The Economic Impact of Tobacco Use:
An Overview with Examples from 30 Years of Tobacco Control Research

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Webinar for CTCP Grantees
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Roadmap for this afternoon

1. Tobacconomics 101: How does one estimate the economic impact of tobacco use?
2. Some of the work my team has done
   - The cost of smoking in CA for each of the 58 counties
   - Studies of the cost of smoking to underrepresented communities in CA (African Americans, Hispanics, the LGB community)
   - Secondhand smoke exposure
   - Other tobacco products: electronic cigarettes
3. How this work might be relevant to your work: how it has been used in policy analyses in CA
   - Proposition 56

1. Tobacconomics 101

What is cost of tobacco use?

- Healthcare expenditures
- Value of time lost from illness
- Mortality cost

Healthcare Expenditures

- Hospital care
- Ambulatory care
- Prescription drugs
- Home health care
- Nursing home services

What is cost of tobacco use?

- Healthcare expenditures
- Value of time lost from illness
- Mortality cost

Value of time lost from illness

- Value of days lost from work due to tobacco-related illness (absenteeism)
- Loss of educational opportunities due to days unable to attend school (absenteeism)
- Days when one is less productive or attentive at work or school due to illness (presenteeism)
- Value of days lost from household production due to tobacco-related illness

What is cost of tobacco use?

- Healthcare expenditures
- Value of time lost from illness
- **Mortality cost**

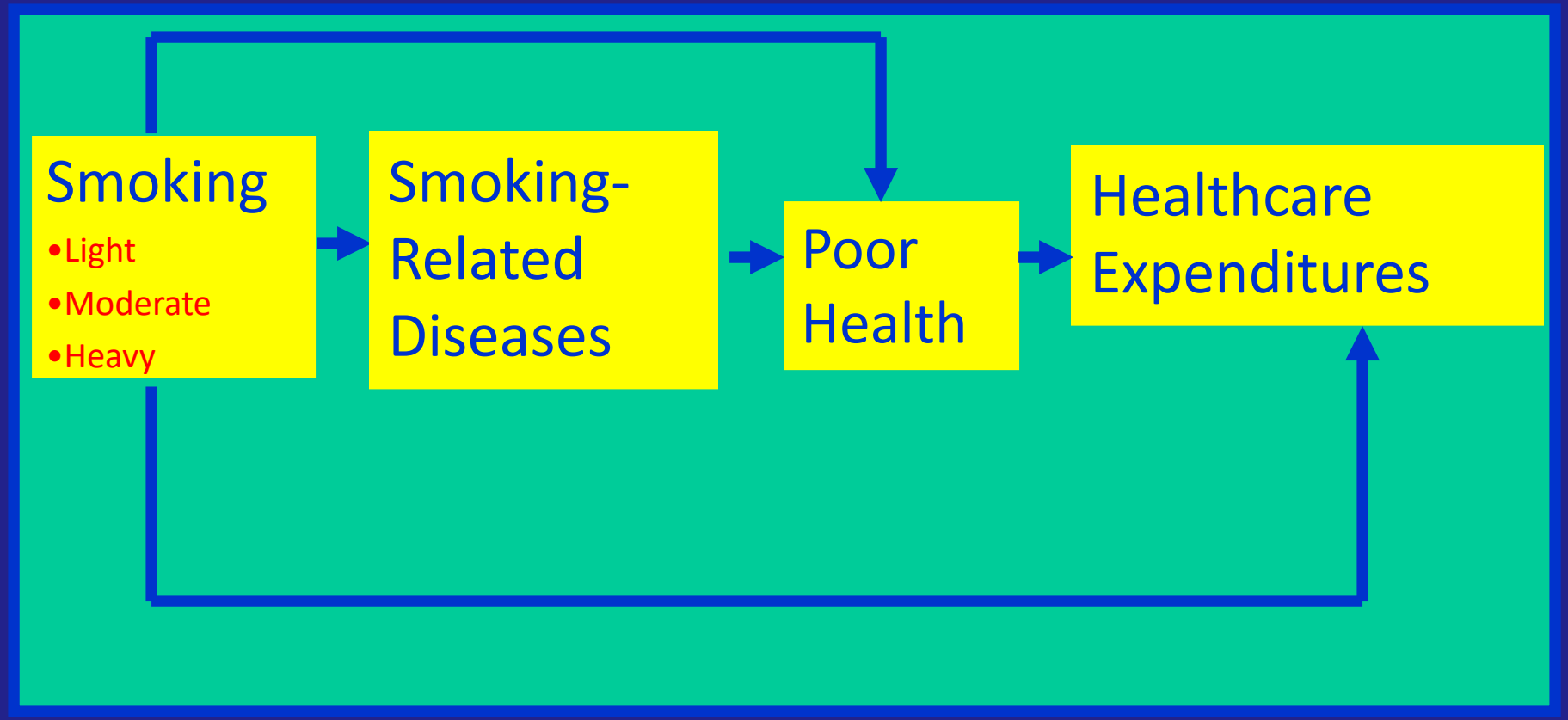
Mortality Cost

- The number of deaths and the life-years lost due to tobacco-related illness
- Lost earnings and value of lost household production over the years of life lost due to premature death from smoking-related illness

- For adults aged 35+ and for infants exposed in utero to their mother's smoking

How do we estimate these costs?

Conceptual Framework: Example of the Impact of Smoking on Healthcare Expenditures



Smoking-attributable healthcare expenditures are estimated using an excess cost approach

- We compare expenditures of smokers (and former smokers) with those of never smokers
- We assume that smokers and never smokers are the same in every way except for smoking status
- Excess costs are attributed to smoking
- Example: Excess hospital cost = Hospital cost (smoker) - Hospital cost (never smoker)

Other Costs:
Value of Lost Productivity

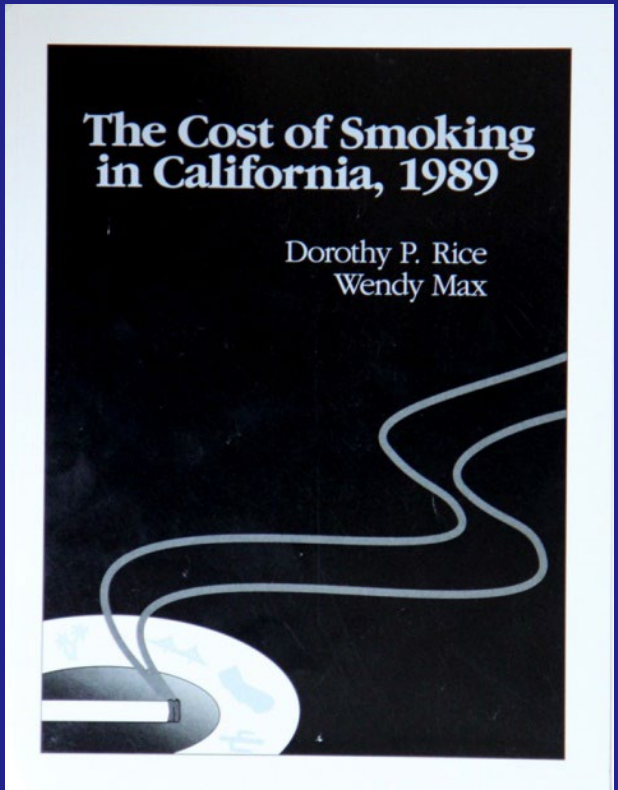
- Value of time lost from illness - estimated using a similar excess cost approach
- Mortality cost – estimated using an epidemiological model

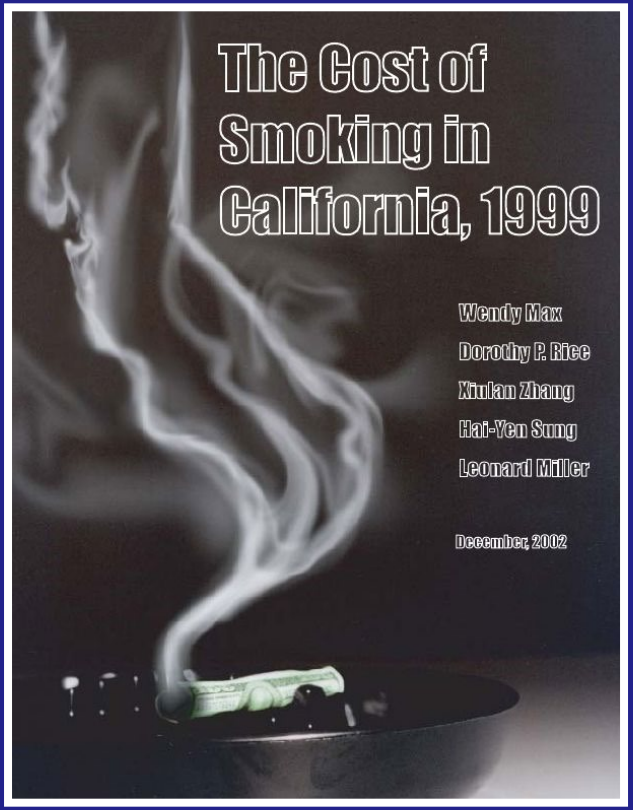
2. Work that my colleagues and I have done

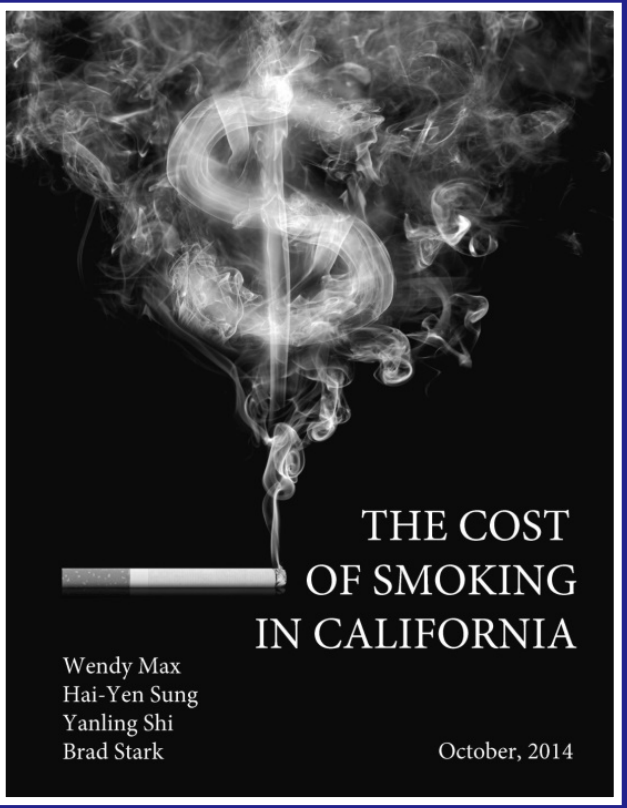
Cost of smoking in each of CA's 58 counties

History

- We have produced 3 reports on the cost of smoking in CA
- Each uses the most current models available at the time
- Most recent came out in fall of 2014







Smoking prevalence was estimated for each of the 58 Counties

- By age (adolescents and adults) and gender
- For current, former, and never smokers
- For light (<10 cigarettes per day), moderate (10-19 CPD), and heavy (20+ CPD) smokers
- Data source: California Health Interview Survey (CHIS)

The report has 3 sets of tables

- California tables
  - State-level estimates
- County tables
  - All 58 counties in each table
- County profiles
  - 2 pages for each county showing all that county's data in one place

Table 6

Female: Total Deaths and Deaths Attributed to Smoking by Cause of Death, California, 2009

Cause of Death	Deaths	Attributed to Smoking	
		Number	Percent
All Causes	113,932	13,799 *	12.1
Neoplasms			
Lip, oral cavity, pharynx	286	115	40.2
Esophagus	298	153	51.4
Stomach	620	59	9.5
Pancreas	1,861	372	20.0
Larynx	63	43	69.0
Trachea, lung, bronchus	6,075	4,020	66.2
Cervix, uterus	439	34	7.8
Urinary bladder	389	97	24.8
Kidney, other urinary	446	17	3.9
Acute Myeloid Leukemia	539	47	8.7
Cardiovascular disease			
Hypertension	4,374	411	9.4
Ischemic heart disease			
0-34 years	18		
35-64 years	1,659	378	22.8
65 years plus	16,780	1,584	9.4
Other heart disease	7,498	571	7.6
Cerebrovascular disease			
0-34 years	63		
35-64 years	888	248	27.9
65 years plus	6,846	270	3.9
Atherosclerosis	478	35	7.4
Aortic aneurysm	350	157	45.0
Other arterial diseases	386	47	12.1
Respiratory Diseases			
Respiratory TB	30	5	15.2
Pneumonia, influenza	3,259	371	11.4
Bronchitis, emphysema	485	375	77.4
Asthma	273	42	15.4
Chronic airways obstruction	6,023	4,336	72.0
Pediatric Diseases			
Short gestation, low birth weight	143	6	3.9
Sudden infant death syndrome	79	5	6.2
Respiratory distress syndrome	19	0	1.4
Respiratory conditions of newborn	37	1	2.0
Passive Smoking--Lung Cancer	6,075	37	0.6
Passive Smoking--Ischemic Heart Disease	18,457	332	1.8
Passive Smoking - Asthma	273	8	3.1
All Other Causes	53,228		

Note: Numbers may not add to total due to rounding.
*Excludes passive smoking-attributable deaths

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Table 10

Cost of Smoking by California County, 2009

County	Total	Direct	Indirect Lost Productivity	
			Illness	Premature Death*
		(thousands)		
California	$18,058,012	$9,830,115	$1,430,618	$6,797,280
Alameda	702,063	401,702	56,064	244,297
Alpine	478	332	60	86
Amador	34,317	17,002	1,833	15,482
Butte	181,708	96,004	9,868	75,836
Calaveras	35,016	20,146	2,083	12,787
Colusa	13,088	7,362	919	4,807
Contra Costa	540,362	334,548	45,783	160,031
Del Norte	22,999	10,091	1,417	11,490
El Dorado	109,486	66,744	8,432	34,310
Fresno	421,195	216,941	32,408	171,846
Glenn	20,786	10,940	1,220	8,625
Humboldt	95,856	50,288	6,379	39,189
Imperial	80,170	46,354	6,636	27,180
Inyo	12,808	7,404	777	4,627
Kern	458,699	224,281	31,628	202,791
Kings	74,617	37,091	6,168	31,357
Lake	64,549	33,723	3,098	27,727
Lassen	18,802	10,328	1,868	6,606
Los Angeles	4,408,555	2,318,269	357,129	1,733,158
Madera	72,026	36,044	5,310	30,672
Marin	138,354	94,700	13,474	30,179
Mariposa	13,626	7,776	858	4,993
Mendocino	73,786	37,234	4,223	32,329
Merced	111,757	59,502	8,752	43,502
Modoc	9,642	3,907	458	5,276
Mono	5,467	3,599	656	1,211
Monterey	190,190	115,063	15,094	60,033
Napa	83,194	48,703	6,575	27,916
Nevada	66,931	39,188	4,541	23,203
Orange	1,122,009	615,714	105,690	400,605

Table 10 (Continued)

County	Total	Direct	Indirect Lost Productivity	
			Illness	Premature Death*
		(thousands)		
Placer	191,720	116,003	$15,122	60,595
Plumas	14,037	9,437	991	3,609
Riverside	1,251,715	667,937	89,525	494,253
Sacramento	790,670	416,692	57,368	316,610
San Benito	26,292	13,868	2,077	10,347
San Bernardino	974,858	472,138	76,670	426,050
San Diego	1,458,123	813,490	118,904	525,729
San Francisco	380,164	213,645	33,272	133,248
San Joaquin	395,397	204,351	27,610	163,436
San Luis Obispo	123,633	71,465	10,712	41,456
San Mateo	375,791	238,408	29,556	107,828
Santa Barbara	180,882	102,339	15,676	62,867
Santa Clara	689,796	431,813	64,111	193,873
Santa Cruz	136,011	73,842	10,451	51,718
Shasta	148,643	75,742	8,240	64,661
Sierra	2,617	1,414	161	1,042
Siskiyou	39,754	18,434	2,139	19,180
Solano	244,607	134,917	16,569	93,120
Sonoma	277,741	156,589	23,899	97,254
Stanislaus	278,274	142,936	18,633	116,705
Sutter	56,304	30,384	3,842	22,077
Tehama	48,862	24,917	2,867	21,078
Trinity	12,716	6,544	699	5,473
Tulare	218,086	109,370	15,886	92,830
Tuolumne	44,121	25,439	2,536	16,146
Ventura	360,857	204,423	31,970	124,465
Yolo	106,770	59,722	8,858	38,190
Yuba	47,037	22,875	2,876	21,286

Note: Numbers may not add to total due to rounding.
* Discounted at 3 percent

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Los Angeles

Cost of Smoking		Amount (1,000)	Per Resident	Per Smoker
	Total	$4,408,555	$450	$4,398
	Direct	2,318,269	236	2,313
	Lost Productivity	2,090,287	213	2,085
	Illness	357,129	36	356
	Premature Death	1,733,158	177	1,729
	Male	$2,930,270	$606	$4,683
	Direct	1,339,345	277	2,140
	Lost Productivity	1,590,925	329	2,542
	Illness	219,938	45	351
	Premature Death	1,370,987	283	2,191
	Female	$1,478,285	$297	$3,925
	Direct	978,923	197	2,599
	Lost Productivity	499,362	100	1,326
	Illness	137,190	28	364
	Premature Death	362,171	73	962

Direct Cost of Smoking		Amount (1,000)	Per Resident	Per Smoker
	Total	$2,318,269	$236	$2,313
	Hospital	1,030,866	105	1,028
	Ambulatory	434,291	44	433
	Nursing Home Care	398,524	41	398
	Prescriptions	240,984	25	240
	Home Health	213,604	22	213

Population 2009		All Ages	<18	18-34	35-64	65+
	Total	9,805,232	2,413,128	2,517,469	3,817,276	1,057,359
	Male	4,836,100	1,233,567	1,280,896	1,872,474	449,164
	Female	4,969,132	1,179,561	1,236,574	1,944,802	608,195

Smoking Prevalence	Currently Smoke		Formerly Smoked		Never Smoked	
	Number	%	Number	%	Number	%
Total	1,002,393	12.2	1,630,116	19.8	5,606,842	68.0
Male	625,746	15.5	1,009,920	25.0	2,399,886	59.5
Female	376,647	9.0	620,196	14.8	3,206,956	76.3
Age 12-17	26,167	3.1	70,533	8.3	750,548	88.6
Male	18,578	4.3	37,185	8.6	377,255	87.1
Female	7,589	1.8	33,347	8.1	373,293	90.1
Age 18+	976,226	13.2	1,559,583	21.1	4,856,294	65.7
Male	607,167	16.9	972,734	27.0	2,022,631	56.1
Female	369,059	9.7	586,849	15.5	2,833,663	74.8

Deaths		Due to Smoking	
	Total	Number	%
Total	57,629	8,270	14.4
Male	29,346	5,142	17.5
Female	28,283	3,128	11.1

Los Angeles

Years of Potential Life Lost	Number of Years	Per Death
Total	142,077	17.2
Male	90,087	17.5
Female	51,990	16.6

Lost Productivity from Premature Death	Amount (1,000)	Per Death
Total	$1,733,158	$209,576
Male	1,370,987	266,622
Female	362,171	115,792

What is the total cost of smoking in California?

- $18.1 billion ($2009) ($20.0 billion in 2014 dollars)
  - $9.8 billion for healthcare costs
  - $1.4 billion for lost productivity from illness (value of lost time)
  - $6.8 billion for lost productivity from mortality (value of lost lives)

- $487 for each resident of California
- $4,603 for each smoker in the state

- Varies among counties

What is the cost of smoking per pack of cigarettes?

- The total cost of smoking is $17.46 per pack
  - The healthcare cost is $9.23 per pack
  - The value of lost productivity from illness and death is an additional $8.23 per pack

How does the cost of smoking compare to tax revenues from cigarettes?

- The cost of smoking is $21 for every dollar of cigarette tax revenue generated

- Note that this was before Prop 56 increased the tax per pack of cigarettes from $0.87 to $2.87

How many years of potential life are lost due to smoking?

- 587,000 years
  - 354,000 for males
  - 233,000 for females
- 17.1 years are lost per smoking-attributable death

How do these costs compare to those estimated 10 years ago?

- The number of smoking-attributable deaths decreased by 20%
- The nominal cost of smoking increased by 15%
- After taking inflation into account, *the real cost of smoking decreased by 22%*

Our findings in summary

- Many Californians still smoke and smoking-attributable costs remain high
- There is a wide range of costs among counties
- Tax revenues do not come close to covering the costs of smoking
- California tobacco control programs are having an impact but there is still work to be done!

The full report is available at: https://www.trdrp.org/files/cost-smoking-ca-final-report.pdf

There are different ways to present these findings to your audience

How we say it in a journal article

Almost 15% of all deaths in the state (34 363 deaths) were attributed to smoking in 2009, as shown in Table 3. The largest number of deaths was from cancer (13 514), followed by cardiovascular disease (10 490), and respiratory disease (10 331). In addition, 27 infants died as a result of being exposed to their mother's smoking while pregnant.

Table 2. Cost of Smoking by Type of Cost and Gender, California, 2009

Type of cost and gender	Amount (thousands)	Percent distribution	Per resident	Per smoker
Total	$18 058 012	100.0	$487	$4603
Direct cost	9 830 115	54.4	265	2505
Hospital	4 310 875	23.9	116	1099
Ambulatory	2 058 077	11.4	56	525
Nursing home care	1 517 363	8.4	41	387
Prescriptions	1 149 527	6.4	31	293
Home health	794 273	4.4	21	202
Indirect cost	8 227 898	45.6	222	2097
Illness	1 430 618	7.9	39	365
Premature death[a]	6 797 280	37.6	183	1732
Men, total	11 657 133	100.0	632	4760
Direct cost	5 642 380	48.4	306	2304
Hospital	2 754 518	23.6	149	1125
			53	403
			47	352
			32	238
			25	186
			326	2456
			46	346
			280	2110
			344	4340
			225	2840
			84	1055
			58	727
			35	444
			30	384
			18	230
			119	1501
			31	395
			88	1106

smoker, respectively.

Almost 15% of all deaths in the state (34 363 deaths) were attributed to smoking in 2009, as shown in Table 3. The largest number of deaths was from cancer (13 514), followed by cardiovascular disease (10 490), and respiratory disease (10 331). In addition, 27 infants died as a result of being exposed to their mother's smoking while pregnant.

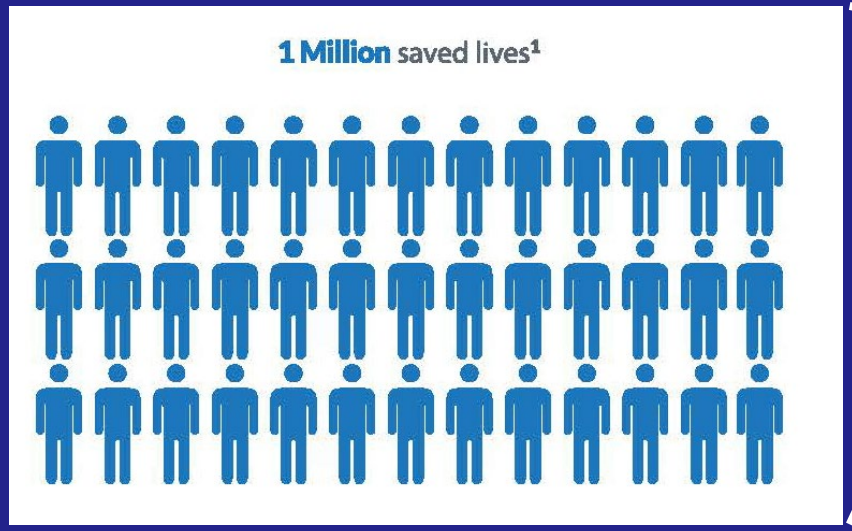
These smoking-attributable deaths resulted in a loss of over 17 years of potential life per death, but there was considerable range among diseases. The value of lost productivity per death was almost $200 000, and ranged from almost $85 000 for atherosclerosis to $537 000 for cervical and uterine cancer. The lost productivity for children was 81 years of life and $1.3 million per death.

Discussion

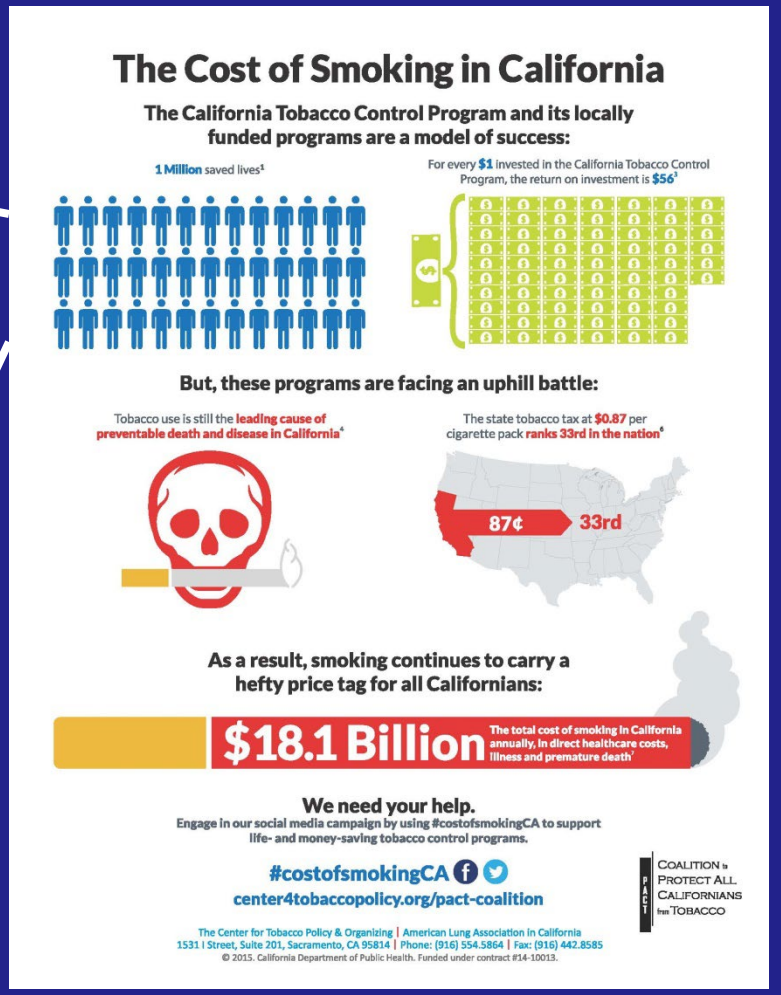
This is the third in a series of studies estimating the cost of smoking in California, following studies conducted for 1989[6] and 1999.[1] We estimated the cost of smoking for 1999 at $15.8 billion and for 1989 at $7.6 billion. It is difficult to compare the current estimates to 1989 because the methodology used was completely different. However, the models used here are similar to those used a decade ago, and those estimates can be reasonably compared.

e total economic cost of smoking is 15%
ıte, $18.1 billion compared to $15.8 billion in current dollars (Table 4). However, after adjusting for inflation, a very different picture emerges. The real inflation-adjusted value of the 1999 total cost of smoking expressed in 2009 constant dollars is estimated to be $20.8 billion. Therefore, while the nominal cost of smoking in California increased by 15% during 1999–2009, the real costs of smoking after taking inflation into account actually decreased by over 13% during this period.

The real cost of direct healthcare services attributable to smoking fell by over 10% between 1999 and 2009. Costs for every type of healthcare service except home health fell, with reductions in real costs ranging from 7% for nursing home care to 22% for ambulatory care. These differences result from three factors. First, there was wide variation in changes in healthcare expenditures by type of service in California during this 10-year period, ranging from the highest nominal growth rate of 353% for home health care, to 136% for prescriptions, 110% for hospital care, 95% for nursing home care, and 66% for ambulatory care.[16] Second, the SAF estimates for 2009 were smaller than the SAF estimates for 1999 for all types of healthcare expenditures except home health care, reflecting declining smoking prevalence rates. In 1999, the SAF estimates were 0.05, 0.10, 0.12, 0.04, and 0.23 for ambulatory care, prescriptions, hospital care, home health care, and nursing home care, respectively. In 2009, the corresponding SAFs were 0.03, 0.04, 0.06, 0.09, and 0.14, respectively. Therefore, the SAF for home health care more



How we would present similar information in graphic terms



Still another approach

County Health Department Chronicle

SMOKING COSTS SAN LUIS OBISPO COUNTY MILLIONS!

The Costs of Smoking

The adverse health effect of smoking imposes an enormous economic burden on society, encompassing the cost associated with the use of medical resources and the value of productivity lost due to illness and premature death.

The cost of smoking in California includes three components: direct, morbidity, and mortality costs. The direct cost is comprised of payments, including expenditures for hospital and nursing home care, physician and other professional services, and medications. The morbidity cost is the value of productivity lost by persons unable to perform their usual activities or unable to perform them at full effectiveness due to illness resulting from smoking. The mortality cost is the value of productivity lost due to premature death resulting from smoking-attributable disease.

Smoking annually imposes a multibillion dollar burden on Californians — $7.6 billion in 1989. Annual cigarette sales in California amount to $4.3 billion compared with $7.6 billion for the cost of the adverse health effects of smoking.

Charging California smokers for smoking-related medical costs and productivity losses would add $3.43 to the price of each pack of cigarettes.

Smokers vs. Ex-Smokers vs. Lifetime Nonsmokers

CHANCE OF DYING IN THE NEXT 15 YEARS

SMOKERS: Persons aged 55-59 who were smoking 1 pack or more of cigarettes per day and continued to smoke

EX-SMOKERS: Persons aged 55-59 who were smoking 1 pack or more of cigarettes per day but quit smoking at that age

LIFETIME NONSMOKERS: Persons aged 55-59 who have never smoked cigarettes

INFORMATION TAKEN FROM:
THE COST OF SMOKING IN CALIFORNIA, 1989
BY: DOROTHY P. RICE AND WENDY MAX
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO

Annual Cost of Smoking in San Luis Obispo

Per Resident: $222.98

Per Smoker: $1489.17

The total annual cost of smoking in morbidity (indirect costs from illness & disability) and mortality (premature deaths) in SLO County is:

$48,424,000

DEATH FACTOID: Preventable Causes of Death

(Source: Smoke Free Education Service 1991)

Five Million Californians Smoke

In our county there are an estimated 32,300 smokers, i.e. 500 per square mile, 18,200 are women.

In 1987, 26.8 percent of adults smoked; by 1990, the smoking rate declined to 21.6 percent (from U.S. Public 1990). The smoking rate among adolescents was 9.3 percent. Using prevalence estimates slightly underestimates the number of current smokers because some former smokers will resume smoking.

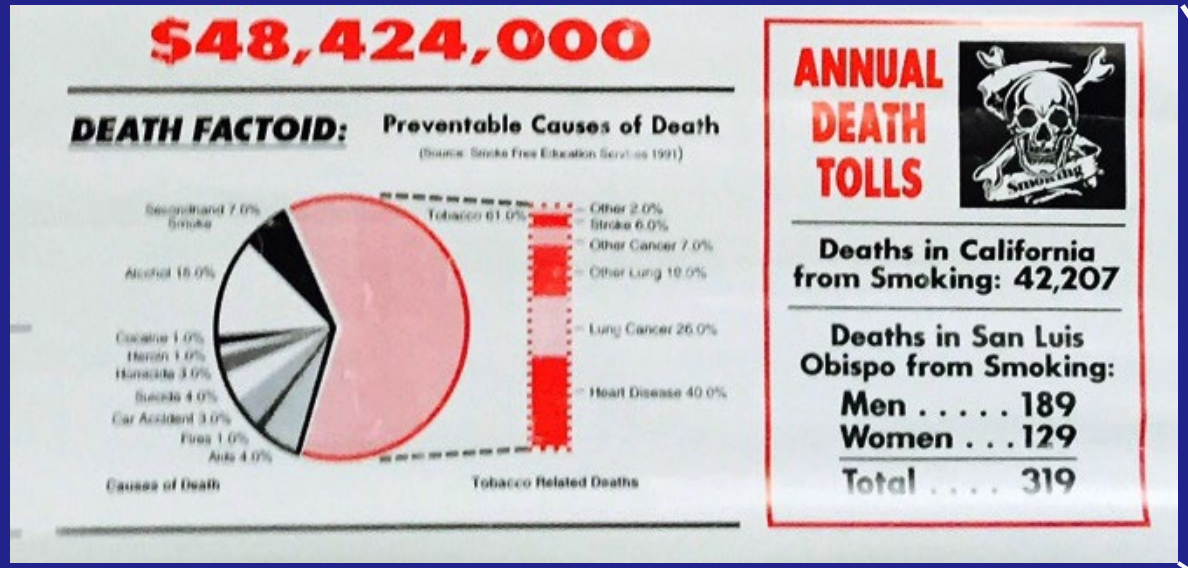
The cost of smoking to women's health in California is $2,278,160,000. The cost to SLO County women is: $14,723,000

ANNUAL DEATH TOLLS

Deaths in California from Smoking: 42,207

Deaths in San Luis Obispo from Smoking:

Men 189
Women . . . 129
Total 319


$48,424,000
DEATH FACTOID:
Preventable Causes of Death
Secondhand Smoke 7.0%
Alcohol 10.0%
Cocaine 1.0%
Heroin 1.0%
Homicide 3.0%
Suicide 4.0%
Car Accident 3.0%
Fires 1.0%
Aids 4.0%
Tobacco 61.0%
Other 2.0%
Stroke 6.0%
Other Cancer 7.0%
Other Lung 10.0%
Lung Cancer 26.0%
Heart Disease 40.0%
Causes of Death
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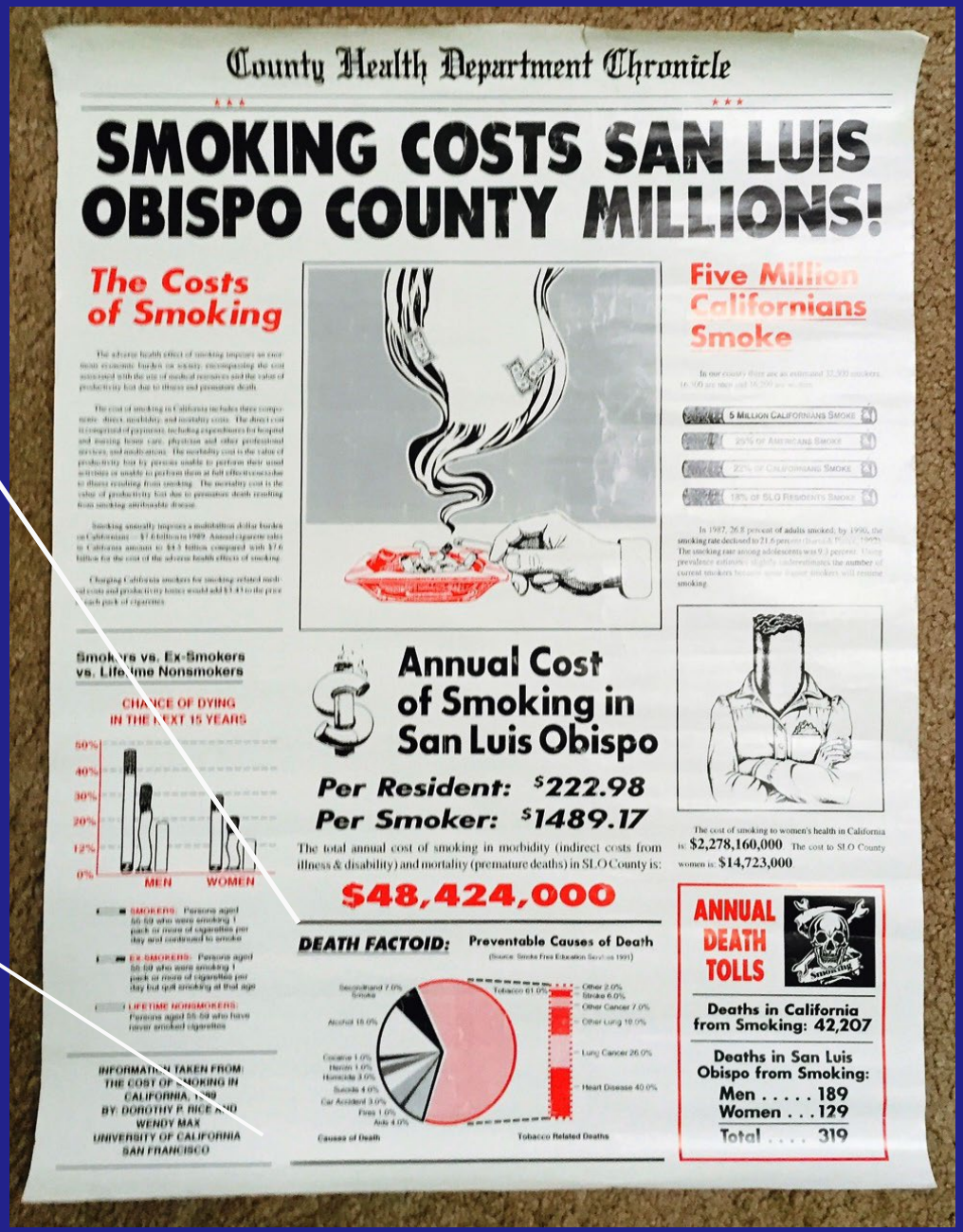
County Health Department Chronicle
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50%
40%
30%
20%
12%
0%
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Extended the work to look at underrepresented communities in CA

African Americans bear a disproportionate share of the cost of smoking

- Highest adult smoking prevalence rates
- Highest total cost of smoking per smoker
- Represent 6% of CA adult population but
  - 10% of total economic cost of smoking
  - 8% of smoking-attributable healthcare expenditures
  - 13% of smoking-attributable mortality costs

The findings for Hispanics are less clear

- Among the lowest adult smoking prevalence rates
- Large number of smokers
- High mortality cost per death and high YPLL per death

SCHOOL OF NURSING
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

African Americans Bear a Disproportionate Share of the Cost of Smoking in California

African Americans smoke at higher rates than other racial/ethnic groups in California

- 19.3 percent of African American adults, compared to 13.1 percent of Hispanic adults and 16.1 percent of all other adults currently smoke cigarettes
- Smoking is highly prevalent among both African American men and women. 21.4 percent of African American men and 17.3 percent of African American women currently smoke

Smoking-attributable healthcare expenditures among African Americans are substantial

- Smoking-attributable healthcare expenditures amount to $400 for every African American adult in California
- Smoking-attributable healthcare expenditures amount to $2,192 for every African American adult smoker in the state

Smoking-attributable mortality among African Americans from cardiovascular disease, cancer, and respiratory disease is high

- While African Americans comprise 6.2 percent of the population of California, they account for 7.6% (3,013) of the smoking-attributable deaths in the state
- African Americans lose more years of life per death (16.3 years) than Hispanics (14.6 years) and all others (12.0 years) due to smoking-attributable causes
- African Americans suffer greater productivity losses ($260,000) than other groups due to smoking-attributable deaths

Smoking imposes a great economic burden on the African American community in California

- They incur 10 percent of all smoking-attributable costs ($1.4 billion), including 8 percent of smoking-attributable healthcare expenditures ($629 million); and 13 percent of smoking-attributable mortality costs ($784 million)
- Healthcare and mortality costs amount to $898 for each African American adult and $4,922 for each African American adult smoker in California
- While the tobacco industry has sponsored scholarships, sports events, and other activities specifically for African Americans*, the community should carefully consider these benefits in light of the economic burden that results from smoking

Note: All data are for 2002

* King G, Gebraselassie T, Mallett RK, Kozlowski L, Bendel RB. Opinions of African Americans about tobacco industry philanthropy. Preventive Medicine Article in press, available online July 31 2007. http://www.sciencedirect/science?_ob=ArticleURL&_udi.

Source: Max W, Sung HY, Tucker LY, Stark B. 2010. The disproportionate cost of smoking for African Americans in California. *AJPH* 100 (1): 152-158. Published first online at www.ajph.org, *First Look*.
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The Economic Impact of Smoking on the Hispanic Community in California is Large Despite Low Smoking Prevalence

A large number of Hispanics adults in California smoke

- Hispanic smokers make up 25 % of all adult California smokers (nearly one million)
- Hispanic smokers are overwhelmingly male; 18.7 percent of Hispanic men are current smokers while only 7.2 percent of Hispanic women smoke
- The numbers don't tell the whole story; some subgroups in the community are known to smoke at much higher rates and would have much higher costs than average

Hispanic Californians spend $666 million on healthcare (2002) due to smoking-attributable diseases

- Over $300 million is spent on hospital care and nearly $200 million is spent for physician and other outpatient care
- Smoking-attributable healthcare expenditures amount to over $726 for every Hispanic adult smoker in the state

Over 3000 Hispanic Californians die a year from smoking-attributable cardiovascular disease, cancer, and respiratory disease

- Smoking led to the deaths of 1,455 Hispanics from cardiovascular disease, 968 from cancer, and 581 from respiratory disease
- Hispanic Californians lose more years of life (14.6) from each smoking-attributable death than all other ethnic/racial groups except African Americans
- Hispanic Californians suffer greater productivity losses per death ($237,000) from smoking-attributable deaths than all other groups in the state except African Americans

There is a vast economic impact due the size of California's Hispanic community, although smoking prevalence is relatively low among Hispanic adults (13.1%)

- Total smoking-attributable healthcare and mortality costs for Hispanic Californians was nearly $1.4 billion in 2002, representing $1,500 for every adult Hispanic smoker
- High mortality costs per death and high number of years of potential life lost plague the Hispanic community because they commonly die from smoking-attributable diseases at young ages

Targeted tobacco control programs are needed for specific subgroups within the Hispanic community

- Programs should focus on helping Hispanic men to quit smoking
- Programs for Hispanic women should focus on maintaining their low rate of smoking prevalence
- Programs need to be culturally tailored for specific Hispanic subpopulations with higher smoking prevalence

Note: All data are for 2002
Source: Wendy Max, Hai-Yen Sung, and Lue-Yen Tucker, Institute for Health & Aging, University of California, San Francisco. Unpublished findings from *The Disproportionate Cost of Smoking for Communities of Color*, a research project funded by the California Tobacco-Related Disease Research Program (Grant # 13RT-0030).
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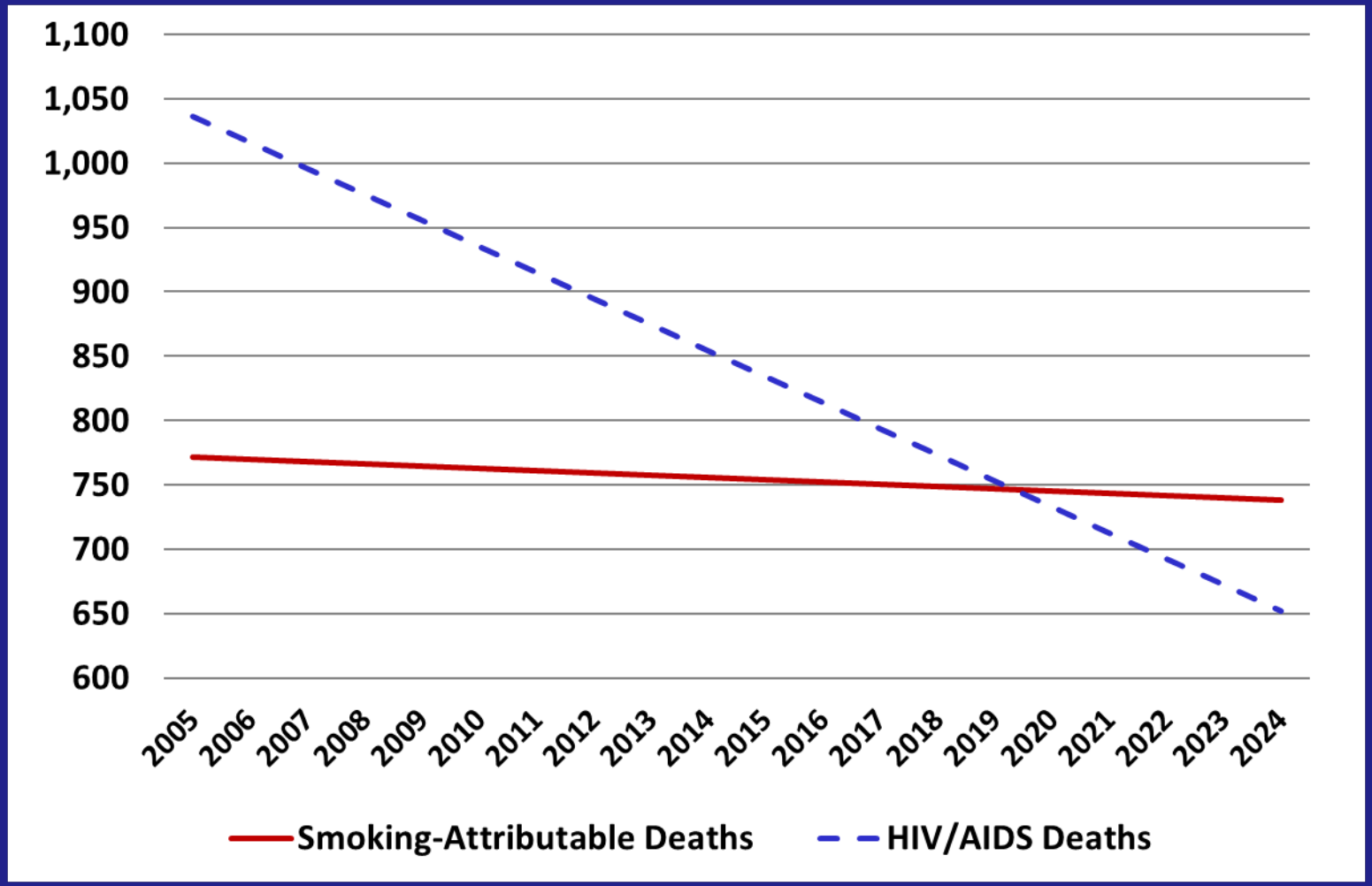
We also extended the work to CA's lesbian, gay, and bisexual community

Predicted Annual Deaths Among Gay/Bisexual Men from Smoking and HIV/AIDS: CA, 2005-2024



Secondhand Smoke Exposure

ADHD Costs Attributable to SHS Exposure in the US

- ADHD healthcare costs attributable to SHS exposure
  - $644 million for reported exposure
- SHS-attributable ADHD costs to the education system
  - $2.9 billion
- Costs to education system are 4.5 times the costs to the healthcare system
- Educators should be strong allies in reducing SHS exposure (for financial reasons!)

3. How this work has been used to evaluate the impact of tobacco control policies in CA

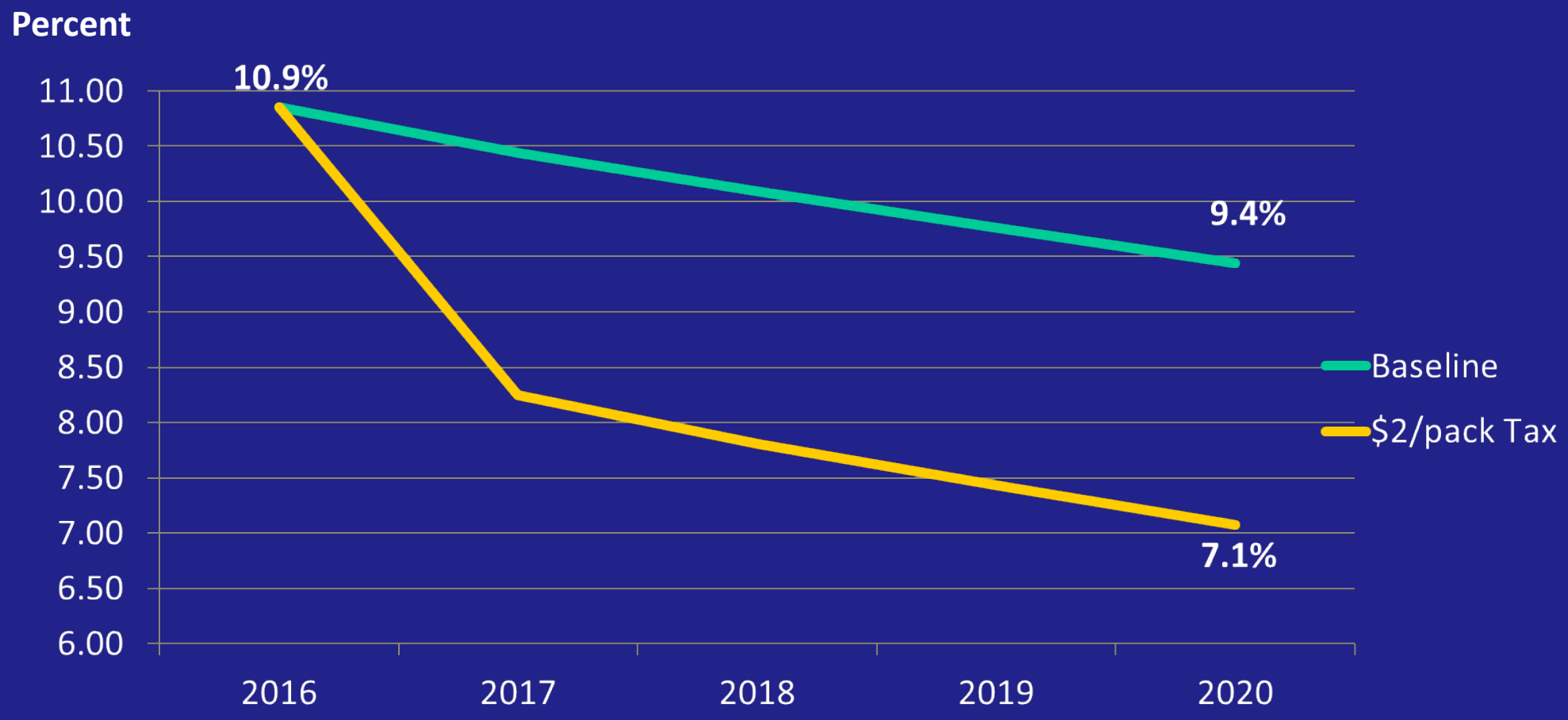
- Increase in the tobacco excise tax (Proposition 56)
- MIQS (MediCal Incentives to Quit Smoking)
- Tobacco 21
- General evaluation of CA's Tobacco Control Program
- 1998 Attorneys General Tobacco Litigation

What would be the impact of a $2/pack cigarette tax on smoking prevalence and healthcare costs?

Approach

- **Smoking prevalence estimated by comparing prevalence in CA with a group of control states**
- **Smoking-attributable healthcare expenditures estimated by comparing 2 scenarios**
  - **Baseline Case (status quo):** Tobacco control funding continues at current level of 5¢/pack
  - **$2.00/pack tax increase in 2017** (assumes that 11.5% of revenues would go to tobacco control after backfill commitments)

Smoking Prevalence Under 2 Scenarios: 2016-2020



Savings in Healthcare Expenditures from a $2.00/pack Tax Compared to Baseline: 2017-2020 ($ millions 2015)

Cumulative savings (2017-2020): $4.069 billion

Summary of Tobacco Tax Work

- CA's highly successful tobacco control program will become less effective over time due to inflation eroding the funding allocated to tobacco control activities
- More aggressive action is needed to reduce smoking prevalence healthcare expenditures in the future
- An increase in the tobacco tax is a highly effective way to reduce smoking, by both funding tobacco control activities and increasing tobacco prices

University of California
San Francisco
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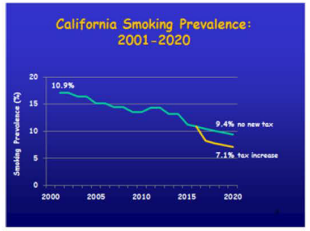
A $2.00 per pack increase in the tobacco excise tax will reduce smoking, save billions in healthcare expenditures, and create thousands of California jobs

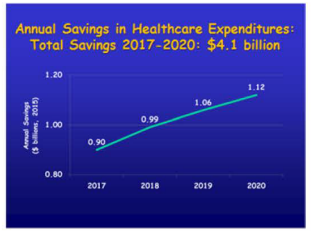
Smoking prevalence in California will be more than 2 percentage points lower in 2020 with the tobacco tax increase

- In 2020 just 7.1% of California adults will smoke, and the remaining smokers will smoke less
- Smoking rates drop quickly because of the combined effect of higher prices and a larger reinvigorated tobacco control program
- Fewer smokers will mean fewer smoking-caused deaths and fewer nonsmokers breathing secondhand smoke



The tobacco tax increase will save billions of dollars in healthcare expenditures because fewer people will get sick

- Annual savings in healthcare expenditures will be $900 million in 2017, increasing to $1.12 billion in 2020
- Cumulative savings will total $4.1 billion between 2017 and 2020
  - Hospitalization costs will be $2 billion lower
  - Outpatient costs will be $1 billion lower
  - Medication costs will be $650 million lower



90 million fewer packs of cigarettes will be smoked

- The tobacco industry will lose $250 million in sales every year
- Because no tobacco is grown and no cigarettes are manufactured in California, most of the money spent on cigarettes leaves the state and goes to Phillip Morris, RJ Reynolds, and their suppliers
- When people smoke less, they will spend the money they save on goods that contribute to the California economy, creating 8,600 new jobs and increasing California economic activity by nearly $700 million a year

Sources: (1) Max W, Sung HY, Lightwood J. *The Effect of a $2.00 per Pack Increase in the Tobacco Excise Tax on Smoking and Healthcare Expenditures: 2017-2020*. Available at: http://escholarship.org/uc/item/4g6677fg (2) Lightwood J, Glantz S. *Economic Impact of the California Healthcare, Research and Prevention Tobacco Tax Act of 2016. Job Creation and Economic Activity*. 2012. Available at: http://escholarship.org/uc/item/9g738223. (3) Max W, Sung HY, Lightwood J. The impact of changes in tobacco control funding on healthcare expenditures in California, 2012–2016. *Tobacco Control* 2013;22:e10-e15. (4) Lightwood J, Glantz S. The Effect of the California Tobacco Control Program on Smoking Prevalence, Cigarette Consumption, and Healthcare Costs: 1989–2008. *PLoS One* 2013;8(2):e47145.

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CONCLUSION: How can economic analyses be helpful in your work?

- Another dimension to use in measuring the impact of what you are doing
- Economic costs are useful for comparing across different types of programs (cost-effectiveness or cost-benefit analysis)
- Costs are a metric that legislators understand
- BUT there are limitations to be acknowledged:
  - In adding up costs, you may not necessarily take account of particular groups you want to target
  - You may miss aspects of your programs that are important (keeping kids in school, reducing outcomes that occur in the distant future…)

Thanks for listening!