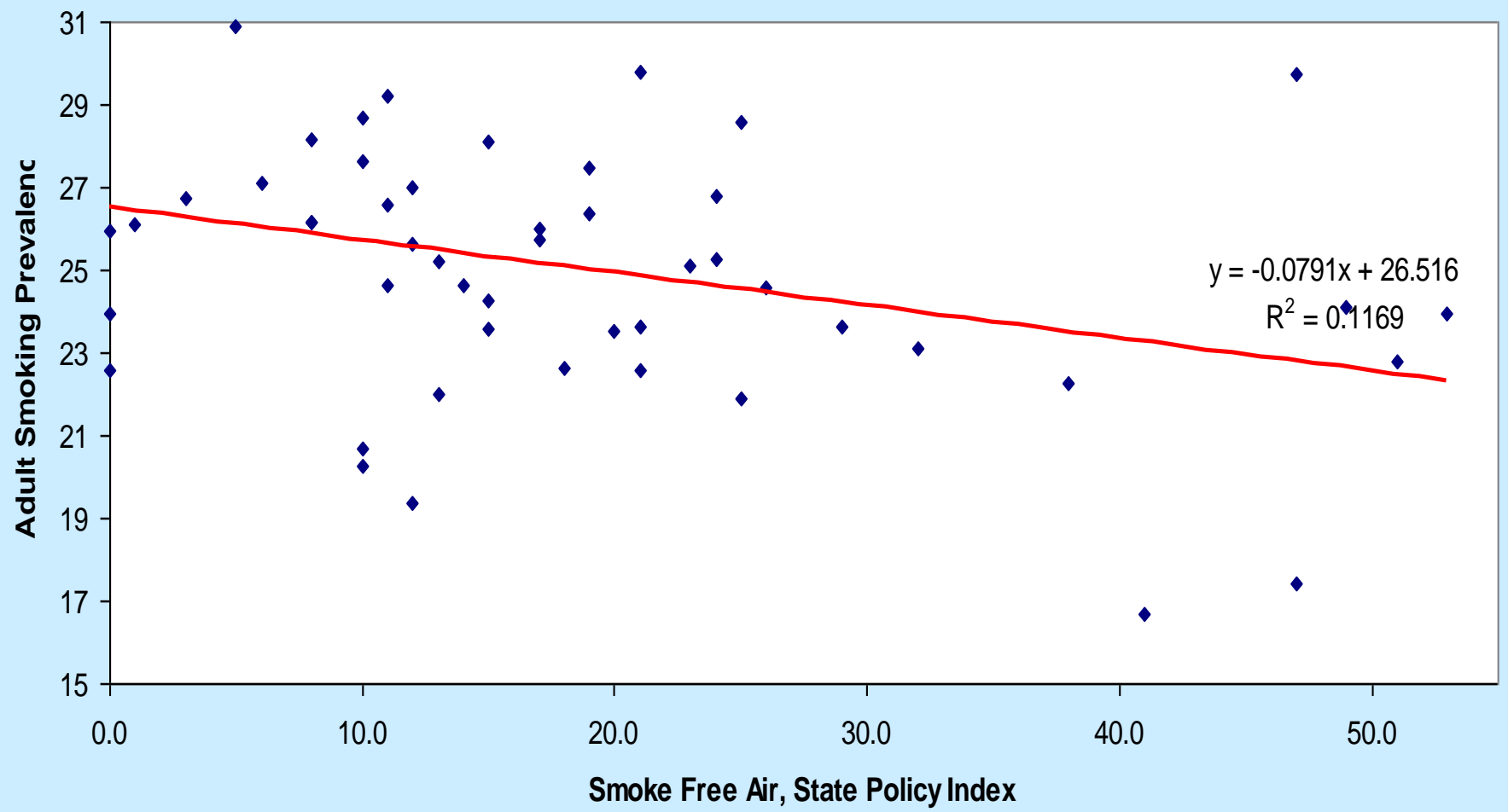
Source: Tobacco Use Supplements to the Current Population Survey.

# IARC: Strong Evidence that:

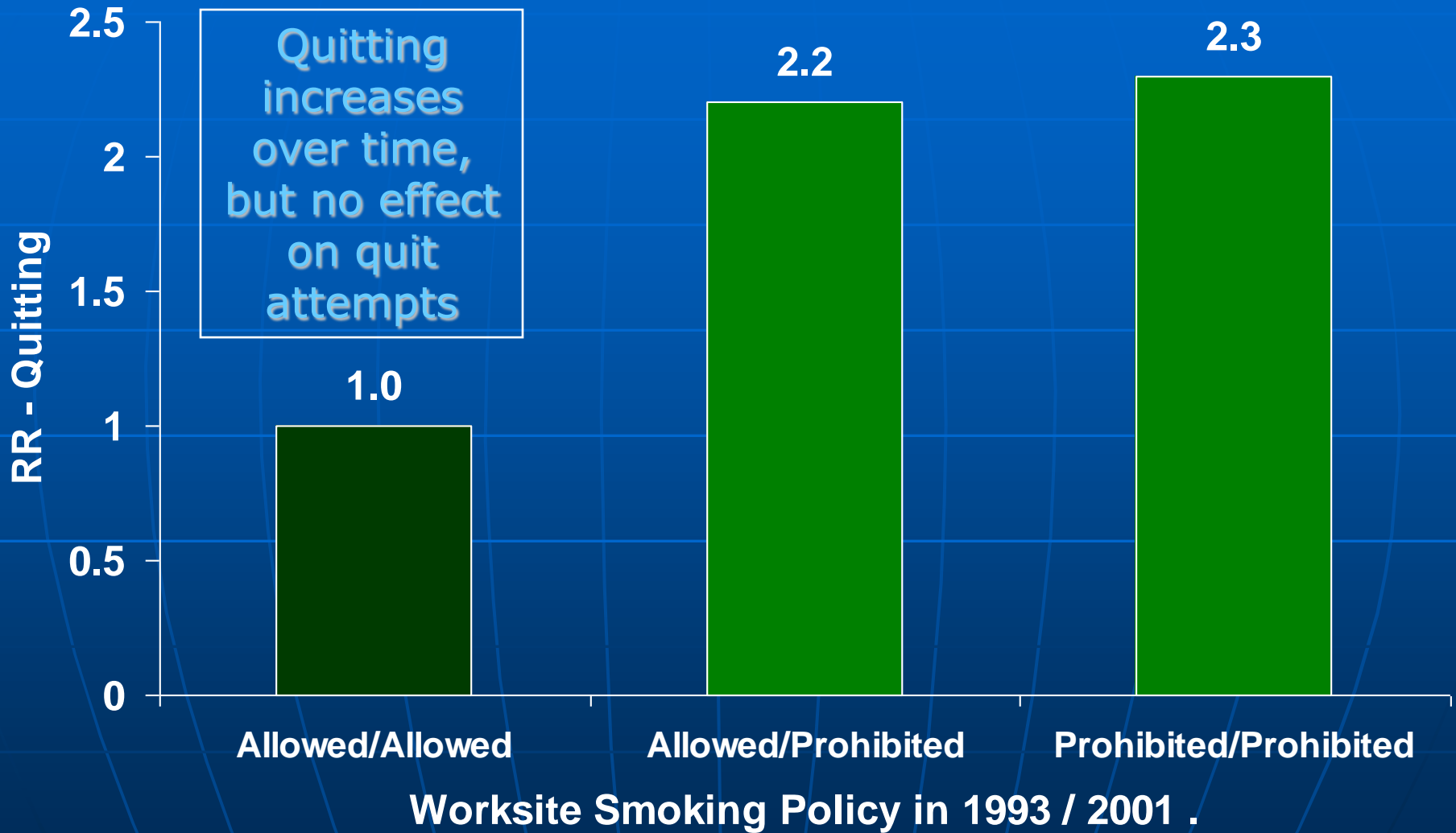
Smoke-free workplaces lead to  
increased successful cessation among  
smokers



# Smoke Free Air Policies and Adult Smoking Prevalence, 2003-04



# Relative Risk for Quitting in 8-Year COMMIT Follow-Up Study, 1993 to 2001

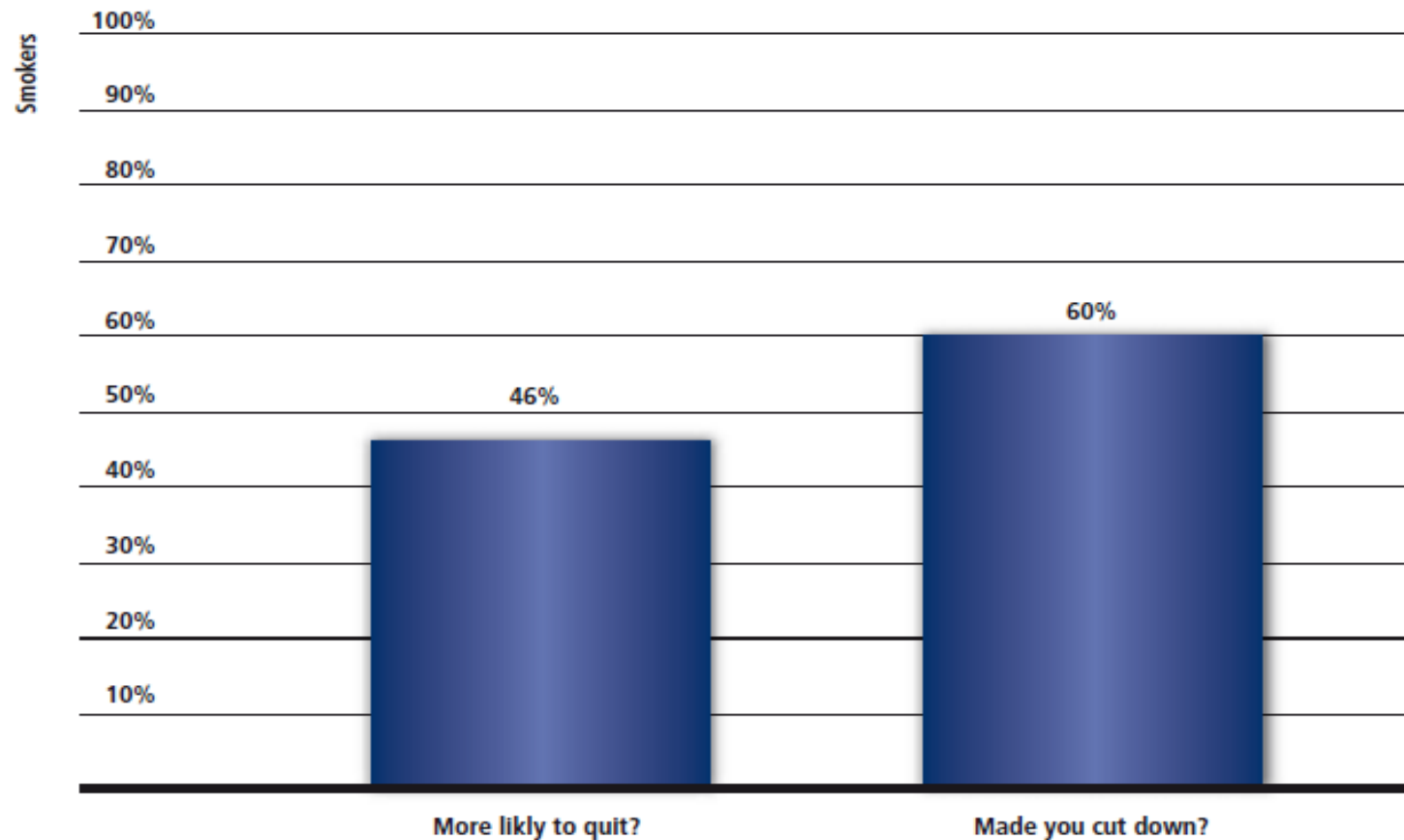


# IARC: Sufficient Evidence that:

Smoke-free workplaces reduce  
cigarette consumption among  
continuing smokers.

# Smoke-Free Air Policies - Impact

## EFFECTS OF IRELAND'S SMOKE-FREE LAW ON SMOKERS' REPORTED BEHAVIOURS

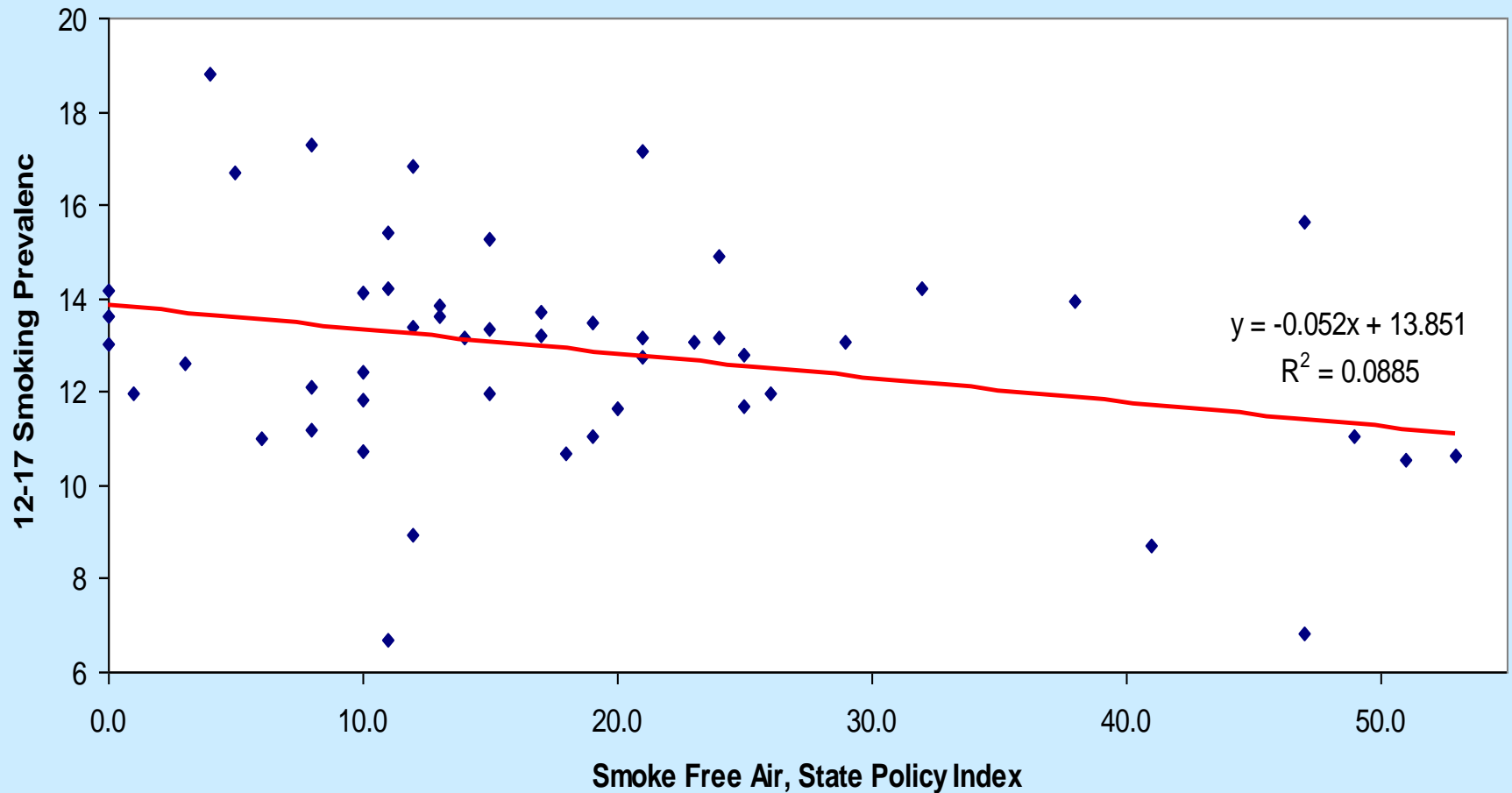


IARC: Strong Evidence that:

Smoke-free policies reduce tobacco  
use among youth

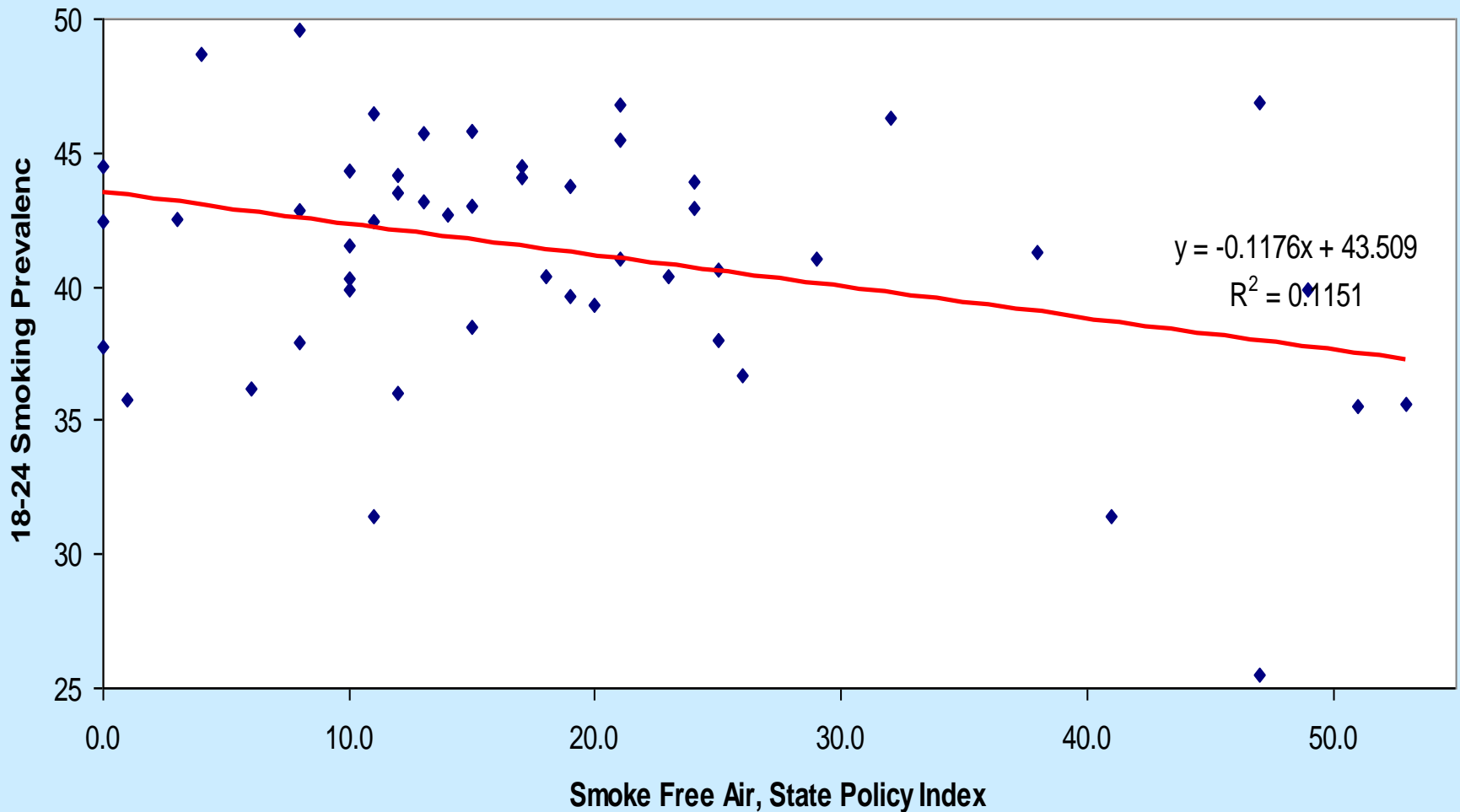


# Smoke Free Air Policies and Youth Smoking Prevalence, 2003-04



$y = -0.052x + 13.851$   
 $R^2 = 0.0885$

# Smoke Free Air Policies and Young Adult Smoking Prevalence, 2003-04

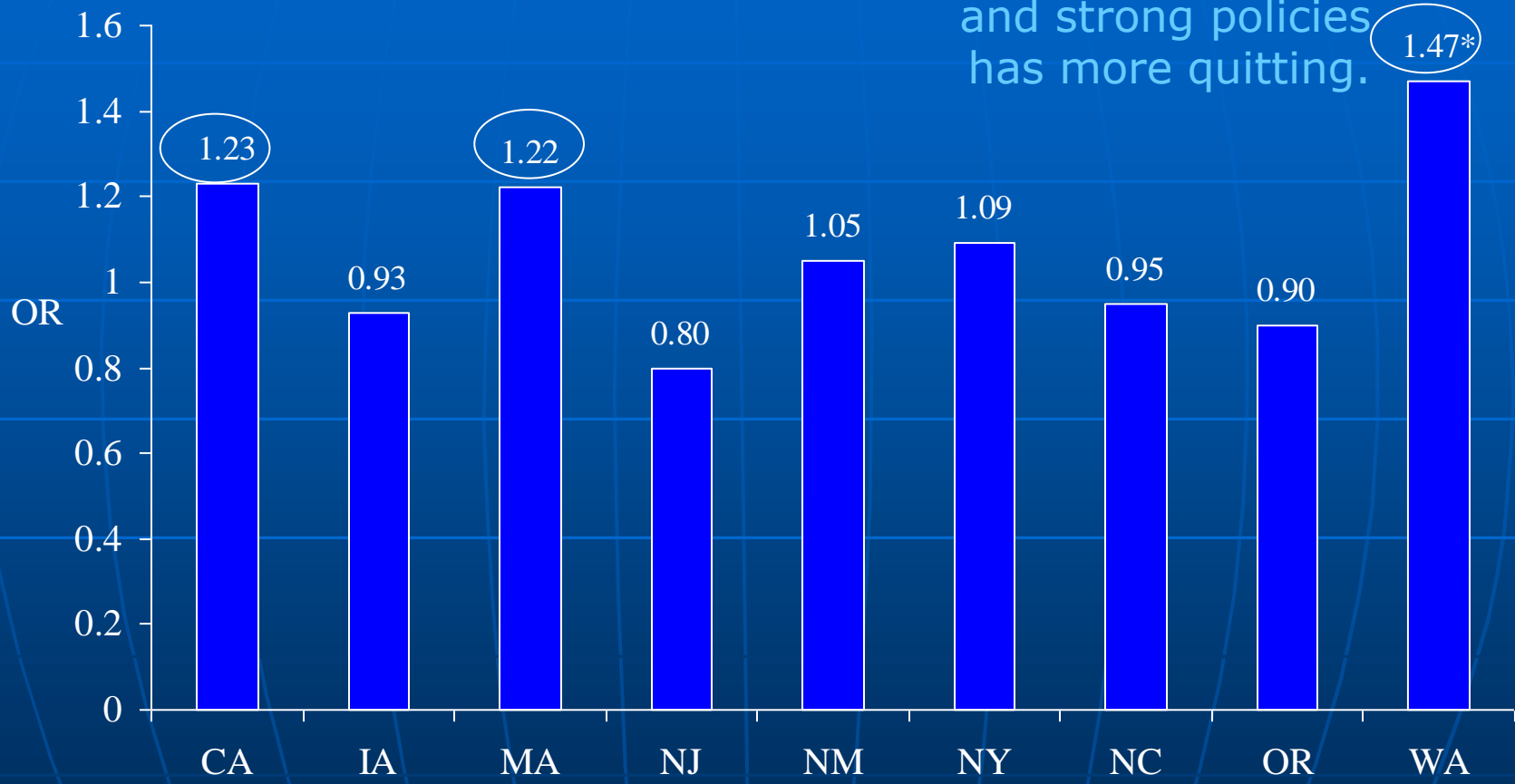


# IARC: Sufficient Evidence that:

There is a greater decline in smoking when smoke-free policies are part of a comprehensive tobacco control program

# Communities in states with the strongest tobacco control programs and policies have the highest quit rates, 2001-2005 n=2,221

WA, with high funding and strong policies has more quitting.



\* P < 0.05. The reference group is the average level of all communities.

Source: Hyland A., et al. 2006 World Conference on Tobacco or Health. State and Community Level Tobacco Control Policy and Smoking Cessation – What Can We Learn from COMMIT? And adapted from

Hyland A et al. American Journal of Health Promotion 2006.

# IARC: Strong Evidence that:

Implementation of smoke-free  
legislation causes a decline in heart  
disease morbidity



# SMOKING BANS AND HEART ATTACKS

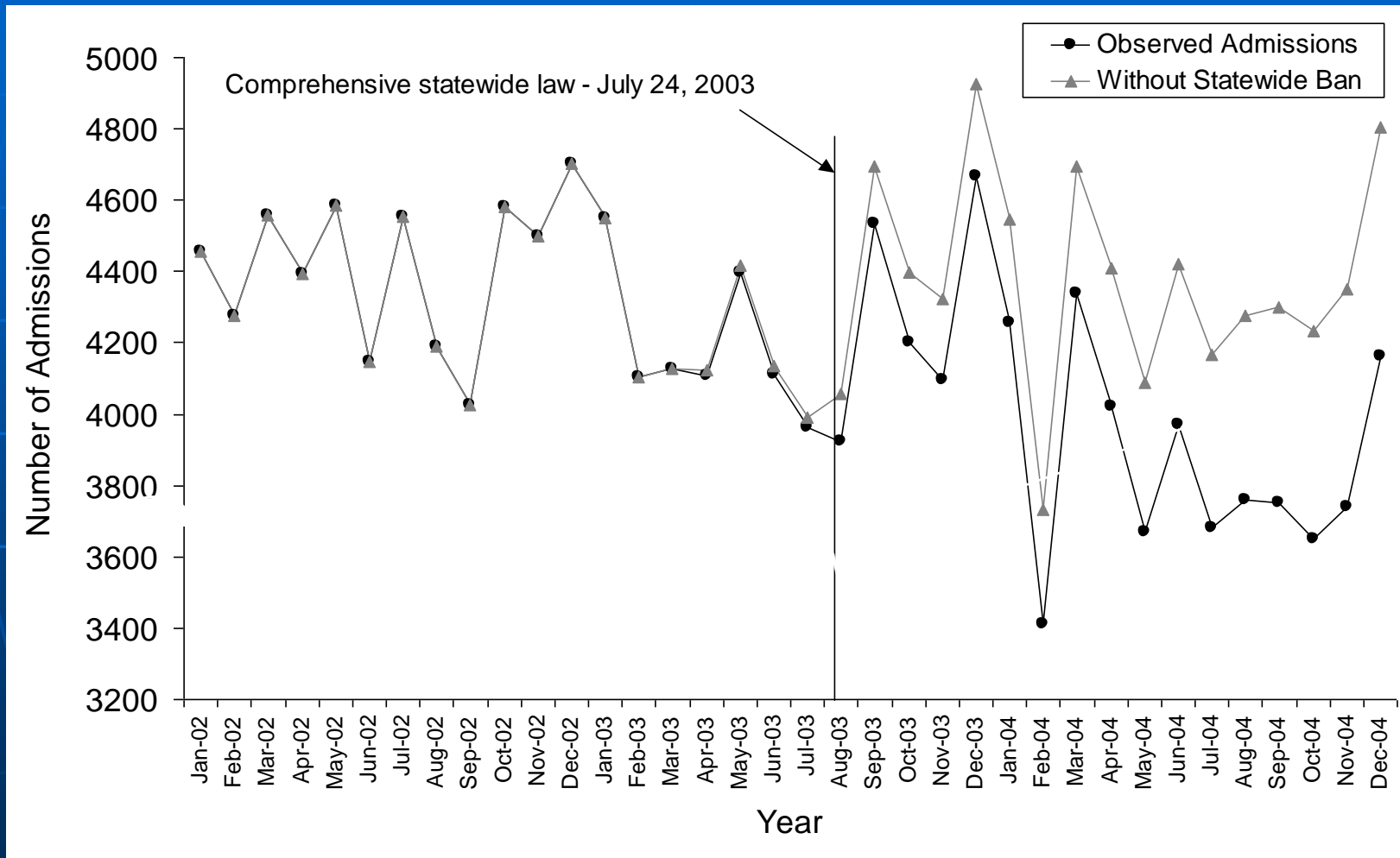
“The evidence that exists about smoking bans and heart attacks, including the 11 studies analyzed in this report, support an association between smoking bans and a decrease in the incidence of heart attacks.”

“Remarkably, all of the publications show a decrease in the rate of heart attacks after a smoking ban was implemented. Those decreases ranged from six percent to 47 percent, depending on the study and the form of analysis. ”

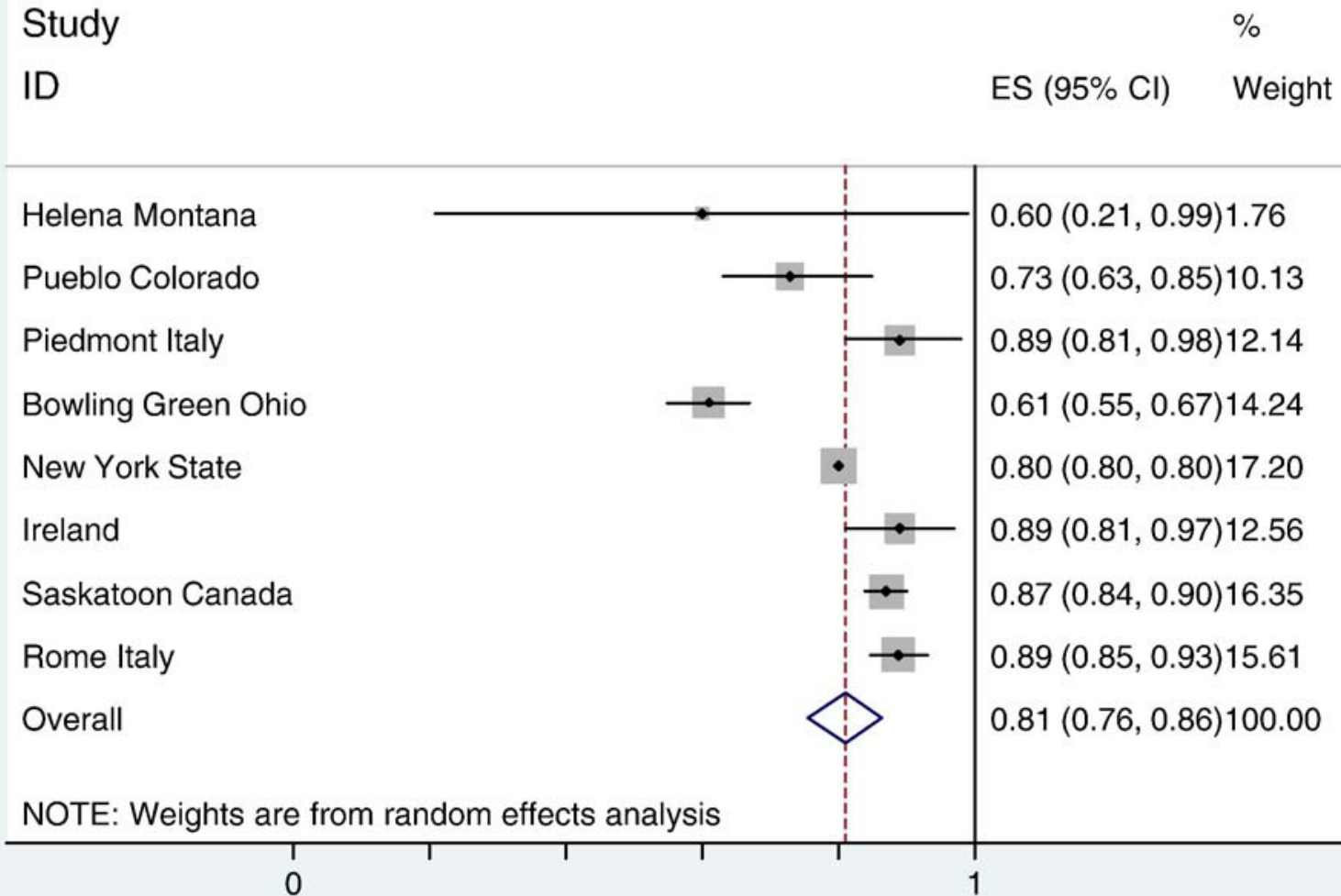
“Such consistent data confirms for the committee that smoking bans do, in fact, decrease the rate of heart attacks.”

Source: Institute of Medicine, *Secondhand Smoke Exposure and Cardiovascular Effects: Making Sense of the Evidence*; October 2009

# Hospital Admissions for Heart Attack After New York State Clean Indoor Air Act



# Meta-Analysis of Clean Air AMI Studies

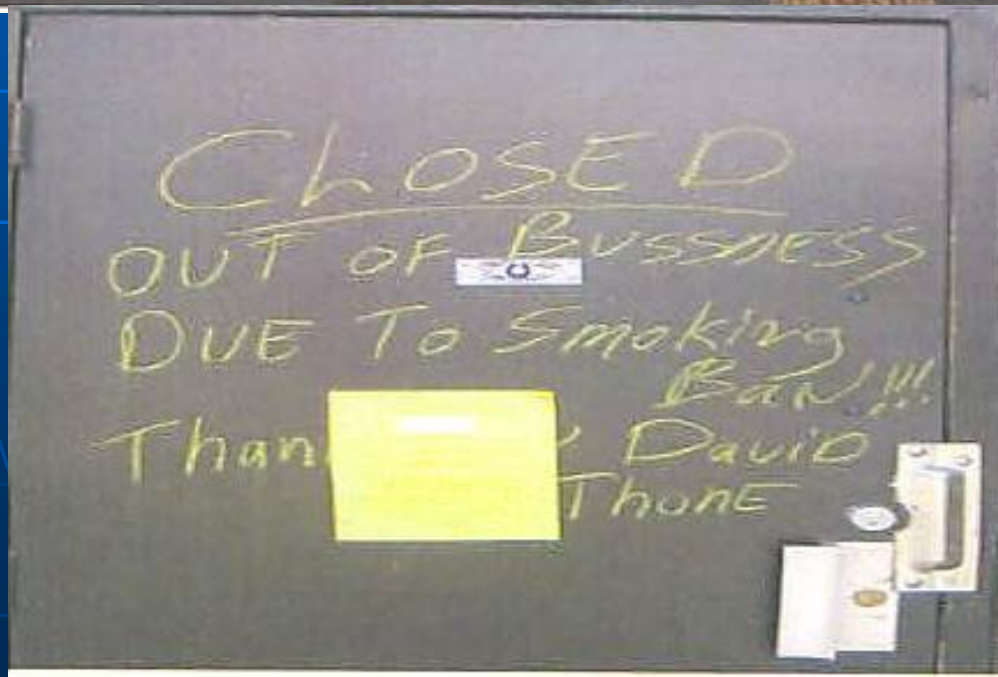


# IARC: Sufficient Evidence that:

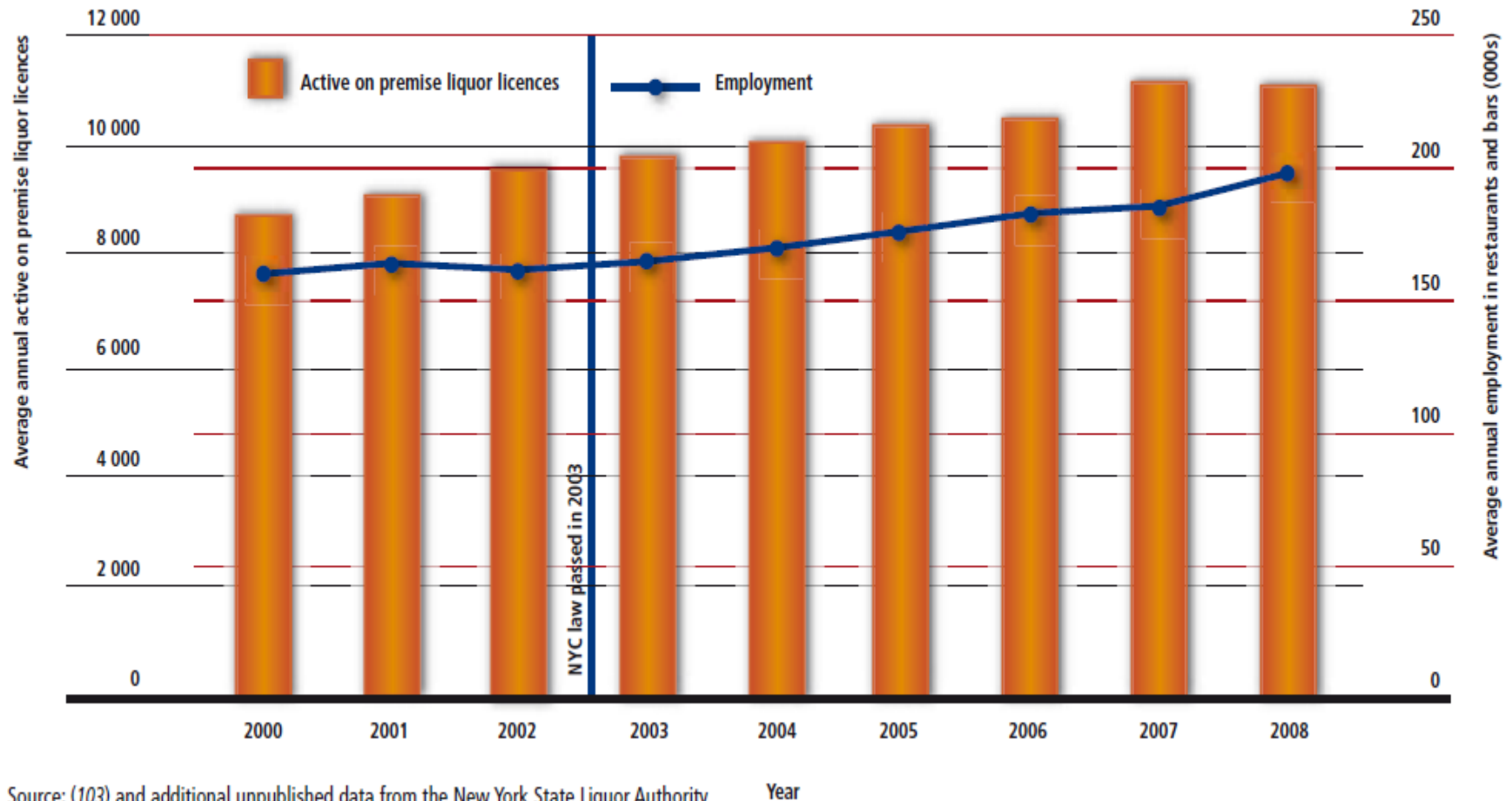
Lung cancer incidence in non-smokers  
can be expected to decline over  
several decades after the enactment of  
smoke-free legislation

# Economic Impact of Smoke-Free Air Policies





# AVERAGE ANNUAL EMPLOYMENT IN NEW YORK CITY RESTAURANTS AND BARS, BEFORE AND AFTER COMPREHENSIVE SMOKE-FREE LEGISLATION



Source: (103) and additional unpublished data from the New York State Liquor Authority and New York City Economic Development Corporation.  
 Note: Average annual employment calculated from monthly totals.

# Costs to Business

- Health Care Costs

- Account for about 1/6 of US gross domestic product
- Rising at twice the rate of inflation and wages
- Over \$8,300 per employee in health insurance costs

- Smoking-Attributable Health Care Costs

- \$96 billion per year, 2001-2004
- Up to 15 percent of total health care spending
- Over \$2,250 per smoker
- Additional \$5+ billion for non-smokers exposed to tobacco smoke

# Costs to Business

- **Lost Productivity – Deaths from Smoking**
  - According to CDC/SAMMEC:
  - About 400,000 premature deaths per year from smoking
  - Almost 50,000 more from exposure to tobacco smoke
  - Over 5 million years of life lost from premature death
- **Lost Productivity Costs**
  - From premature deaths:
  - \$96.8 billion per year, 2001-2004
  - Additional \$5 billion from lost productivity among non-smokers exposed to tobacco smoke

# Costs to Business

- **Lost Productivity - absences**
  - Smokers absent from work 7.7-10.7 days per year more than non-smokers
  - Additional \$1,200-\$1,700 per smoker in lost productivity
  - Costs from non-smoker absences due to illnesses caused by exposure to tobacco smoke
- **Lost Productivity - smoking breaks**
  - Estimated 4 to 30 minutes per day in sanctioned and unsanctioned smoking breaks
  - Additional \$300-\$2,500 per smoker in lost productivity



# Costs to Business

- Higher insurance premiums
  - Health insurance premiums up to 50% higher
  - Life insurance: \$90 more per smoker per year for \$75,000 life insurance policy
  - Fire/hazard insurance: \$11-\$21 higher per smoker
- Higher cleaning and maintenance costs
  - EPA estimated at \$4.8 billion in 1994 (\$7.0 billion in current dollars)
  - \$305 per 1,000 SF of warehouse space
  - \$728 per 1,000 SF of office space

# Costs to Business

- Potential litigation costs
  - Costs from non-smoking employees seeking compensation for diseases, lost productivity due to exposure in the workplace
  - Discrimination lawsuits from exposed non-smokers sensitive to tobacco smoke
  - Hundreds of cases with widely varying payouts in the US and other countries

# Why not go smoke-free?

- Fears about lost revenues due to loss of business from smoking patrons
  - Less frequent and/or shorter visits
  - Smokers take business to businesses where smoking is allowed (e.g. in nearby jurisdictions)
  - Fueled by tobacco industry “evidence” of harmful economic impact
  - Fails to account for increased business from non-smokers who enjoy smoke-free environment

# Why not go smoke-free?

- Potential problems with smoker discrimination challenges
  - Exacerbated by state “smokers’ rights” laws in 30 states
  - Do not appear to conflict with smoke-free policies
- Lack of awareness about costs from smoking and non-smoker exposure to tobacco smoke
  - Much more known today about health consequences of exposure to tobacco smoke
  - Knowledge about how much smoking costs businesses is less widespread

# Why not go smoke-free?

- Costs of going smoke-free
  - Costs of enforcement seem limited given relatively high compliance
  - Costs of creating and maintaining smoking rooms/lounges for smoking employees
  - Lost productivity from smokers taking more/longer smoking breaks
  - Costs of providing smoking areas for smoking patrons
- Separately ventilated or free-standing
  - Accommodating smoking will cost considerably more than going completely smoke free

# Economic Impact of Smoke-Free Policies

- Adoption, diffusion, and increasing comprehensiveness of smoke-free policies provide many “natural experiments” for researchers to assess
  - Local, state, national policies
  - Restrictions vs. smoking bans
  - Covering increasing number of venues
- Many studies over past 20 years
  - Need to sort out the good from the bad
  - Nearly all focus on impact on hospitality industry

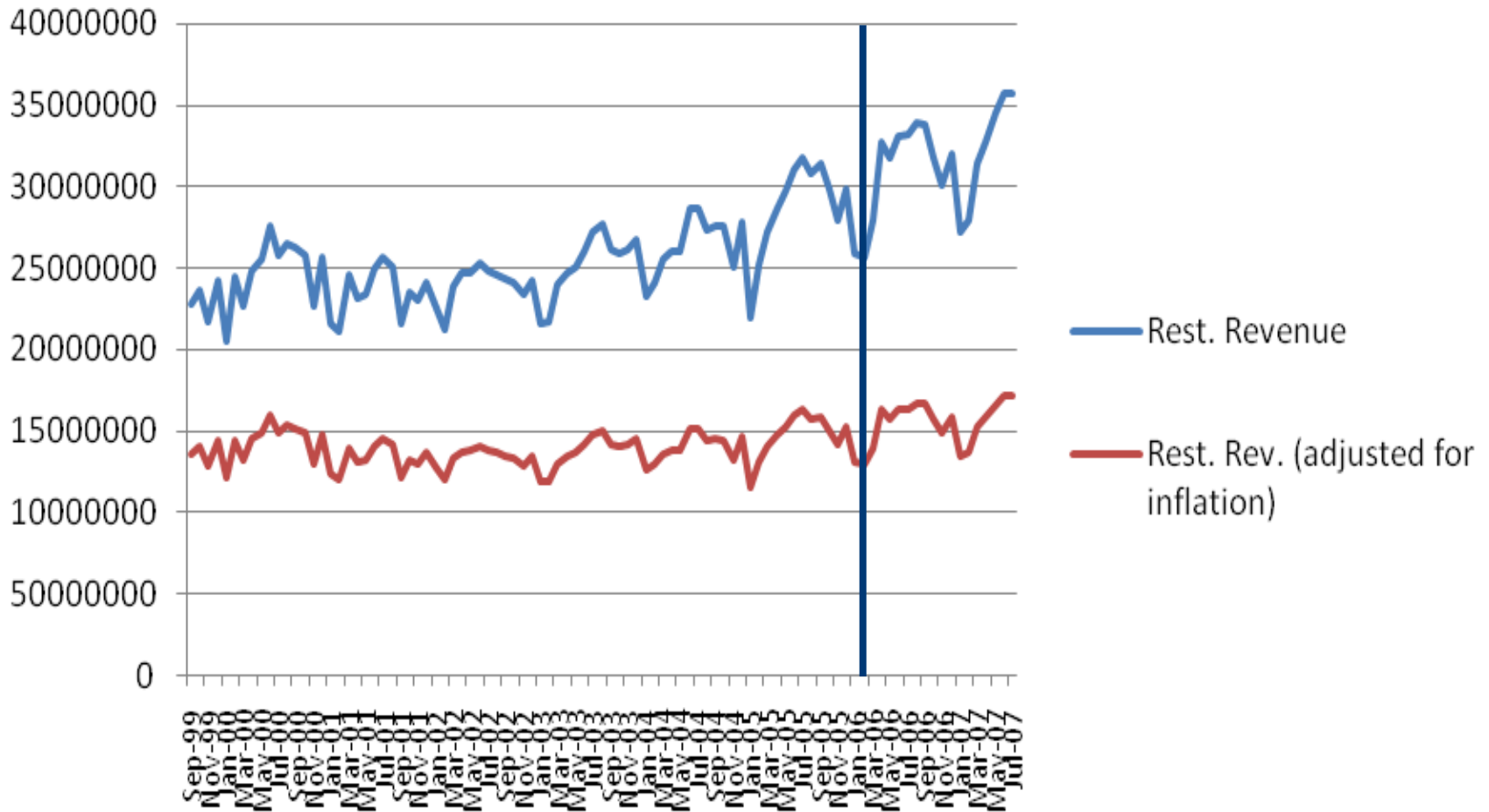


# Economic Impact of Smoke-Free Policies

## Good or bad?

Researchers in Chicago interviewed selected restaurant owners about the anticipated impact of the smoking ban that will go into in January 2006. The majority of owners indicated that they expected the ban to have a negative impact on their businesses, suggesting that smokers will take their business to restaurants in nearby suburbs where smoking was allowed.

# Monthly Restaurant Sales Tax Revenues, Chicago, September 1999 – July 2007



# Economic Impact of Smoke-Free Policies

Good or bad?

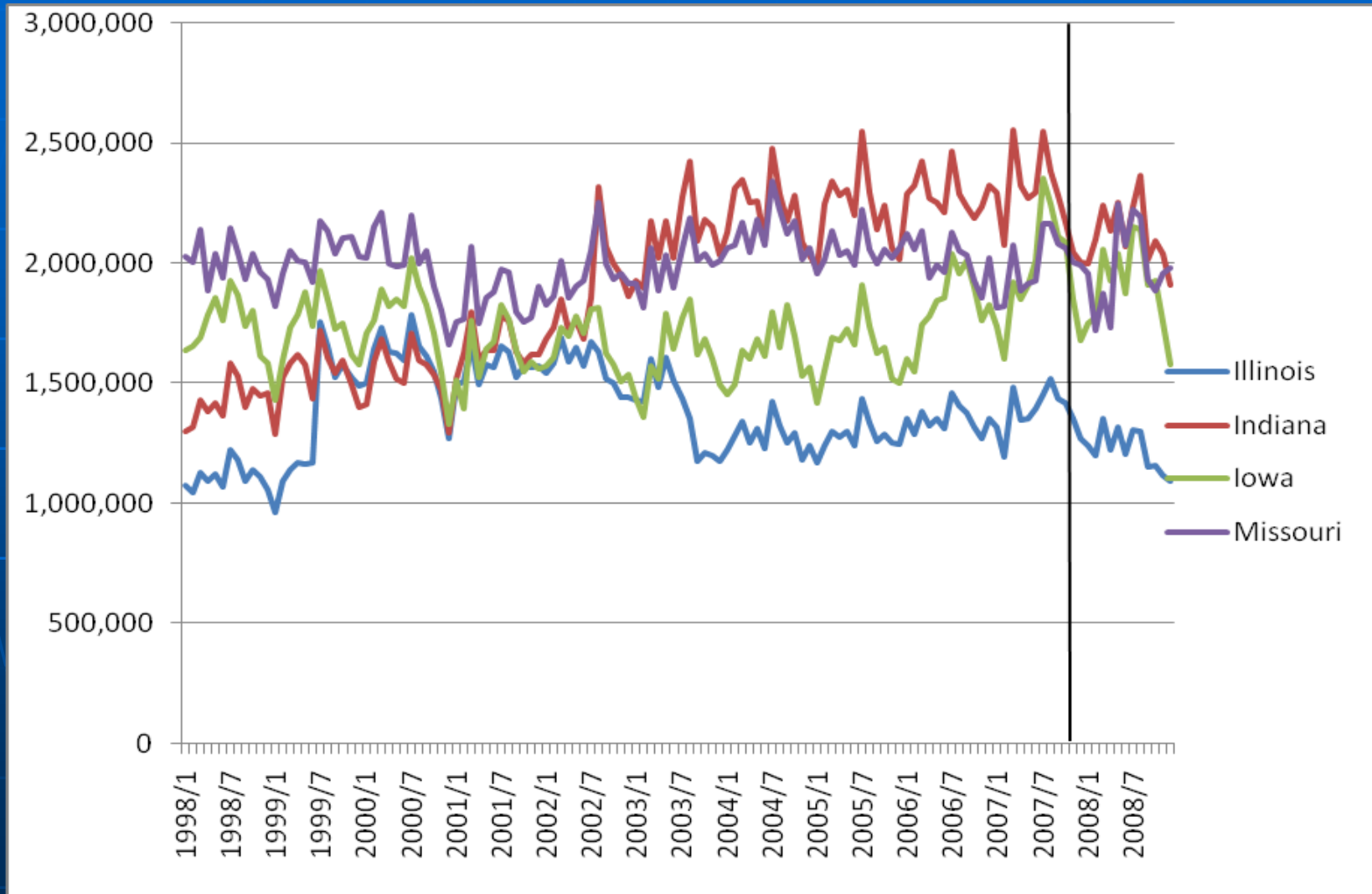
Researchers in Ireland observed that dozens of pubs closed following the adoption of the country's comprehensive ban on smoking in public places and workplaces, that included bars and restaurants, leading them to conclude that the smoking ban was bad for business.

# Economic Impact of Smoke-Free Policies

## Good or bad?

Casino owners in Illinois reported a sharp drop in revenues in 2008, after observing increases in revenues in previous years. They attribute the drop in revenues to the state smoke-free air policy that went into effect in January 2008, banning smoking in virtually all public places, including casinos and horse tracks.

# Monthly Casino Patrons, Illinois, Indiana, Iowa and Missouri January 1998 through December 2008



Source: Chaloupka, Tauras and Ciecierski, 2009

# Economic Impact of Smoke-Free Policies

## Good or bad?

Researchers examined sales tax revenue data from bars and restaurants in 12 communities that adopted smoke-free restaurant and bar policies, along with 12 comparable communities that allowed smoking. Using data from two years before the policy changes and two years after the changes, controlling for economic conditions in these communities, and using appropriate multivariate regression methods, they concluded that the adoption of the smoke-free policies had no adverse impact on the revenues of businesses affected by the policies.



# Economic Impact of Smoke-Free Policies

- Characteristics of a good study
  - Uses objective data on business activity
    - Revenues (sales tax revenues, total revenues)
    - Employment
    - Number of licensed establishments
    - Not expected revenues or owner assessments of how much business is down after policy adoption
  - Or population-based, representative samples
    - Surveys of full population
    - not convenience samples of current patrons or business owners who show up at hearings

# Economic Impact of Smoke-Free Policies

- Characteristics of a good study
  - Includes appropriate control group
    - Comparable jurisdictions where similar policy changes have not occurred
  - Includes sufficiently long period before and after the policy change
    - Allows underlying trends to be captured
    - Does not focus on transitory effects as smokers and non-smokers adapt to policy change
  - Accounts for other factors that affect outcomes of interest
    - e.g. underlying economic conditions, population change, etc.

# Economic Impact of Smoke-Free Policies

- Characteristics of a good study
  - Uses appropriate statistical methods
    - multivariate regression analyses
    - Tests for statistical significance of estimates
- Good studies will be most likely to be published in peer-reviewed journals
- Pay attention to source of funding for study

# Summary of Studies as of 1/31/08

Type of data	Methodological quality	Peer reviewed?	Reported a negative impact?		Total
			No	Yes	
Official reports of sales, employment or related measures (n=86)	Meet criteria for methodologically sound studies (n=49)	Yes (n =21)	20	1	49
		No (n=28)	27	1	
		<i>Total for studies meeting all four criteria (n=49)</i>	<b>47</b>	<b>2</b>	
	Met some of but not all criteria for methodologically sound studies (n=37)	Yes (n=3)	3	0	37
		No (n=34)	15	19	
		<i>Total for studies meeting some of criteria (n=37)</i>	<b>18</b>	<b>19</b>	
		<b>Subtotal</b>	<b>65</b>	<b>21</b>	<b>86</b>

Source: IARC, 2009

# Summary of Studies as of 1/31/08

Type of data	Methodological quality	Peer reviewed?	Reported a negative impact?		Total
			No	Yes	
Survey data (n=79)	Patron/consumer surveys (n=34)	<i>Yes (n=9 )</i>	8	1	<b>34</b>
		No (n= 25)	19	6	
		<i>Total consumer</i>	<b>27</b>	<b>7</b>	
	Owner/Manager surveys (n=45)	<i>Yes (n=10 )</i>	9	1	<b>45</b>
No (n= 35)		10	25		
		<i>Total owner/manager (n=45)</i>	<b>19</b>	<b>26</b>	
		<b>Subtotal</b>	<b>46</b>	<b>33</b>	<b>79</b>

Source: IARC, 2009

# IARC: Sufficient Evidence that:

Smoke-free policies do not cause a decline in the business activity of the restaurant and bar industry



# Impact on Convenience Stores

- More recent argument that tobacco control policies will harm convenience stores
- New analysis
  - Number of convenience stores (convenience only, gas stations, both), by state, 1997-2009
  - State cigarette tax rates and smoke-free air policies
  - Economic conditions (income, unemployment, gas prices)
  - Multivariate, fixed effects econometric models

# Impact on Convenience Stores

## ■ Results:

- Positive association between state cigarette tax and number of convenience stores
  - “overshifting” of cigarette tax in retail price
  - Substitution of spending on cigarettes to spending on other products
  - \$1.00 tax increase associated with increase of 11 stores per million population
- No impact of smoke-free policies
- Robust to alternative specifications and empirical methods

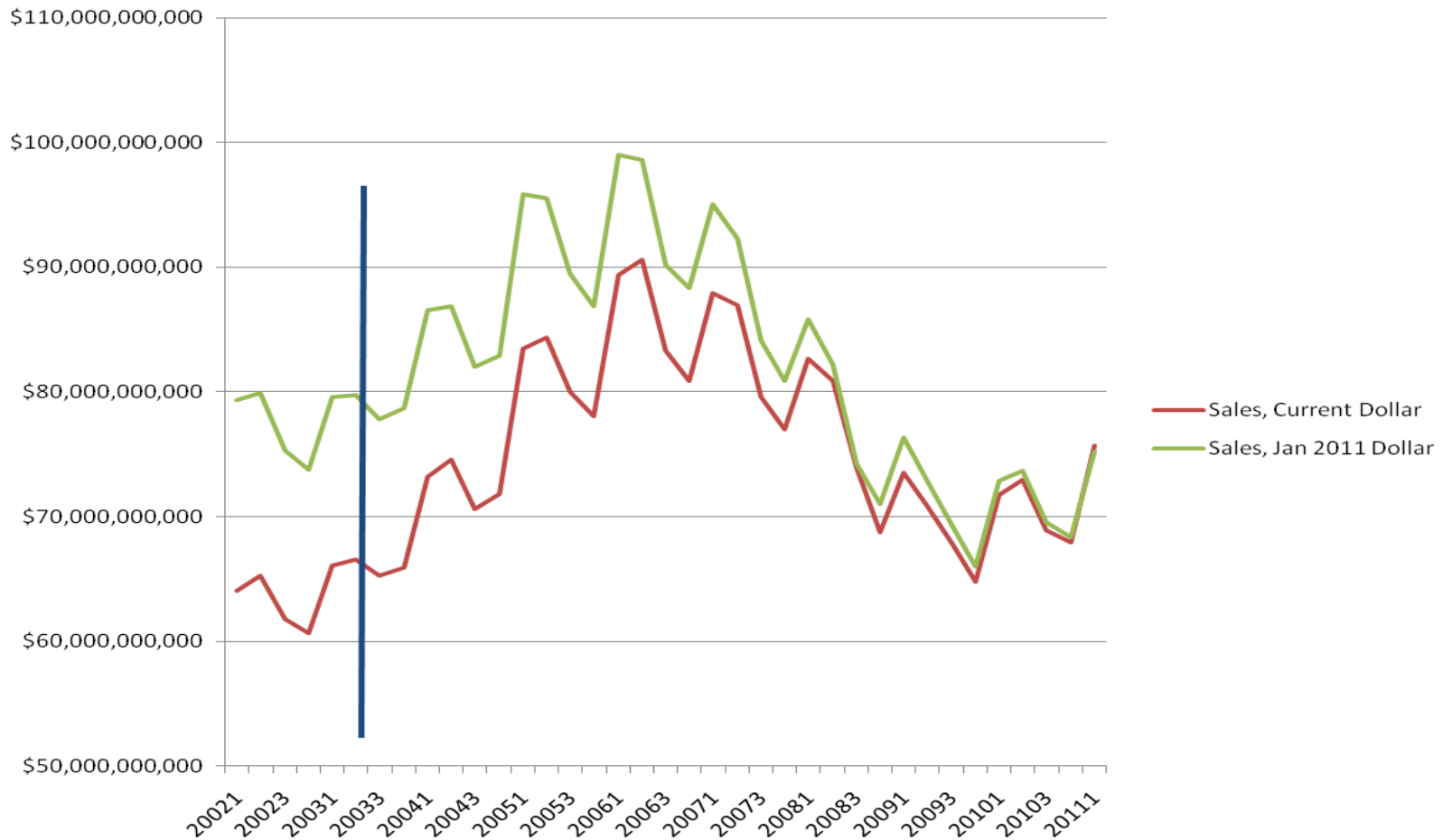
# Economic Impact of Florida's Clean Indoor Air Act of 2003

# Economic Impact of Florida's Smoke-Free Policy

- Three analyses:
  - Simple, visual inspection of data from Florida and Orange County
  - Multivariate time-series analysis of data from Florida and Orange County
  - Multivariate cross-sectional time-series analysis of data from Florida, North Carolina and Virginia
  - Measures of economic activity:
    - Taxable sales for restaurants, hotels/motels, and amusement tickets (FL, OC)
    - Taxable sales for restaurants and drinking establishments (FL, NC, VA)

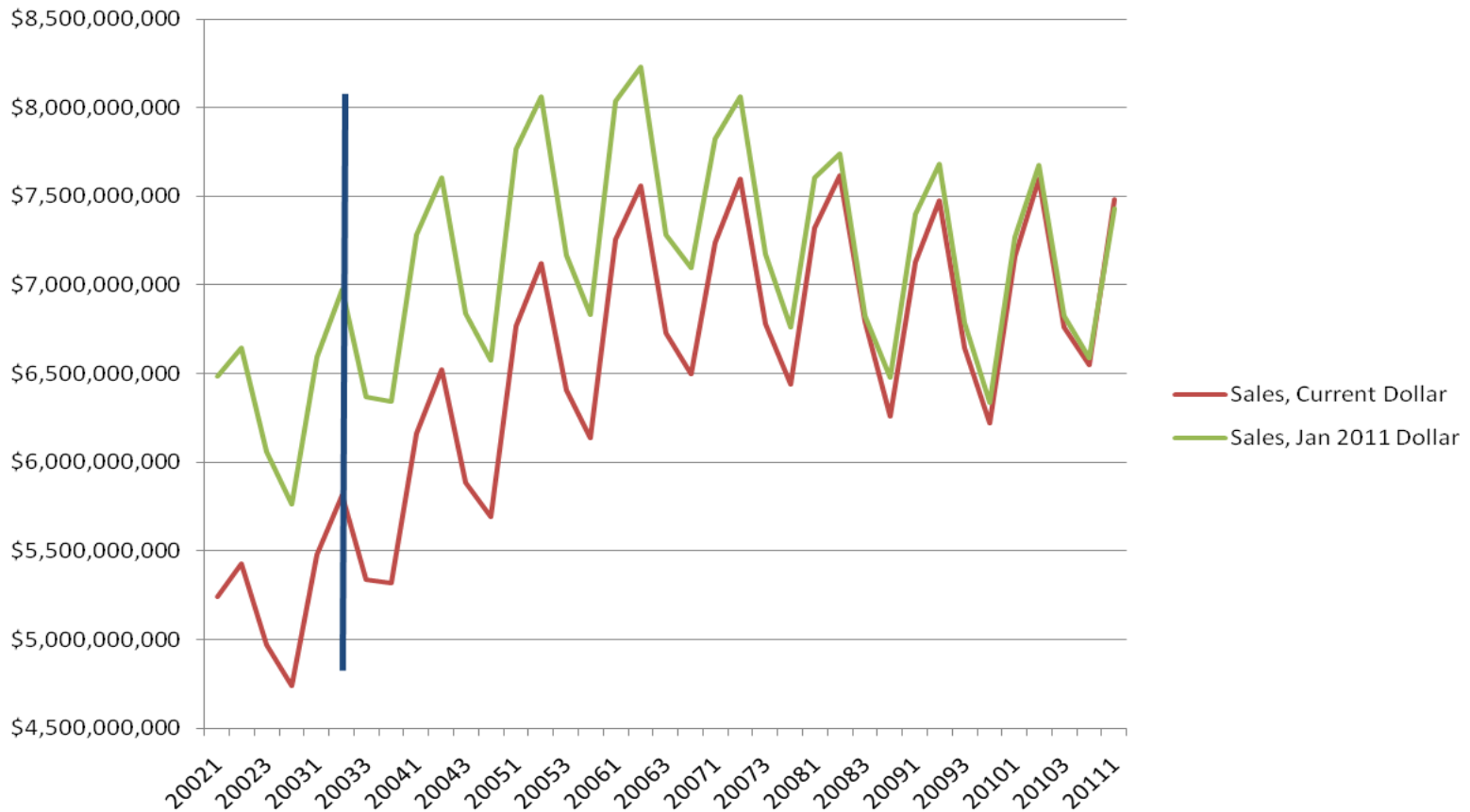
# Economic Impact of Florida's Smoke-Free Policy

## Florida - Quarterly Total Taxable Sales



# Economic Impact of Florida's Smoke-Free Policy

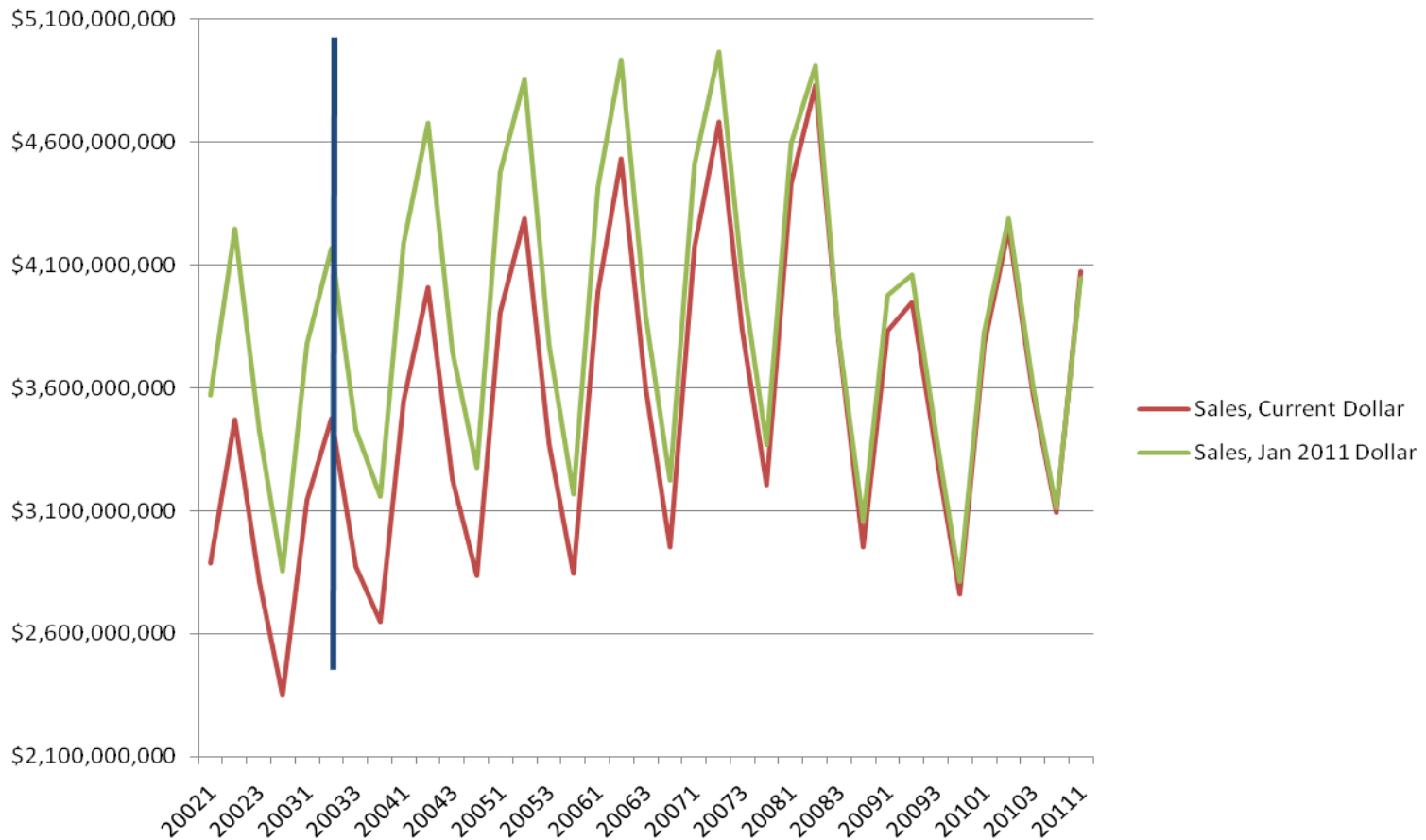
## Florida - Quarterly Taxable Sales - Restaurants



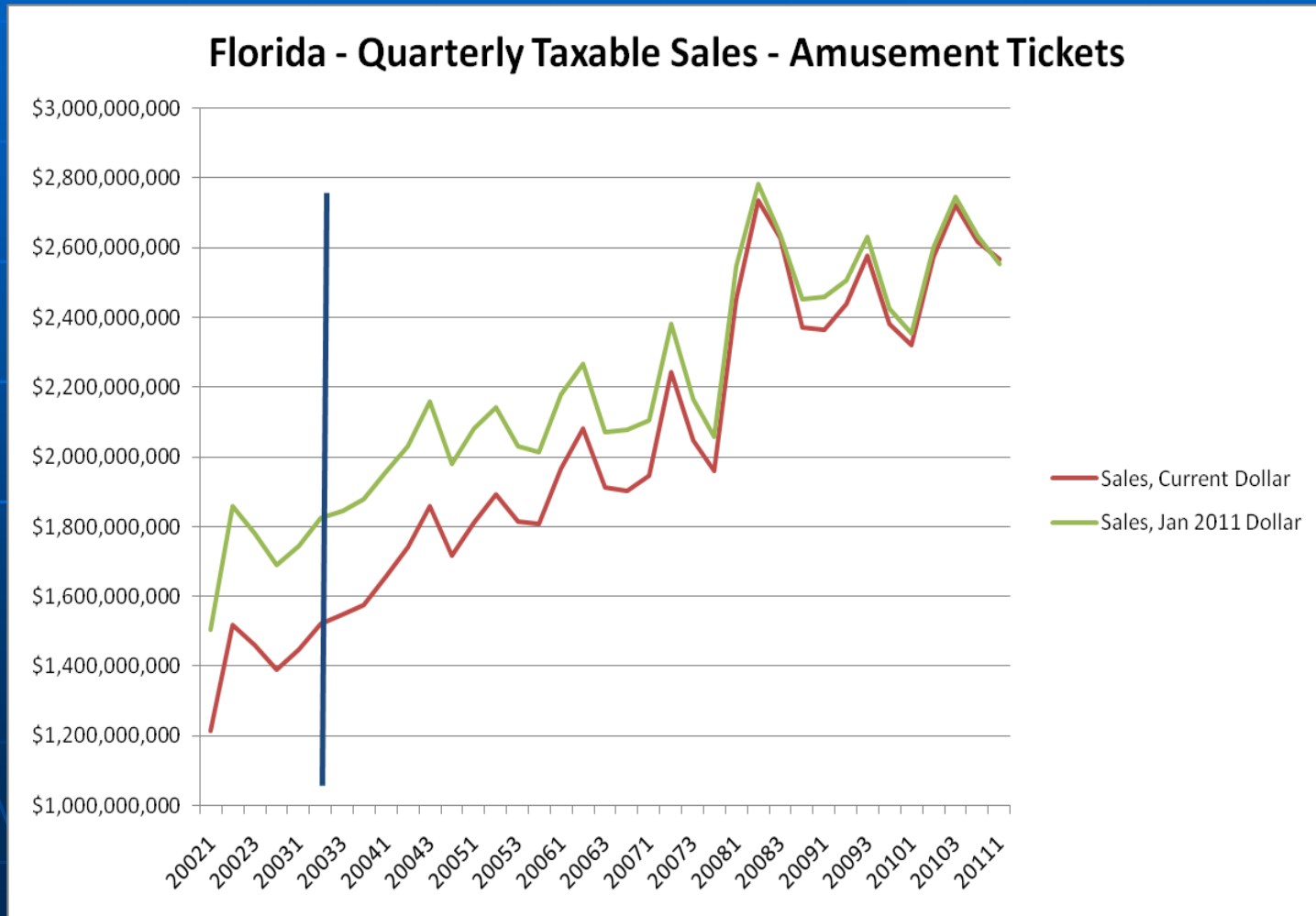


# Economic Impact of Florida's Smoke-Free Policy

## Florida - Quarterly Taxable Sales - Hotels/Motels

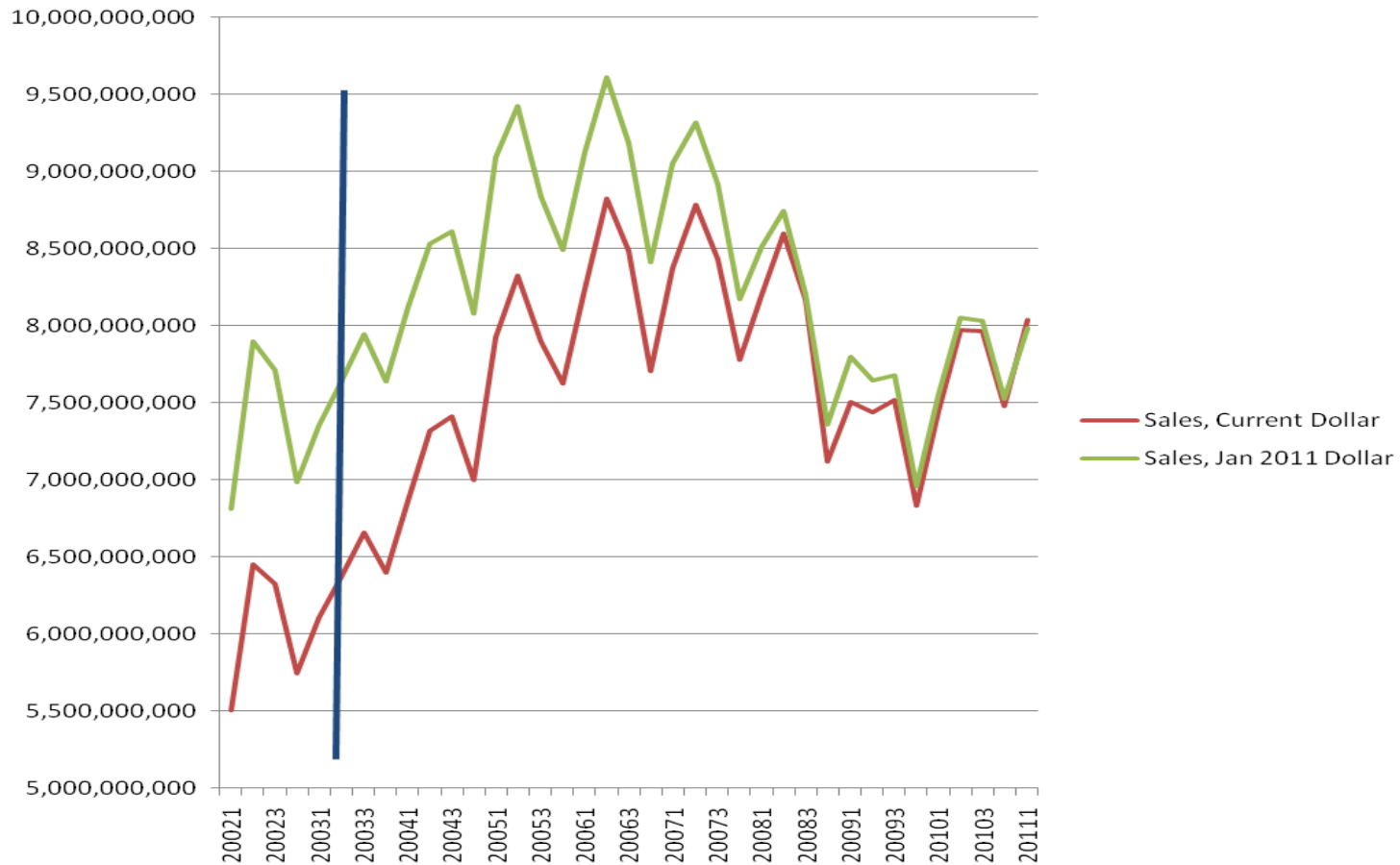


# Economic Impact of Florida's Smoke-Free Policy



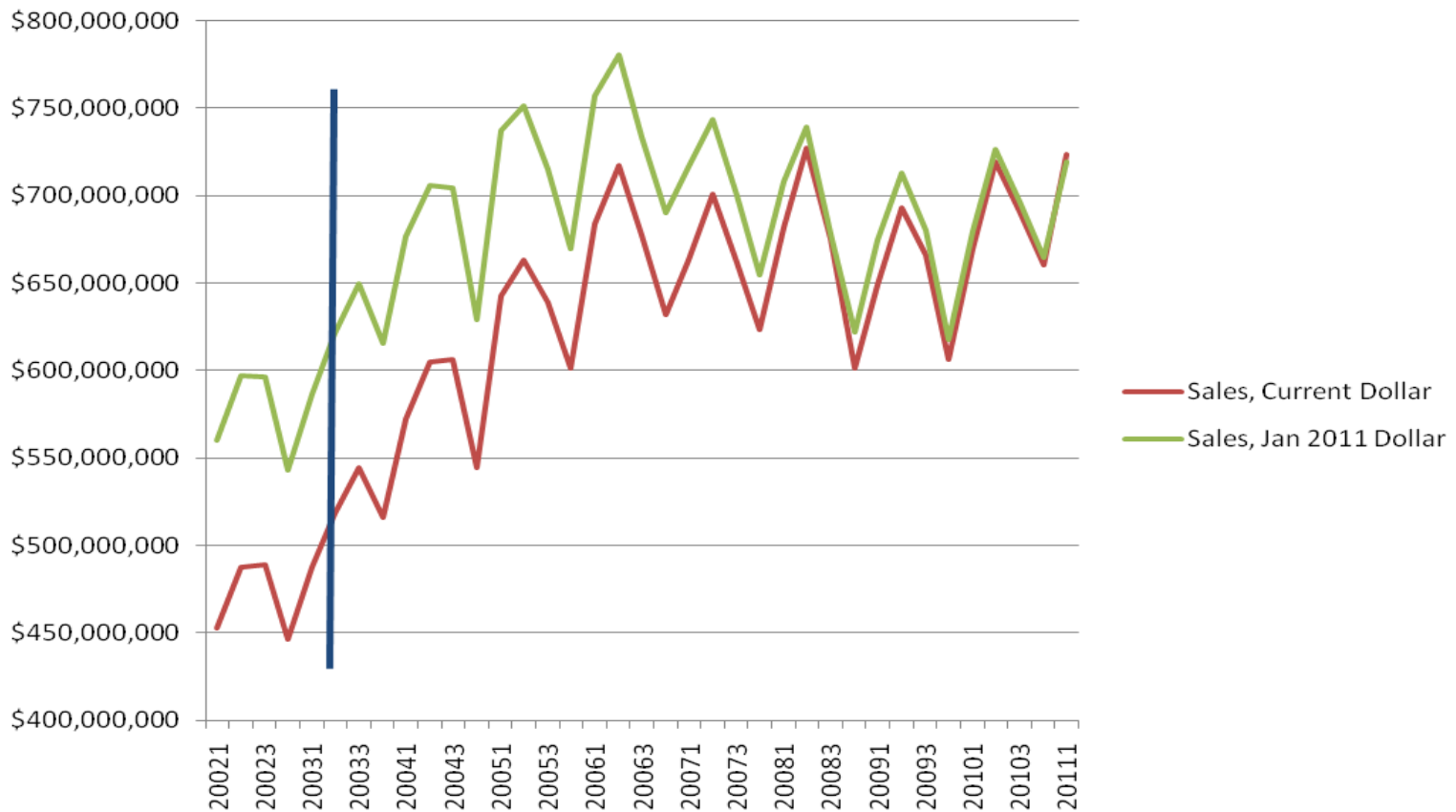
# Economic Impact of Florida's Smoke-Free Policy

## Orange County - Quarterly Total Taxable Sales



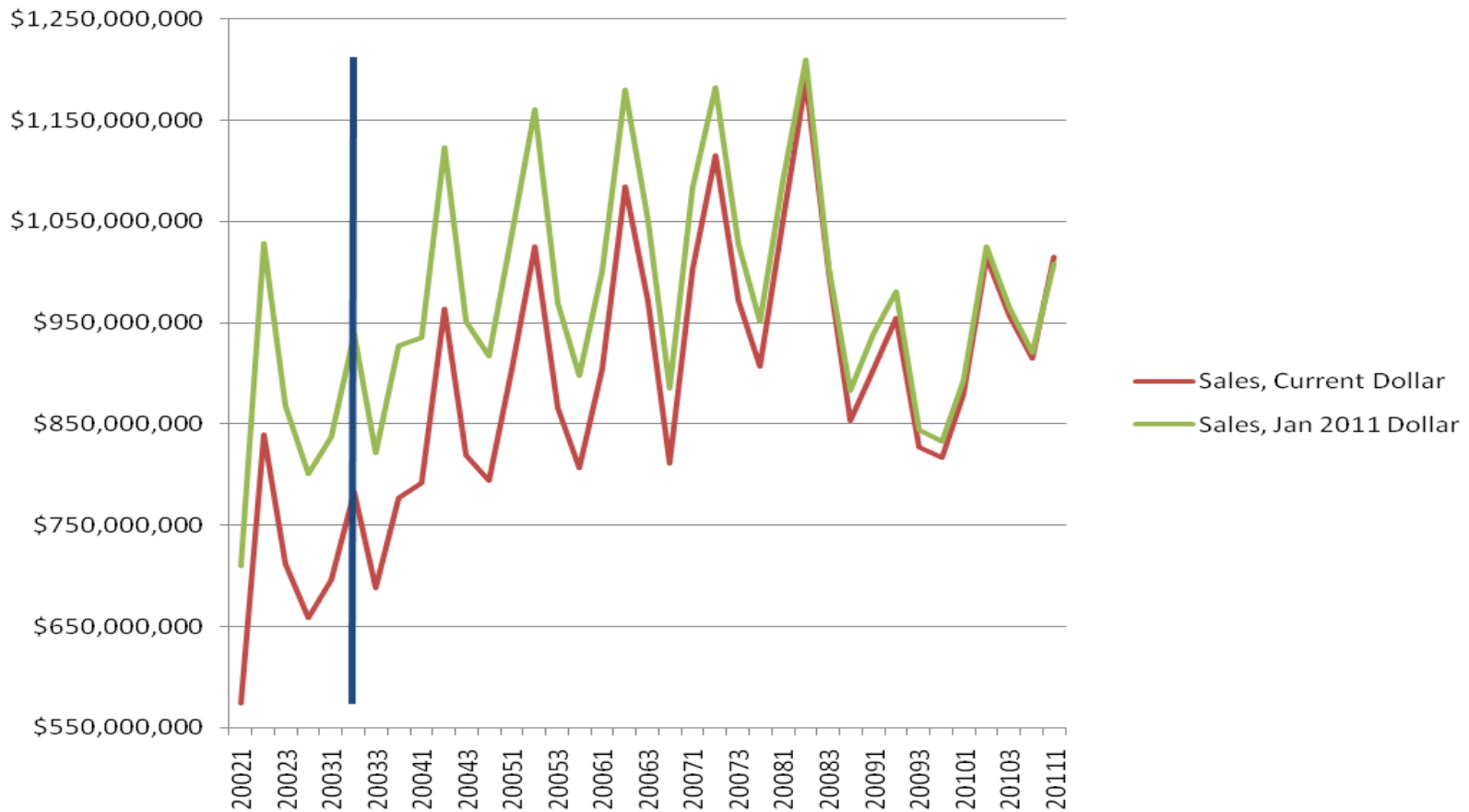
# Economic Impact of Florida's Smoke-Free Policy

## Orange County - Quarterly Taxable Restaurant Sale



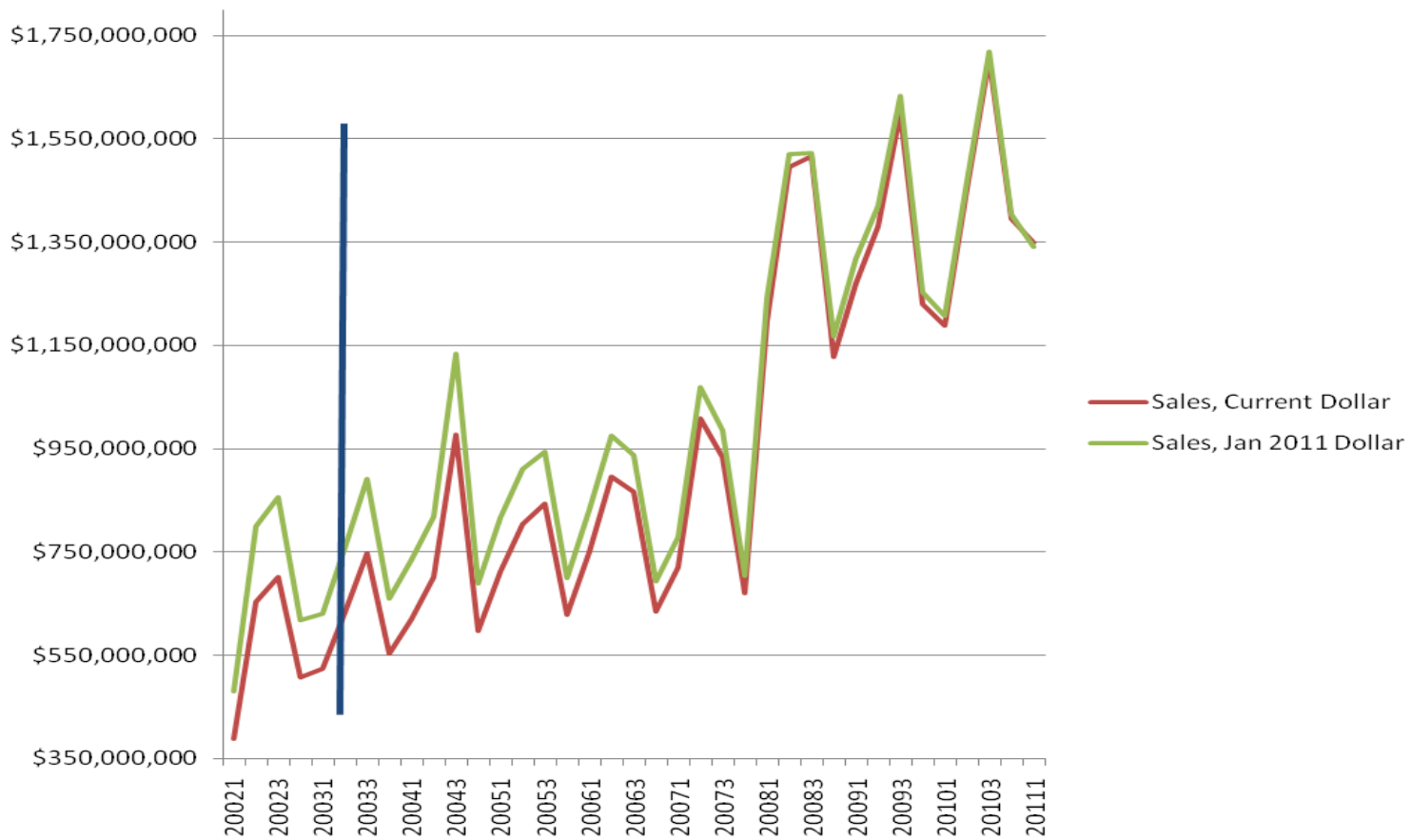
# Economic Impact of Florida's Smoke-Free Policy

## Orange County - Quarterly Taxable Hotel/Motel Sales



# Economic Impact of Florida's Smoke-Free Policy

## Orange County - Quarterly Amusement Ticket Sales



# Economic Impact of Florida's Smoke-Free Policy

- Multivariate time-series analyses:
  - Smoke-free policy indicator
  - Total taxable sales, less sales for restaurants, hotels/motels, amusement tickets
  - Unemployment rate
  - Month and year indicators
- Key findings:
  - Positive, statistically significant impact of smoke-free policy on restaurant sales
  - No impact of smoke free policy on hotel/motel or amusement ticket sales
  - Strong positive impact of overall economic activity
  - Consistent findings for state, Orange County



# Economic Impact of Florida's Smoke-Free Policy

- Multivariate cross-sectional time-series analyses:
  - Smoke-free policy indicators for restaurants, bars
  - Total taxable sales, less sales for restaurants, drinking establishments
  - Unemployment rate
  - Quarter and year indicators
- Key findings:
  - No statistically significant impact of restaurant smoke-free policy on restaurant sales
  - Statistically significant, positive impact of smoke free bar policy on bar sales
  - Strong impact of overall economic activity, unemployment rate

# Health & Economic Impact of Extending Florida's Smoke-Free Policy



## Saving Lives, Saving Money

A **state-by-state** report on the health and economic  
impact of comprehensive **smoke-free laws**

2011



acscan.org

# Health & Economic Impact of Extending Florida's Smoke-Free Policy

## SAVING LIVES

Making all Florida workplaces, restaurants, and bars 100% smoke-free would be expected to provide the following reductions in the number of smokers and the number of deaths caused by smoking or exposure to tobacco smoke:\*

Adults Who Would Quit Smoking	Youth Who Would Never Start Smoking	Reduction in Smoking-Related Deaths	Reduction in Deaths of Non-Smokers
23,600	7,300	13,200	1,500

## SAVING MONEY

In addition to saving lives, making Florida smoke-free would cut health care costs for both smokers and non-smokers. Over five years, a comprehensive smoke-free law covering all Florida workplaces, restaurants, and bars would be expected to produce the following economic benefits:\*

Lung Cancer Treatment Savings	Heart Attack and Stroke Treatment Savings	State's Medicaid Program Savings	Smoking-Related Pregnancy Treatment Savings
\$7.23M	\$21.93M	\$1.08M	\$1.78M

# Summary & Conclusions

# Summary and Conclusions

- Comprehensive smoke-free policies:
  - Are highly complied with
  - Significantly reduce exposure to tobacco smoke pollution among non-smokers
  - Lead to reductions in smoking prevalence and cigarette consumption among adults and youth
  - Significantly improve public health
  - Reduce the economic costs of smoking and exposure to tobacco smoke pollution

# Summary and Conclusions

- Smoking imposes considerable costs on businesses, including increased health care costs, lost productivity, higher insurance premiums, and increased maintenance/cleaning costs
  - Going completely smoke-free significantly less costly than trying to accommodate smoking employees and/or patrons
- Methodologically sound studies of the economic impact of smoke-free policies on the hospitality industry consistently demonstrate that such policies have no adverse impact on businesses

# Summary and Conclusions

- Florida's Clean Indoor Air Act of 2003 has had no negative economic impact
  - Statistically significant positive impact on restaurant business
  - No impact on hotels/motels and amusement park business
- Extending Florida's smoke-free policy to comprehensively cover bars would add to the public health impact of the existing policy
  - no negative impact or even small positive impact on bar business
  - reduced health care costs for treating diseases caused by smoking among smokers and non-smokers



# For more information:

[www.impactteen.org](http://www.impactteen.org)

[www.bridgingthegapresearch.org](http://www.bridgingthegapresearch.org)

[www.iarc.fr/en/publications/pdfs-online/prev/handbook13](http://www.iarc.fr/en/publications/pdfs-online/prev/handbook13)

[www.no-smoke.org](http://www.no-smoke.org)

[fjc@uic.edu](mailto:fjc@uic.edu)