



Cancer Epidemiology : Assessing the Burden

Northern Indiana Oncology Symposium

October 16, 2009

Objectives

- Review the current cancer rates and counts
 - Nationally
 - Tri-state
- Evaluate screening rates and trends
- Consider Risk Behaviors
- Resources
- Next Steps

(Where possible, gender specific.)

The Cancer Burden

National

State

Indiana

Michigan

Illinois



Sources of Cancer Data

- State Cancer Registries
- Vital Statistics
- National Center for Health Statistics
- SEER
- National Cancer Institute
- Behavioral Risk Factor Surveillance System Survey

- National Cancer Data Base (CoC)
- Hospital Discharge Data
- Medicare and Medicaid Data

Estimated New Cancer Cases and Deaths, Select Cancer Sites, 2009

	Incidence		Mortality	
	Male	Female	Male	Female
All Sites	766,130	713,220	292,540	269,800
Lung & Bronchus	116,090 (15%)	103,350 (14%)	88,900 (30%)	70,490 (26%)
Colorectal	75,590 (10%)	71,380 (10%)	25,240 (9%)	24,680 (9%)
Female Breast	N/A	192,370 (27%)	N/A	40,170 (15%)
Prostate	192,280 (25%)	N/A	27,360 (9%)	N/A

Source: American Cancer Society, *Cancer Facts & Figures 2009*

Estimated New Cancer Cases, Select Cancer Sites, 2009

	US	IN	MI	IL
All Sites	1,479,350	31,320	53,550	60,960
Lung & Bronchus	219,440	5,360	8,190	9,180
Colorectal	146,970	3,260	5,020	6,430
Female Breast	192,370	3,710	6,480	7,610
Prostate	192,280	3,250	7,10	7,590

Source: American Cancer Society, *Cancer Facts & Figures 2009*

Estimated Cancer Deaths, Select Cancer Sites, 2009

	US	IN	MI	IL
All Sites	562,340	12,820	20,450	23,220
Lung & Bronchus	159,390	4,000	5,840	6,460
Colorectal	49,920	1,130	1,720	2,260
Female Breast	40,170	860	1,350	1,770
Prostate	27,360	520	820	1,150

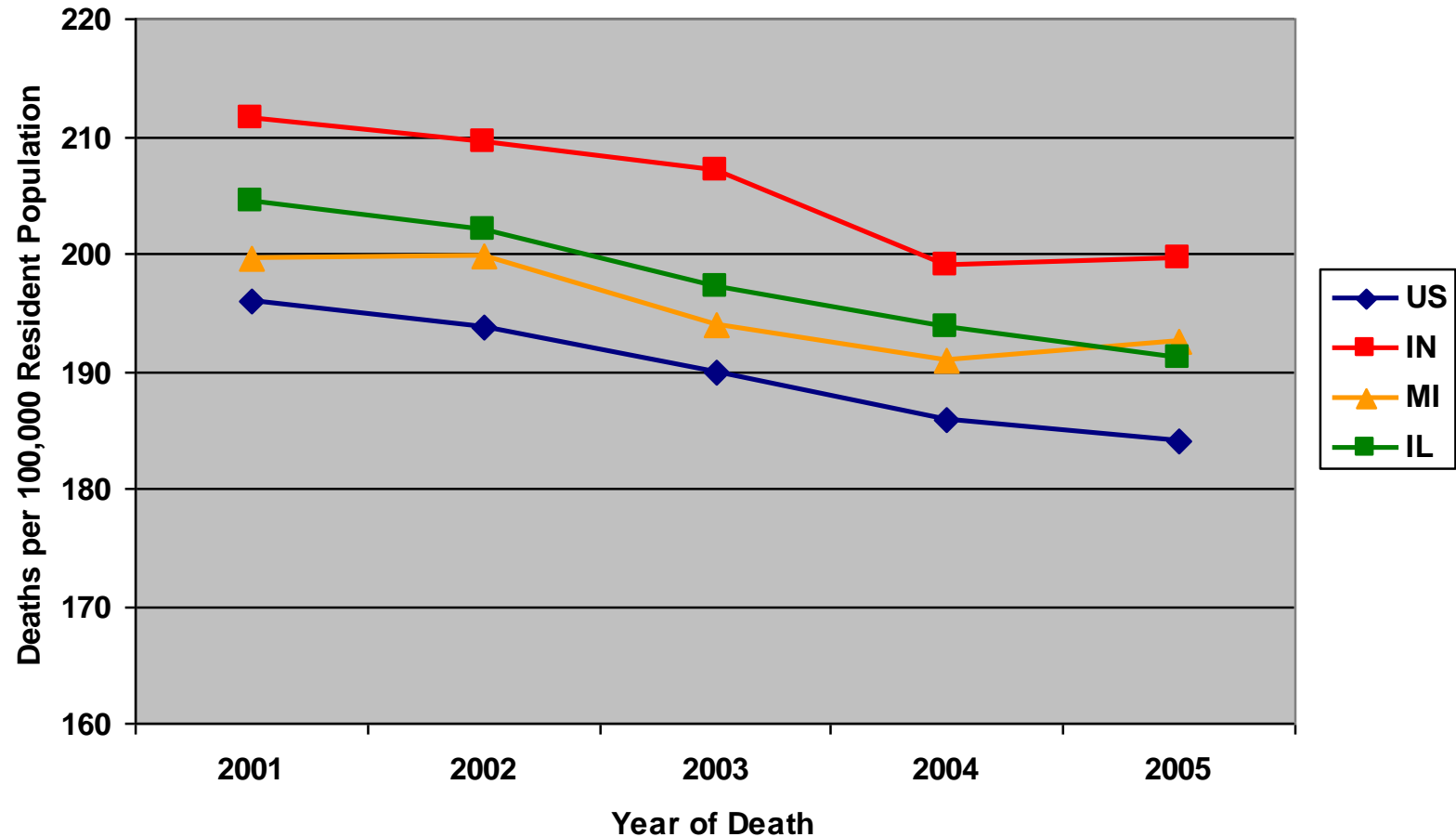
Source: American Cancer Society, *Cancer Facts & Figures 2009*

Probability of Developing Invasive Cancers, Birth to Death, US 2002-2005

Site	Male		Female	
	Percentage	Ratio	Percentage	Ratio
All Sites	43.89%	1 in 2	37.35%	1 in 3
Lung & Bronchus	7.78%	1 in 13	6.22%	1 in 16
Colon & Rectum	5.51%	1 in 18	5.10%	1 in 20
Female Breast	N/A	N/A	12.03%	1 in 8
Prostate	15.78%	1 in 6	N/A	N/A

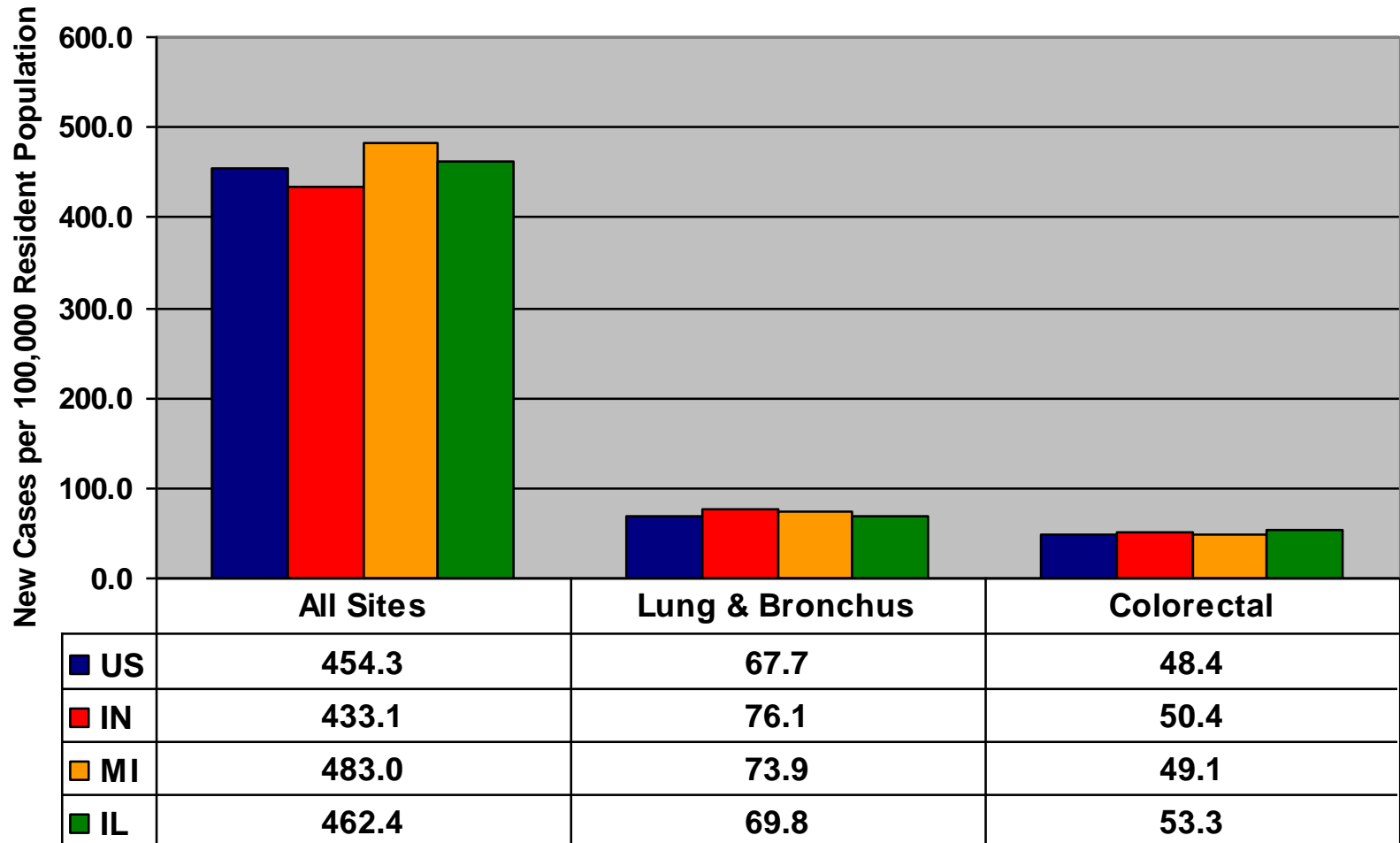
Source: American Cancer Society, *Cancer Facts & Figures 2009*

Historical Trends, Cancer Mortality Rates, All Sites



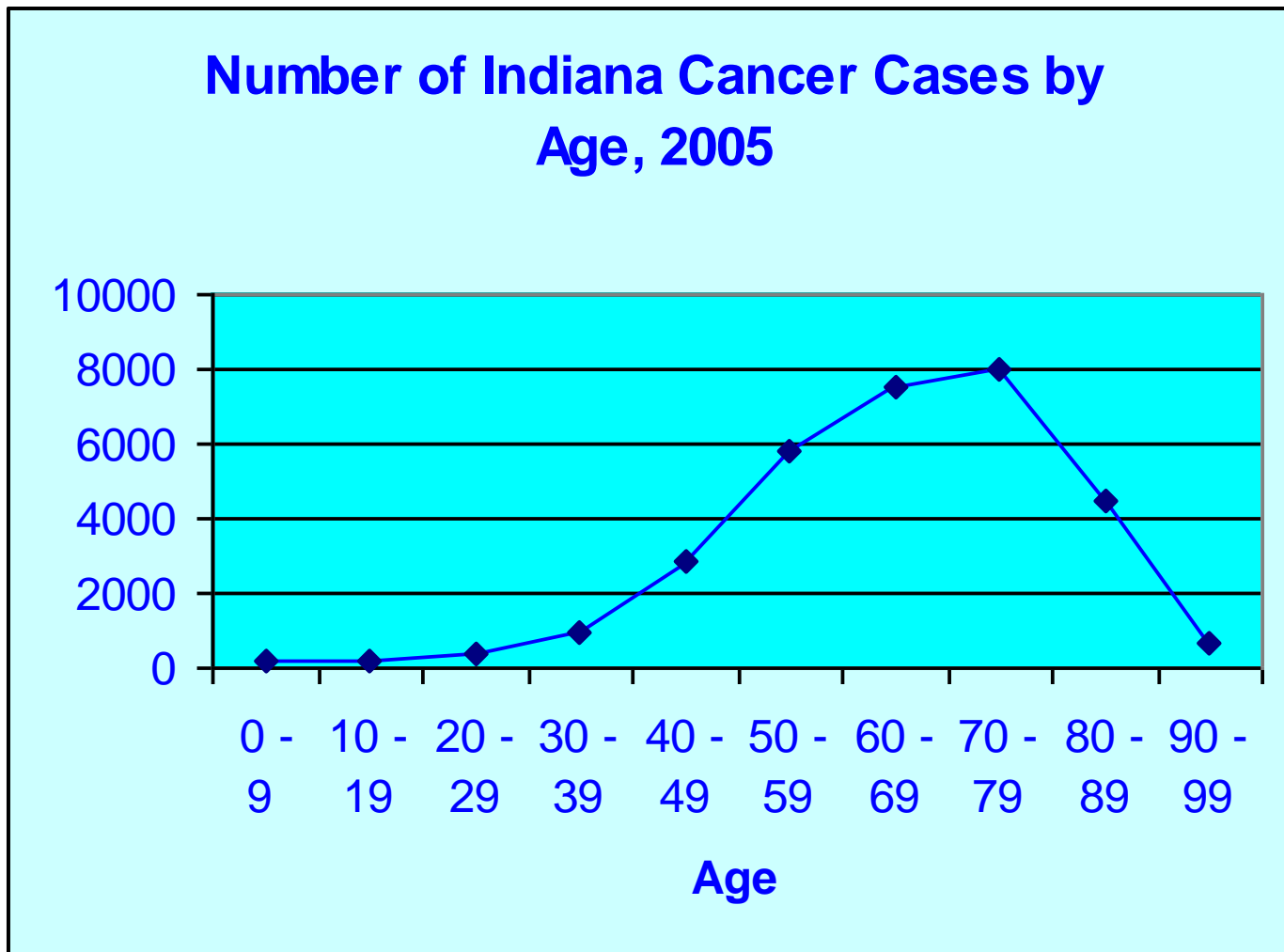
Source: NCI CDC State Cancer Profiles. Rates are age-adjusted to the 2000 US standard population.

Cancer Incidence Rates Select Sites, 2005



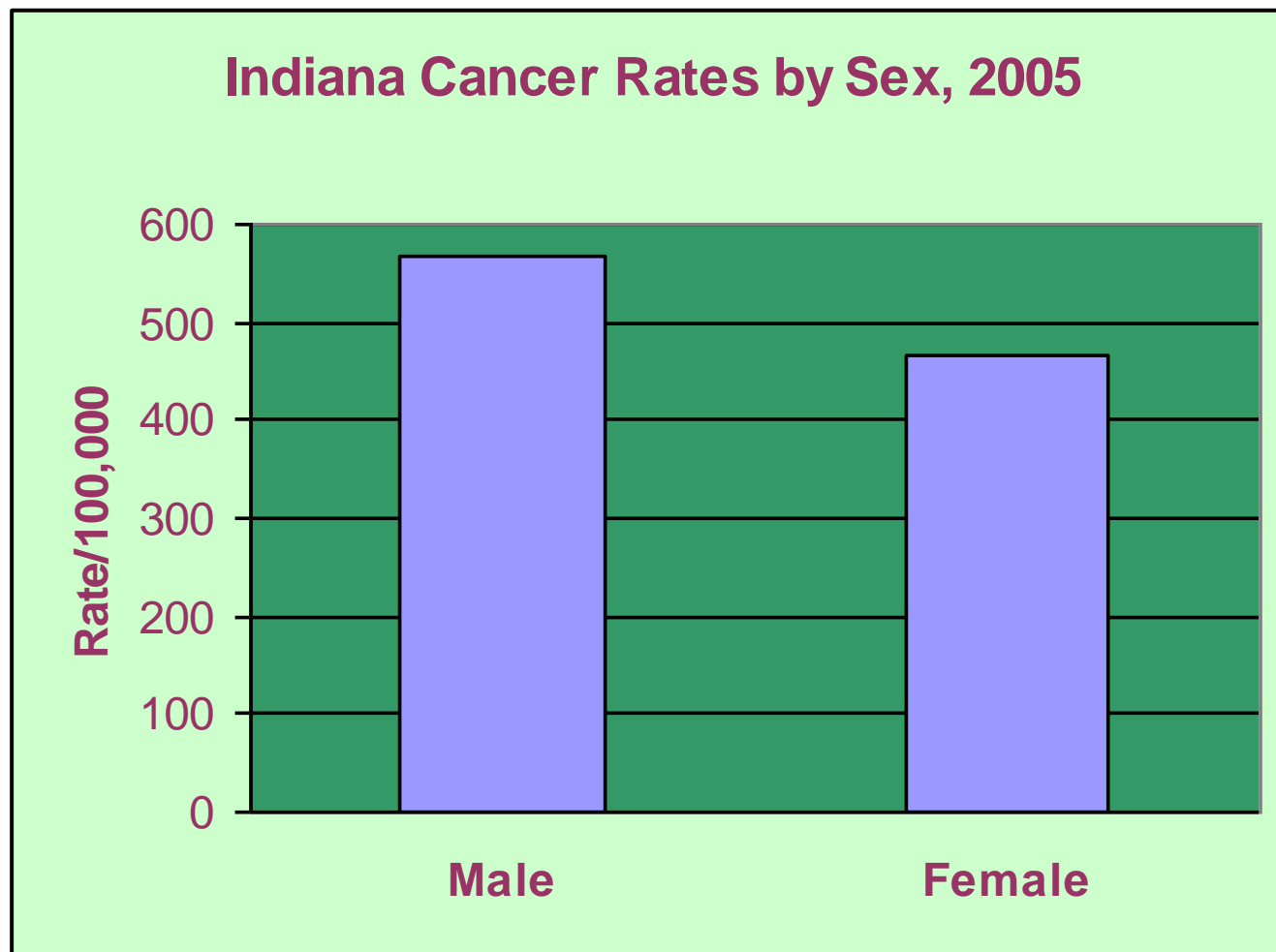
Source: NCI CDC State Cancer Profiles. Rates are age-adjusted to the 2000 US standard population.

Who Gets Cancer In Indiana?



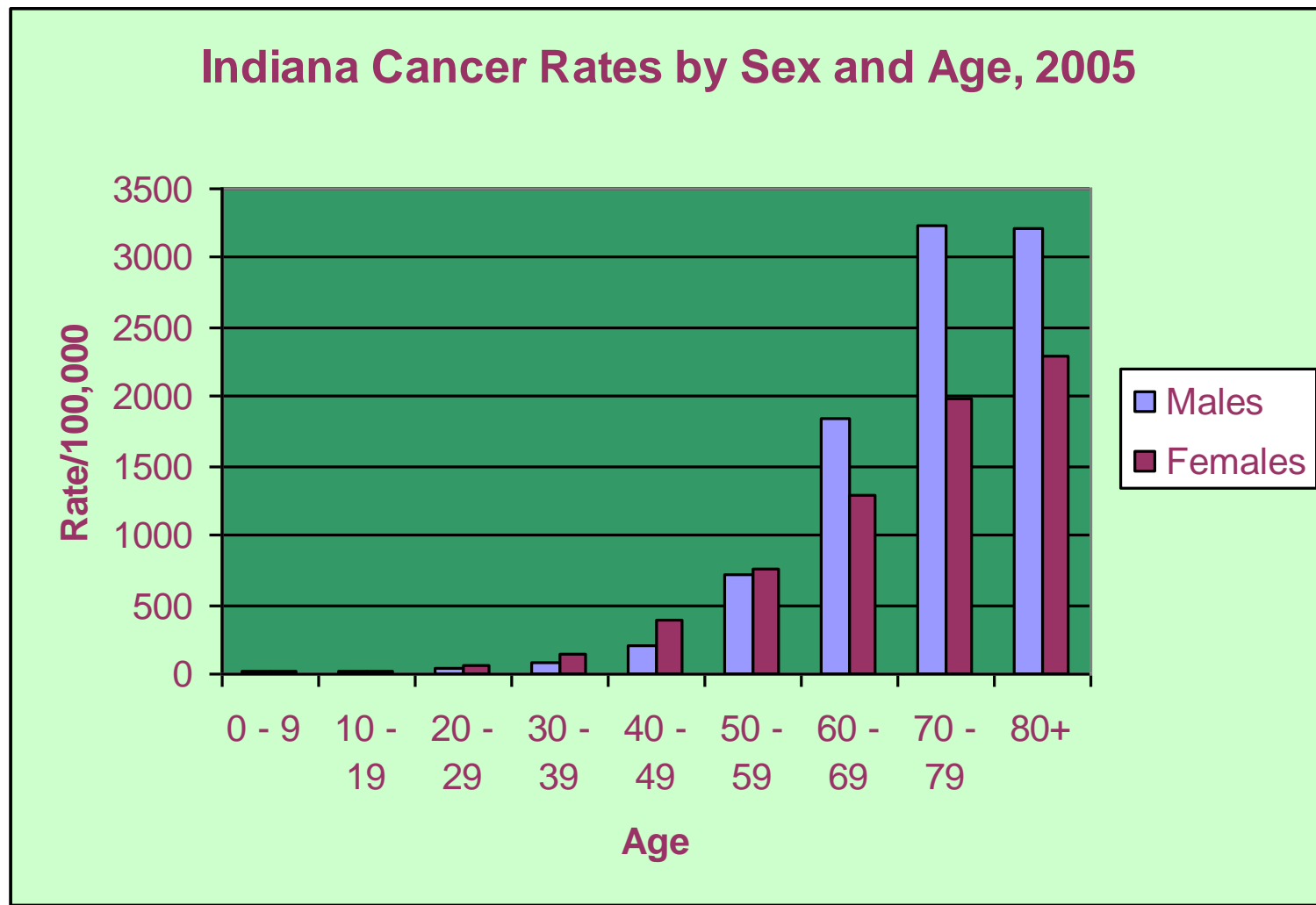
Source: Indiana Cancer Registry, ISDH

Disparities on the Basis of Gender



Incidence rates per 100,000, age-adjusted to the US 2000 standard population.
Source: Indiana Cancer Registry, ISDH

... or both age and sex



Incidence rates per 100,000, age-adjusted to the US 2000 standard population.
Source: Indiana Cancer Registry, ISDH

Early Detection

Screening Rates



Five Year Relative Survival Rates by stage and diagnosis, US 1996-2004, (%)

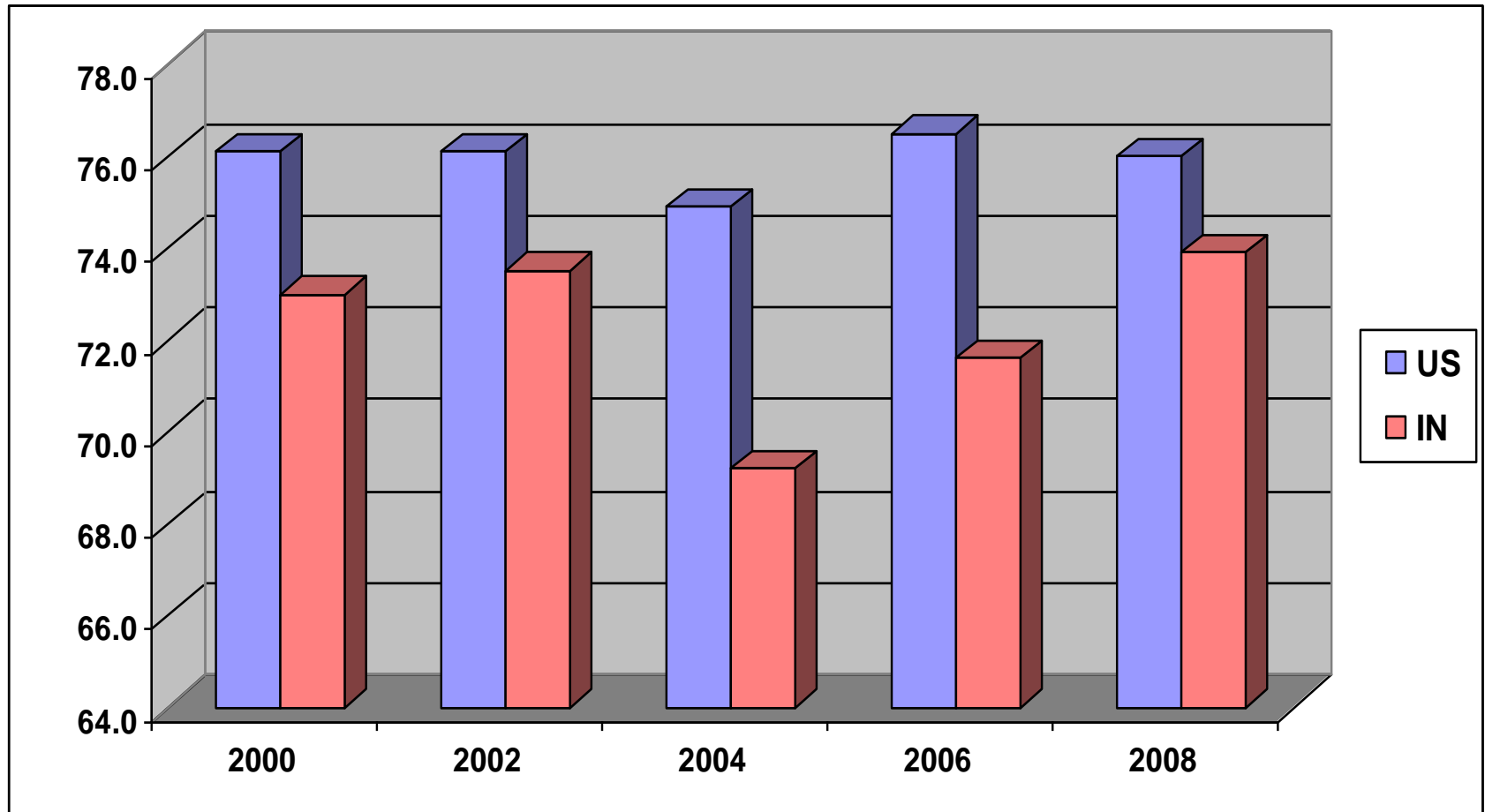
Site	All Stages	Local	Regional	Distant
Lung & Bronchus	15.2	49.5	20.6	2.8
Colon & Rectum	64.4	89.7	68.4	10.8
Female Breast	88.7	100.0	—	31.7
Prostate	98.9	92.0	55.7	16.5

Source: American Cancer Society, *Cancer Facts & Figures 2009*

Source Material

- Behavioral Risk Factor Surveillance System (BRFSS)
 - CDC
 - World's largest on-going health telephone survey system
 - Since 1984
 - All 50 states and major territories
 - Over 350,000 adults surveyed each year
 - 6,500 + in Indiana
 - ~ 5,200 in Illinois
 - ~ 6,500 in Michigan (Special Cancer Questions)
 - Weighted to match population
- National Health Interview Survey (NHIS)
 - CDC too

Women Aged 40+ Who Have Had a Mammogram Within the Past Year (%)



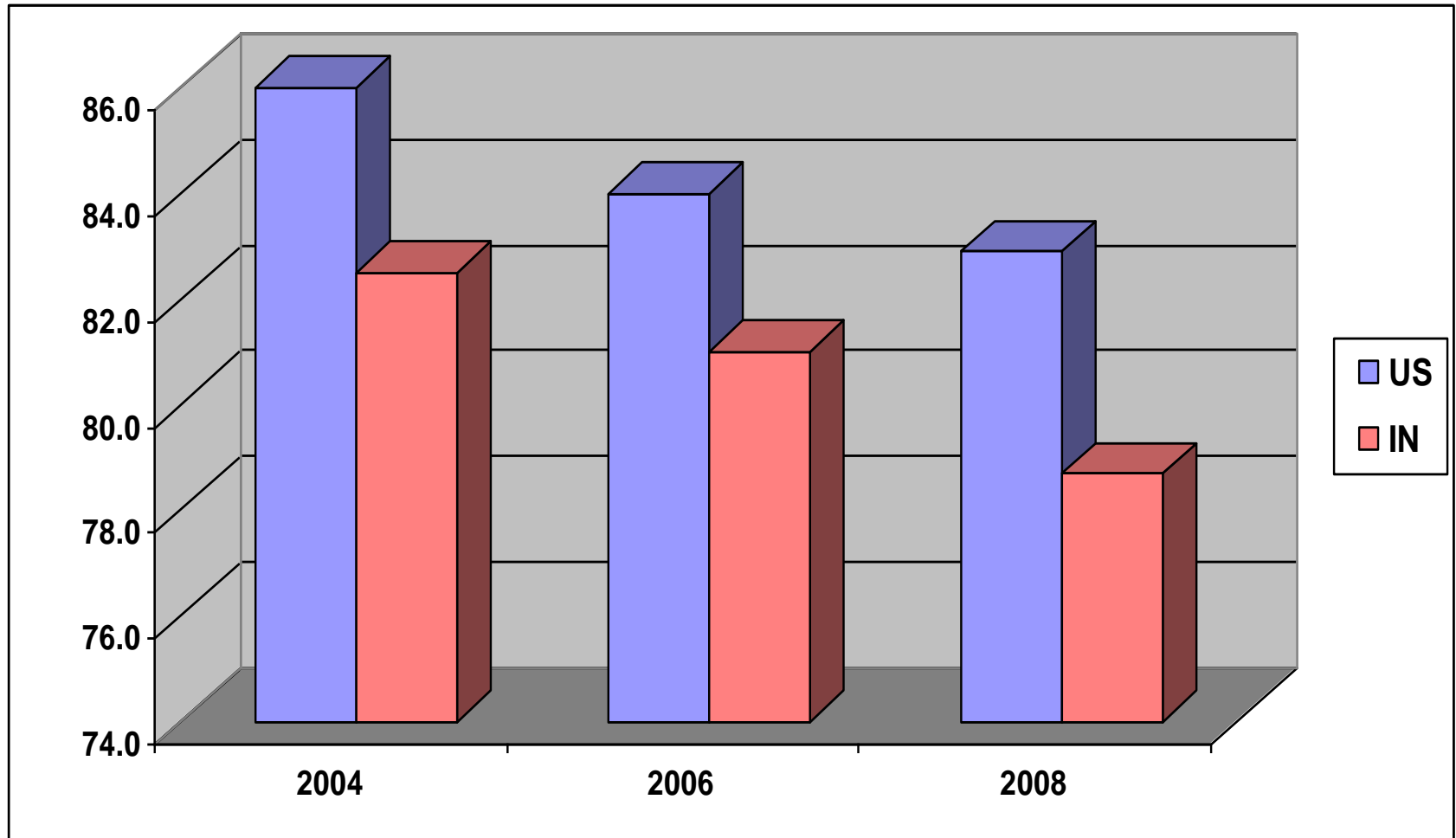
Source: Behavioral Risk Factor Surveillance System, CDC.

Women aged 40+ who have had a mammogram within the past two years, %

Age		Race	
40-49	69.0	White	77.0
50-59	79.1	Black	80.1
60-64	81.3	Hispanic	76.4
65+	79.0	Other	72.9
Income		Education	
< \$15,000	64.7	< HS	66.0
\$15-24,999	70.6	HS or GED	74.6
\$25-34,999	73.6	Some HS +	77.1
\$35-49,999	78.4	College grad	81.3
> \$50,000	81.7		

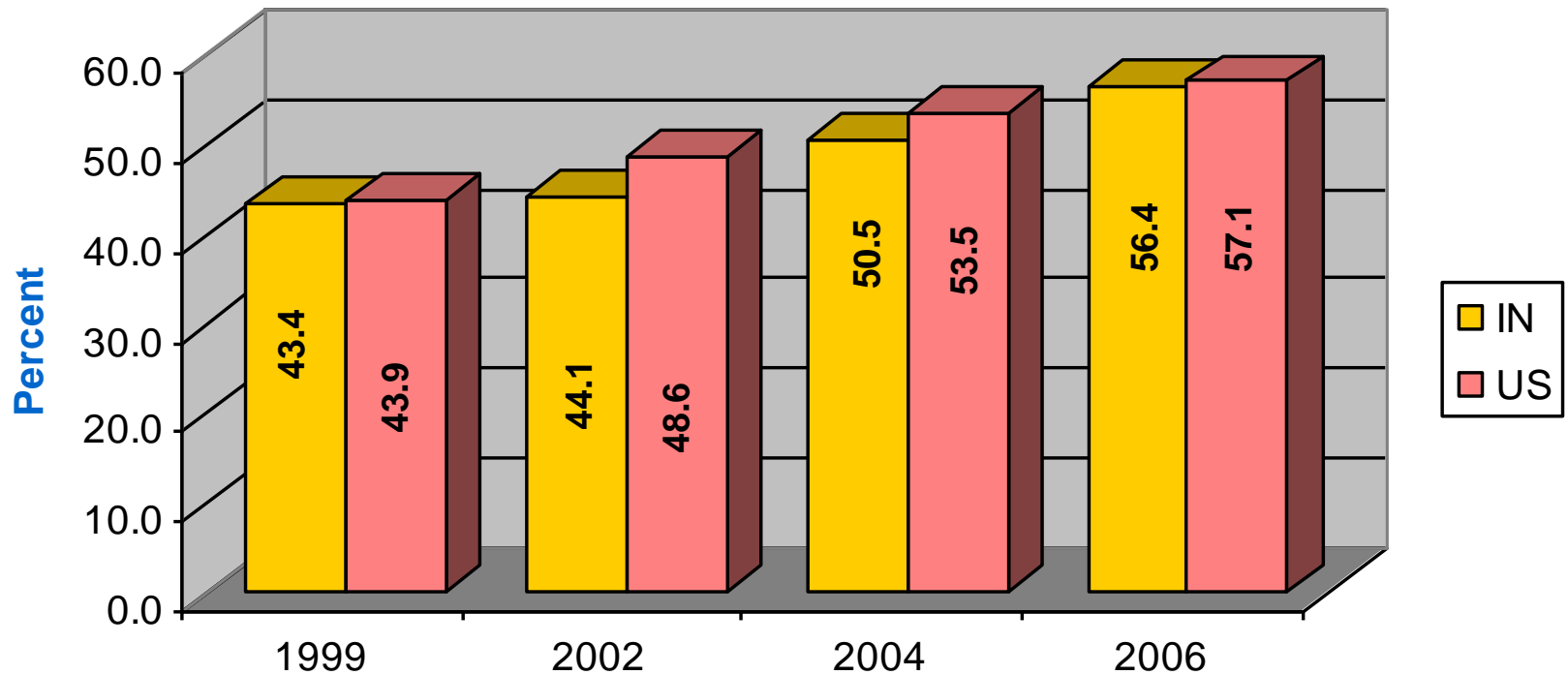
Source: Behavioral Risk Factor Surveillance System, CDC.

Women Aged 18+ Who Have Had a Pap Test Within the Past 3 Years (%)



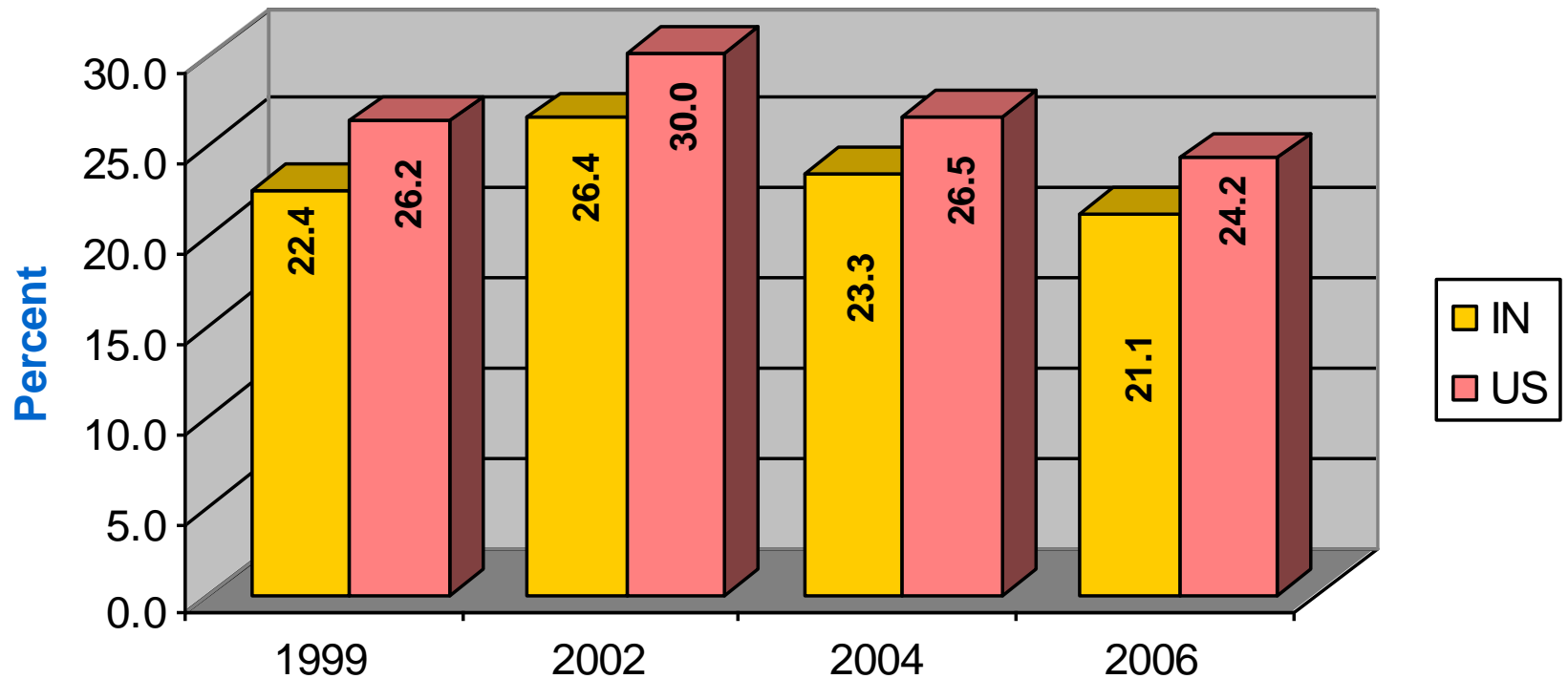
Source: Behavioral Risk Factor Surveillance System, CDC.

Adults aged 50+ who have ever had a sigmoidoscopy or colonoscopy



Source: Behavioral Risk Factor Surveillance System, CDC.

Adults aged 50+ who have had a blood stool test within the past two years



Source: Behavioral Risk Factor Surveillance System, CDC.

Prevention

Risk Behaviors



Deaths – Leading Causes, U.S., 2005

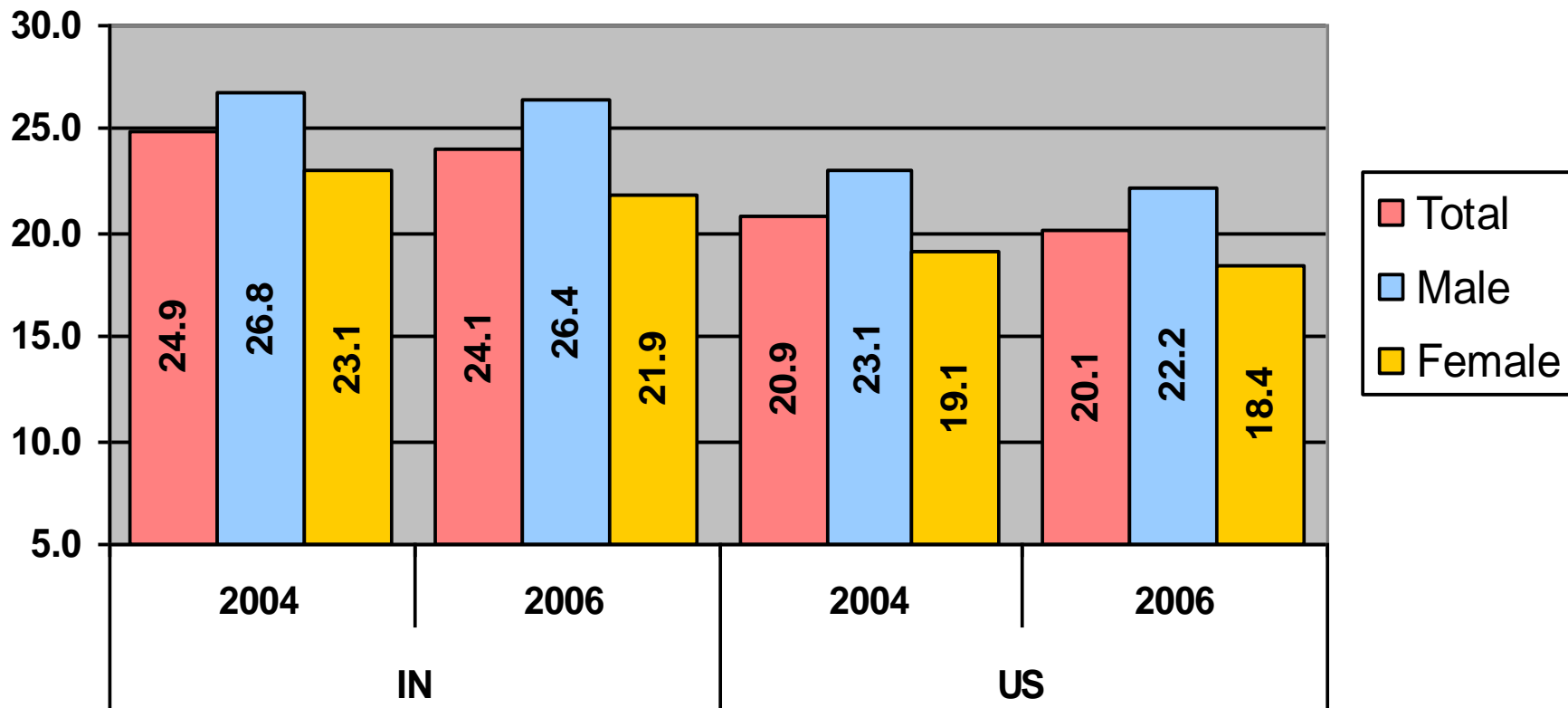
- Heart disease: 652,091
- Cancer: 559,312
- Stroke (cerebrovascular diseases): 143,579
- Chronic lower respiratory diseases: 130,933
- Accidents (unintentional injuries): 117,809
- Diabetes: 75,119
- Alzheimer's disease: 71,599
- Influenza/Pneumonia: 63,001
- Nephritis, nephrotic syndrome, and nephrosis: 43,901
- Septicemia: 34,136

Source: National Center for Health Statistics, CDC.

Cancer Causes

- Tobacco
- Overweight or Obesity
- Physical inactivity and nutrition
- Infectious Agents
 - E.g. HPV, HIV, *H. pylori*
- Ultraviolet Light
- Heredity

Adult Smokers (%)



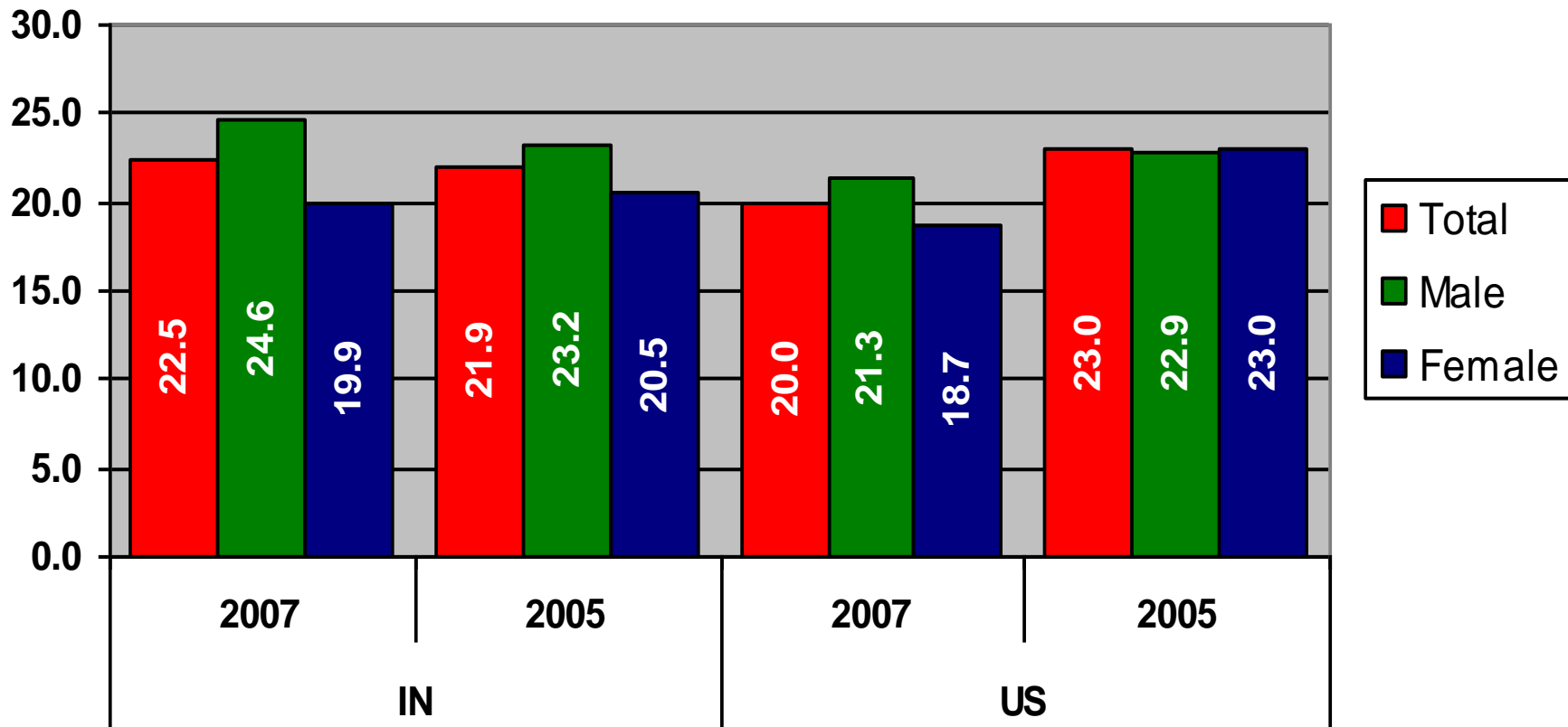
Source: Behavioral Risk Factor Surveillance System, CDC.

Adults Who are Current Smokers, 2007, US

Race		Age	
White	19.4	18-24	24.0
Black	21.7	25-34	23.9
Hispanic	16.7	35-44	20.4
Other	18.3	45-54	22.3
		55-64	18.0
		65+	9.0
Income		Education	
< \$15,000	31.8	< HS	33.2
\$15-24,999	28.5	HS or GED	26.0
\$25-34,999	24.0	Some HS +	21.2
\$35-49,999	21.4	College grad	9.6
> \$50,000	15.0		

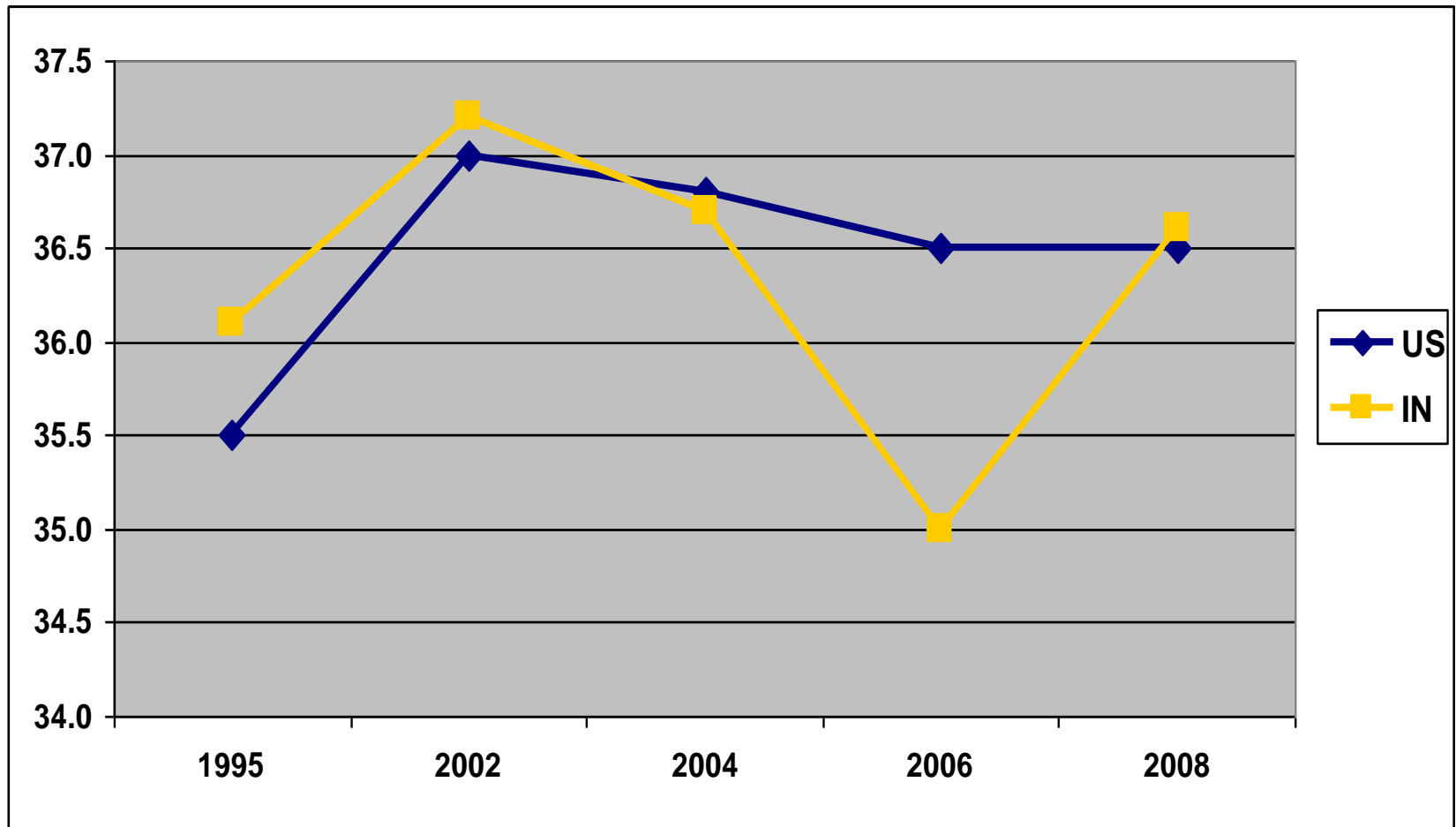
Source: Behavioral Risk Factor Surveillance System, CDC.

Current Smokers, HS Youth (%)



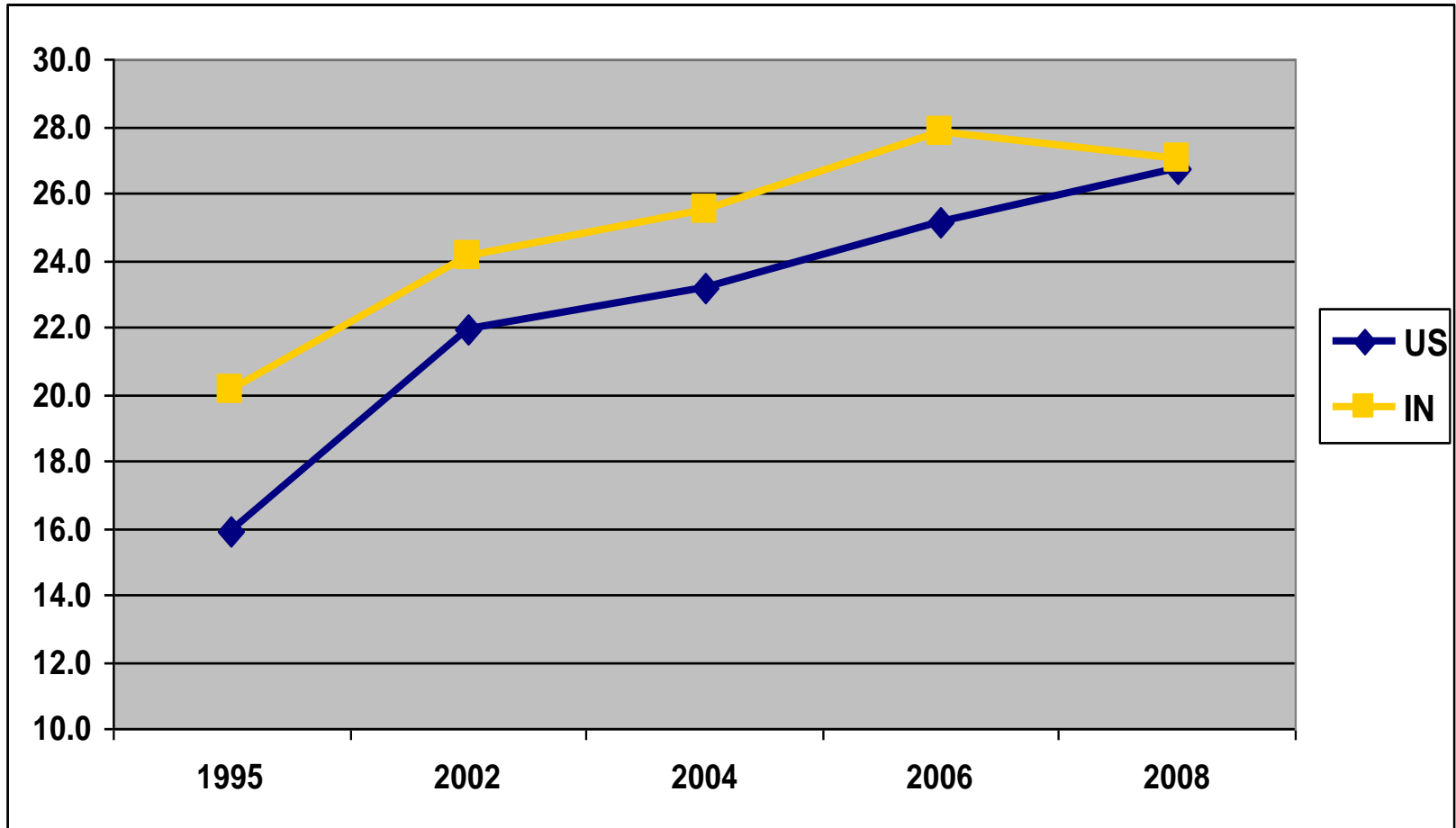
Source: Youth Risk Behavior Surveillance System, CDC.

Adult Overweight (%) (BMI 25.0 – 29.9)



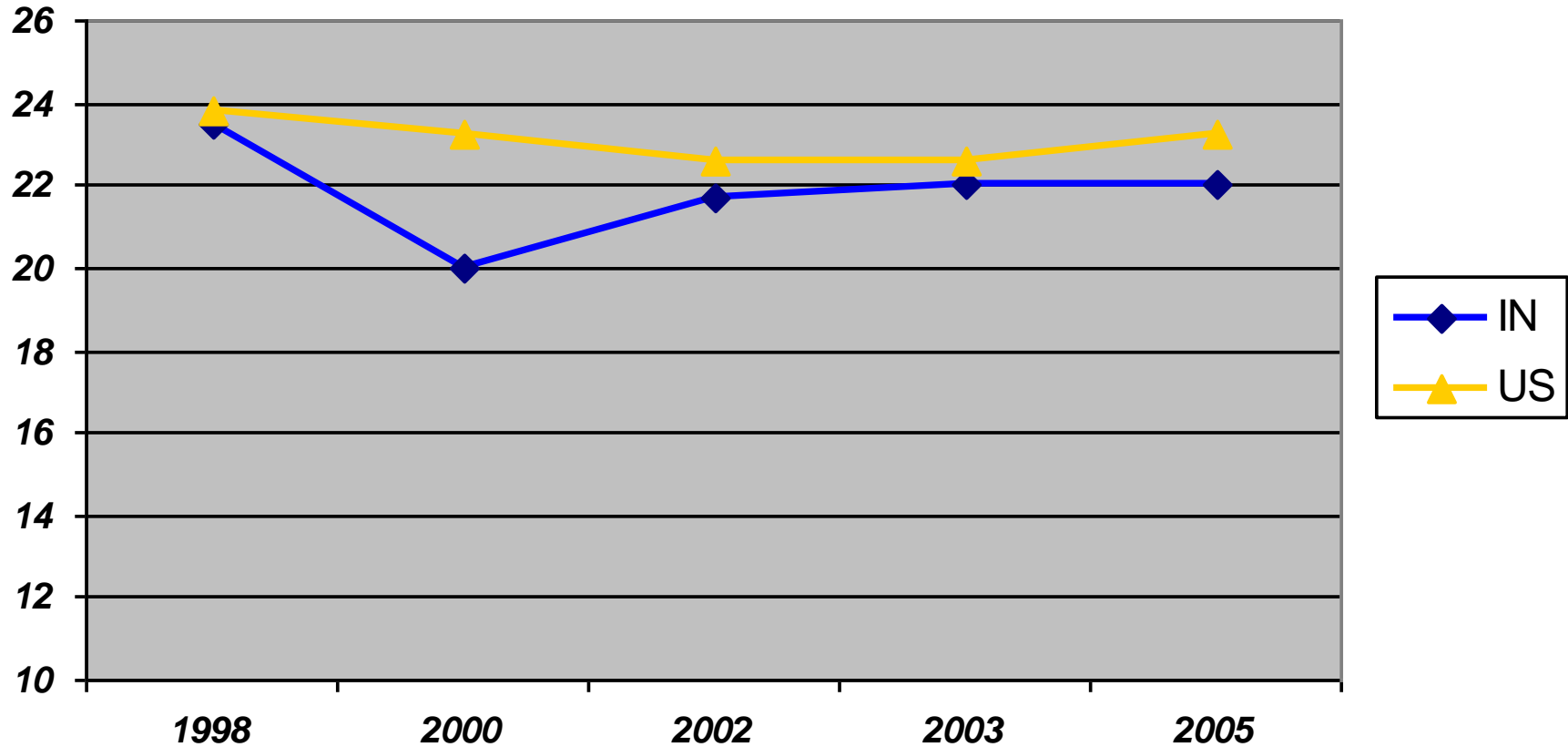
Source: Behavioral Risk Factor Surveillance System, CDC.

Adult Obese (%) (BMI \geq 30.0)



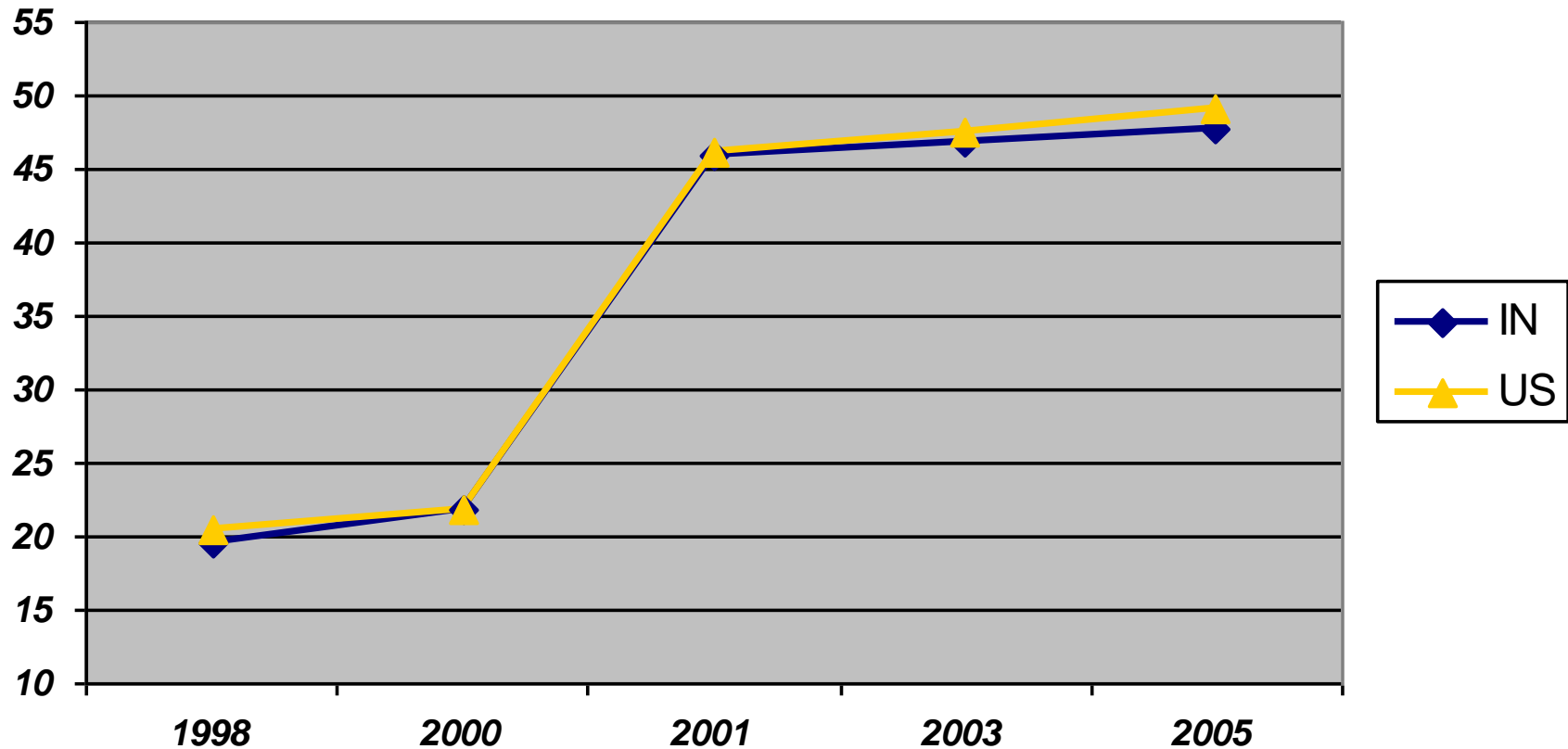
Source: Behavioral Risk Factor Surveillance System, CDC.

Adult 5 A Day (%) (Fruits & Vegetables)



Source: Behavioral Risk Factor Surveillance System, CDC.

Adult Moderate Physical Activity (%) (At Least 10 Minutes a Day)



Source: Behavioral Risk Factor Surveillance System, CDC.

Selected Resources



Cancer Rates and Counts

- National and State
 - <http://statecancerprofiles.cancer.gov/index.html>
- Indiana
 - <http://www.in.gov/isdh/22689.htm>
- Michigan
 - http://www.michigan.gov/mdch/0,1607,7-132-2944_5323---,00.html
- Illinois
 - <http://www.idph.state.il.us/cancer/statistics.htm>
- National and State Projections and Past Rates
 - http://www.cancer.org/docroot/STT/stt_0.asp

State Cancer Consortia

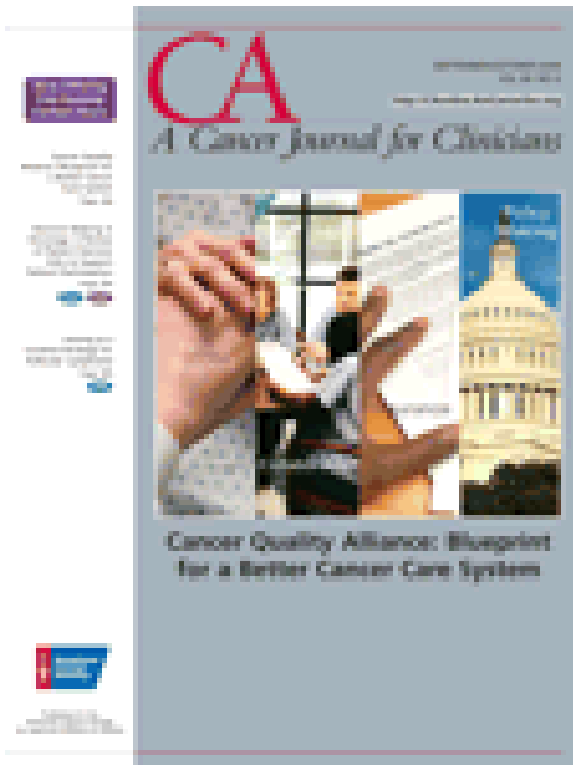
- Indiana Cancer Consortium (ICC)
 - Keylee Wright, Director, kwright@isdh.in.gov
 - <http://www.indianacancer.org/>
- Michigan Cancer Consortium (MCC)
 - Polly Hager, Program Manager
 - HagerP@michigan.gov
 - <http://www.michigancancer.org/>
- Illinois Comprehensive Cancer Control Program
 - <http://www.idph.state.il.us/cancer/index.htm>

Other Resources

- American Cancer Society
 - <http://www.cancer.org/docroot/home/index.asp>
 - Phone book for local offices
 - Patient Resource Center (877) 499-4673
- Behavioral and Screening Data (BRFSS)
 - <http://www.cdc.gov/brfss/>
- Evidence Based Practices
 - Cancer Control Planet
 - <http://cancercontrolplanet.cancer.gov/index.html>
 - The Cochrane Collaboration
 - <http://www.cochrane.org/reviews/clibintro.htm>

CA

A Cancer Journal for Clinicians



<http://caonline.amcancersoc.org/>

Next Steps

What's to be done?



*The glitter of the t table diverts attention
from the inadequacies of the fare.*

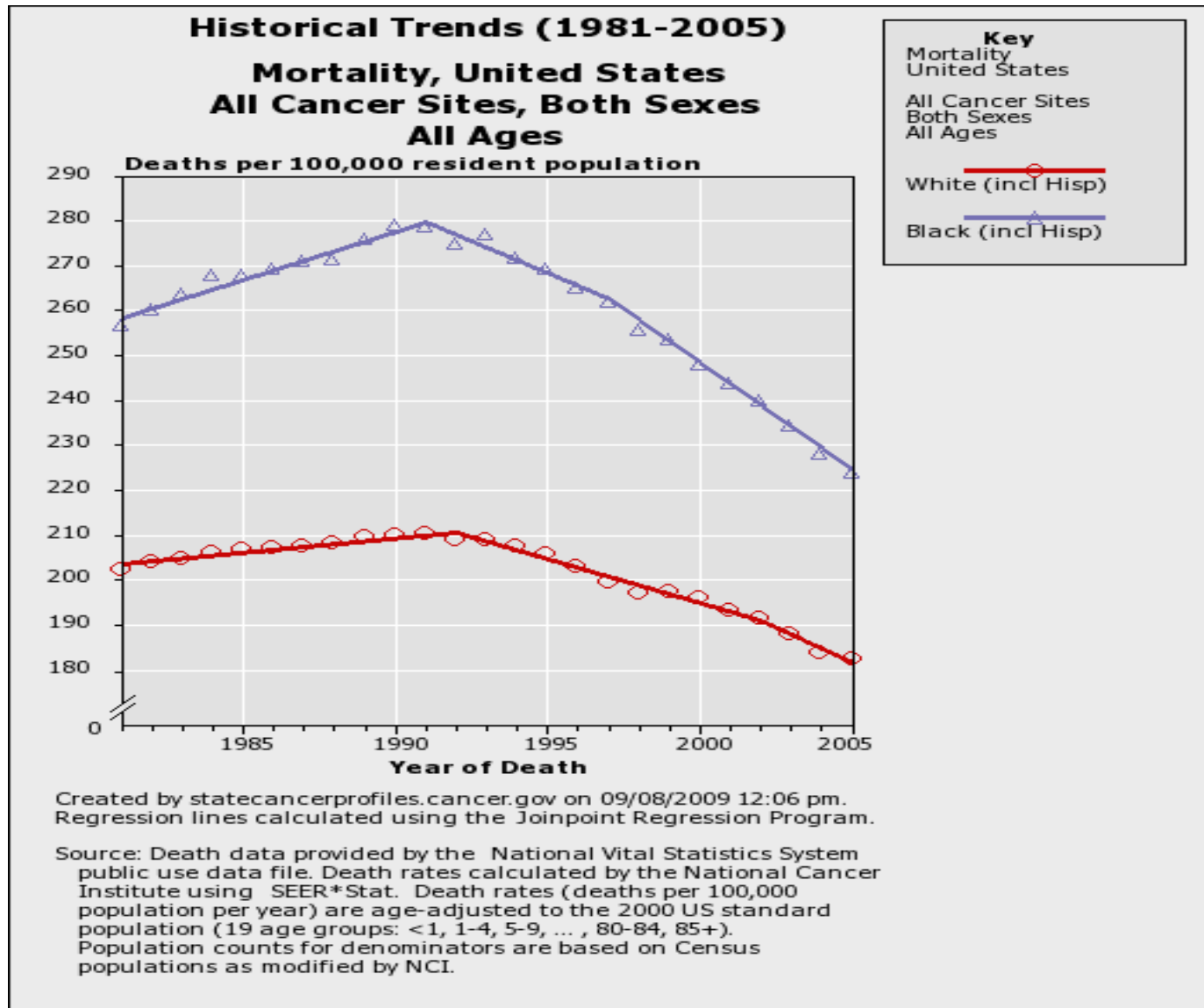
-- Sir Austin Bradford Hill

Adults aged 18-64 who have any kind of health care coverage (no)

	Percentage			
	US	IN	MI	IL
2004	17.3	17.4	14.3	16.6
2005	17.1	18.2	14.7	16.9
2006	17.0	18.4	15.3	17.6
2008	17.1	17.9	13.8	17.1
2006-2007	19.7	15.7	15.2	18.2

Source: Behavioral Risk Factor Surveillance System, CDC.
Kaiser Family Foundation

The Effect of Disparities





There are two kinds of people: those that
need closure...

Thank You!