

# Public Health Campaigns in the Age of Ubiquitous Media: Promise and Peril

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*NIH Lecture Series in honor of*

*Dr. Matilda White Riley*

# Media use in health campaigns

- Role of mass media in community
- Community studies' media programs
- Effects
- Lessons learned
- Media system change
- Issues raised by September 11

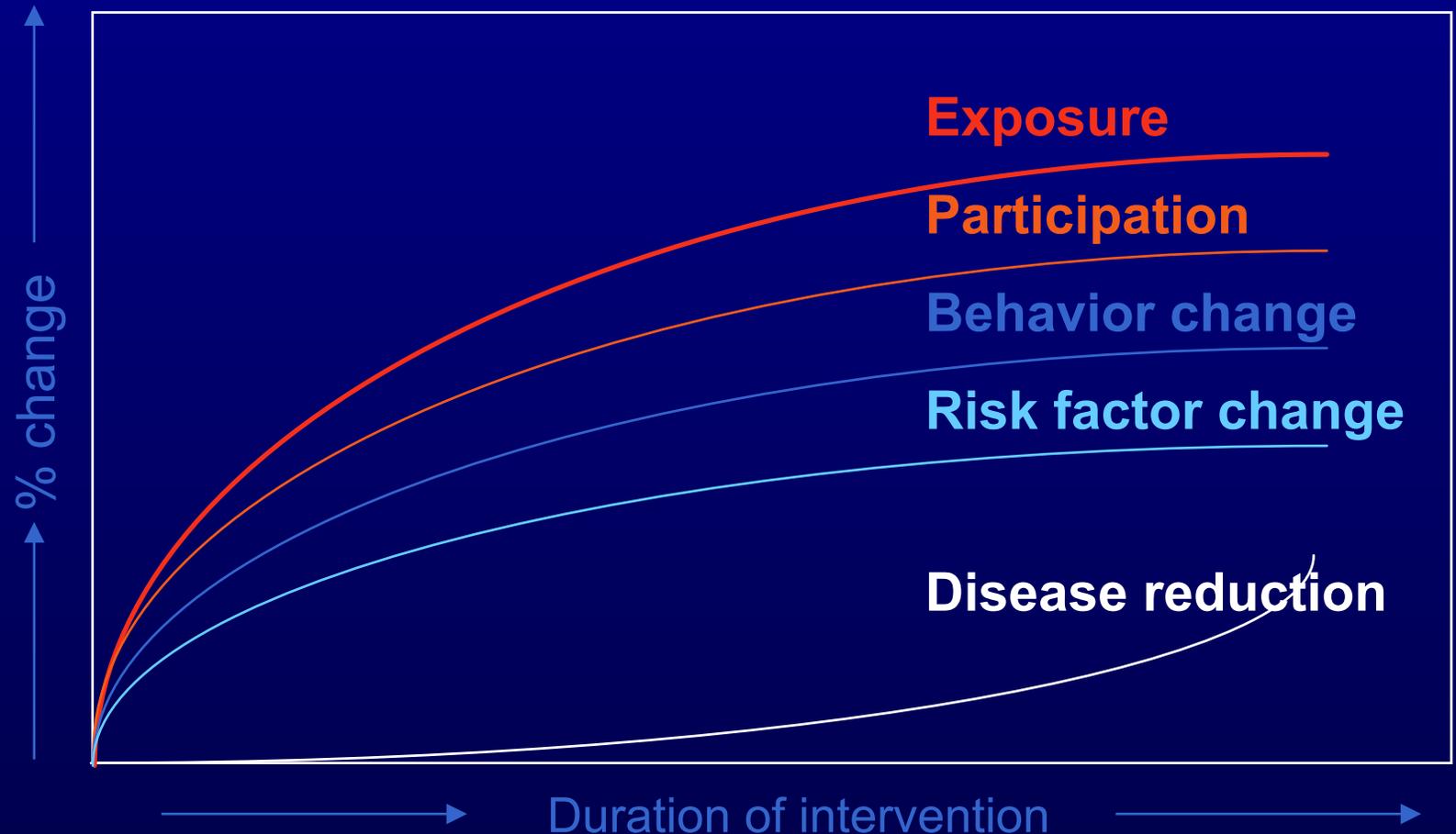
# Community perspectives on media roles

- Tichenor, Olien & Donohue (1970)  
The more information that flows into a community about an issue or problem, the greater the disparities that will exist among population subgroups especially based in socioeconomic differences
- *The Knowledge Gap*

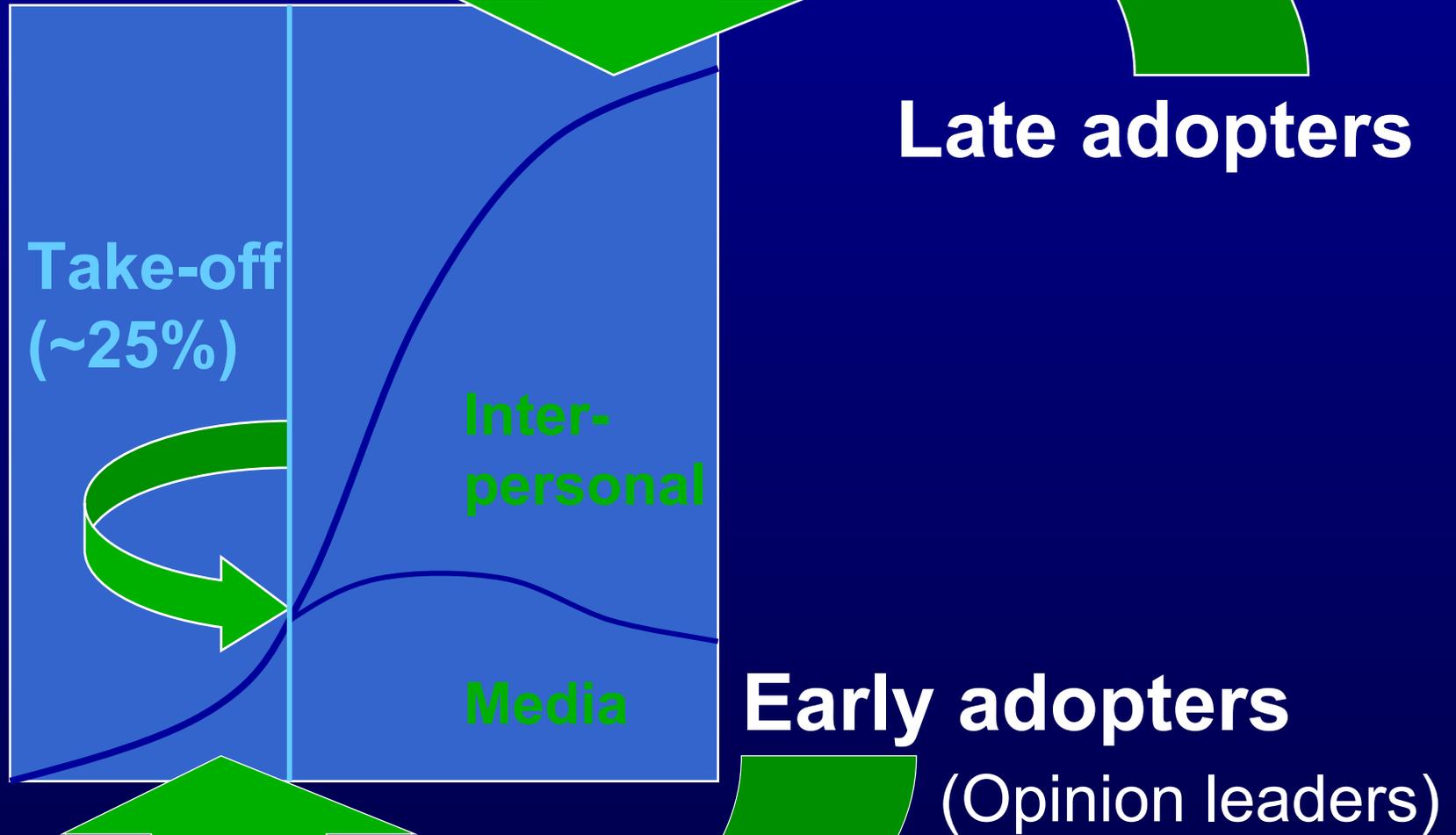
# Mass media roles

- Community mobilization
  - Agenda building (media attention)
  - Media framing (meaning)
- Individual effects (voluntary change)
  - Cognitive
  - Motivational
  - Behavioral

# Conceptual model



# Diffusion of information



# Exposure

Affected by:

- Socioeconomic status (SES)
  - access; literacy, information processing skills
- Culture/ethnicity
- Gender, Age
- Type of community
  - media rich, media poor
- Community dynamics (e.g., conflict)
- Issue characteristics

# An important insight...

“For every complex problem,  
there is a single solution that  
is simple, neat, and wrong.”

*Henry L. Mencken*



*Stern, et al, Circulation (1976) 54: 5, 826-833.*

# First generation trials: Stanford Three-City Study

- City A: reference (no intervention)
- City B: Mass media intervention only
- City C: Mass media plus education of high-risk persons

# Stanford Three-City Study

- Results (at 1 year)
  - Intervention cities significantly improved compared to reference on:
    - CVD risk factor knowledge
    - decrease in saturated fat intake, cholesterol
    - decrease in cigarette smoking
    - decrease in systolic BP
  - Changes were larger in City C (mass media plus education of high-risk persons)

*Fortmann, et al (1982) Circulation 66:1, 77-82*

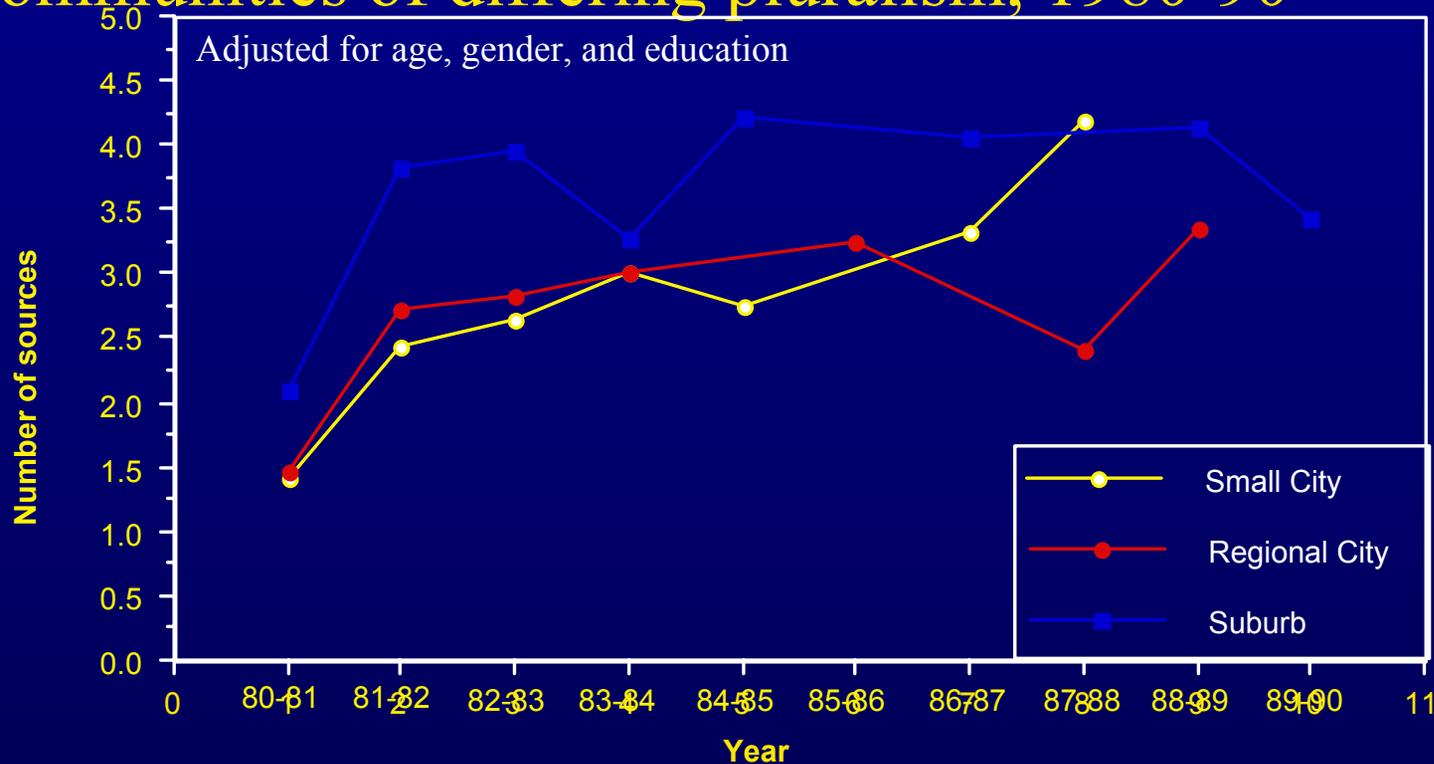
## Does dietary health education reach only the privileged? Stanford Three-City Study

- Over three years, all SES groups reported significant decreases in fat, cholesterol consumption
- Spanish-speaking showed greatest improvement irrespective of SES
- Suggested carefully targeted campaigns could overcome cultural, SES barriers to education effects

# Results: SHDPP Three-City

Study	Outcome & group compared	Design	% relative change from baseline	Treatment/control difference (p value)
Stanford 3-city 1972-75	Overall CHD risk after 2 yrs	Treat (2)	-18%	p < .05
		Control (1)	+8%	

# Minnesota Heart Health Program Exposure to CVD information sources in three communities of differing pluralism, 1980-90



Model  $F[41,24] = 34.71, p = .0001, \text{adj. R-square} = .955$

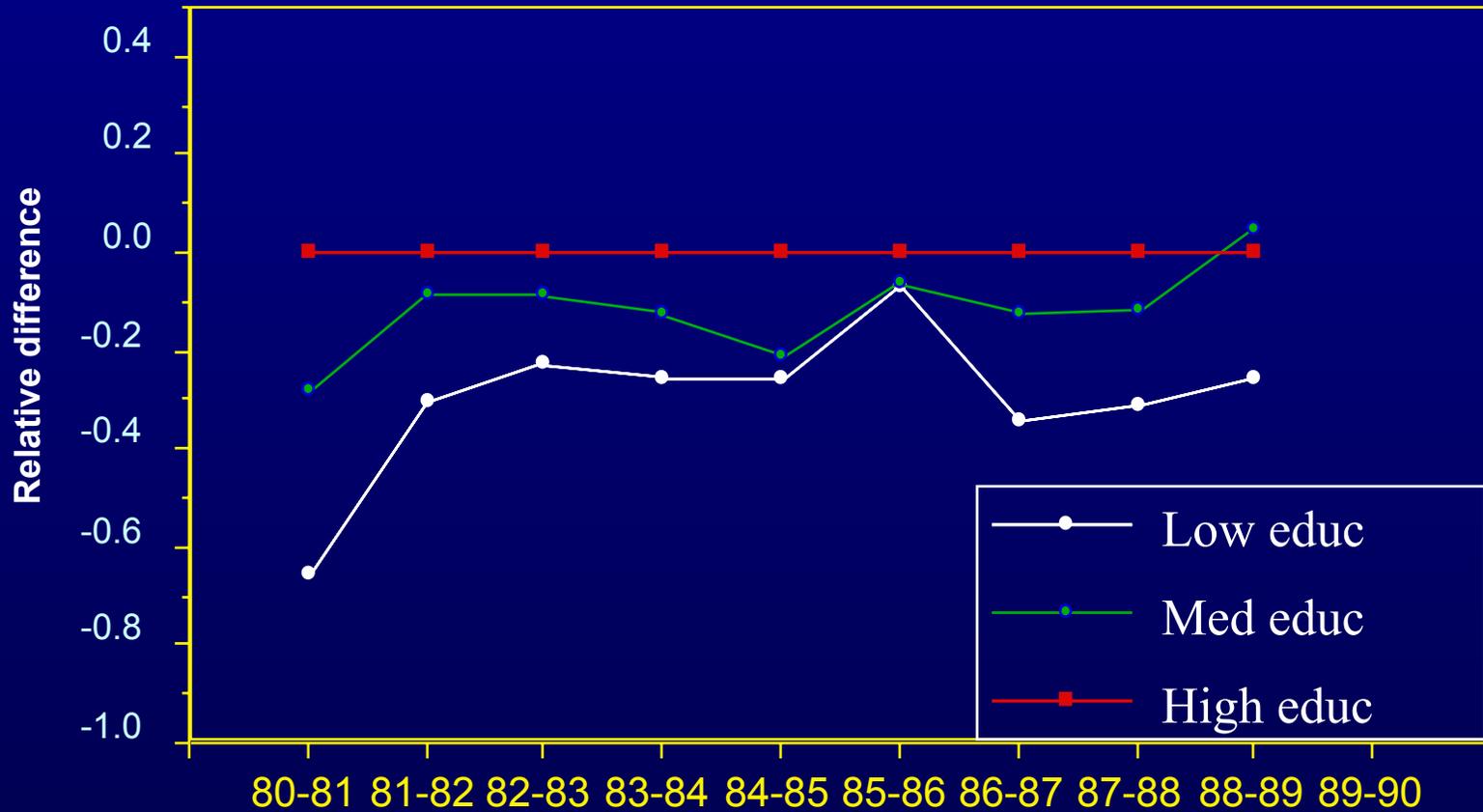
Community  $F[2,24] = 6.51, p = .015$

Time  $F[9,24] = 5.37, p = .007$

Interaction  $F[10,24] = 14.02, p = .0001$

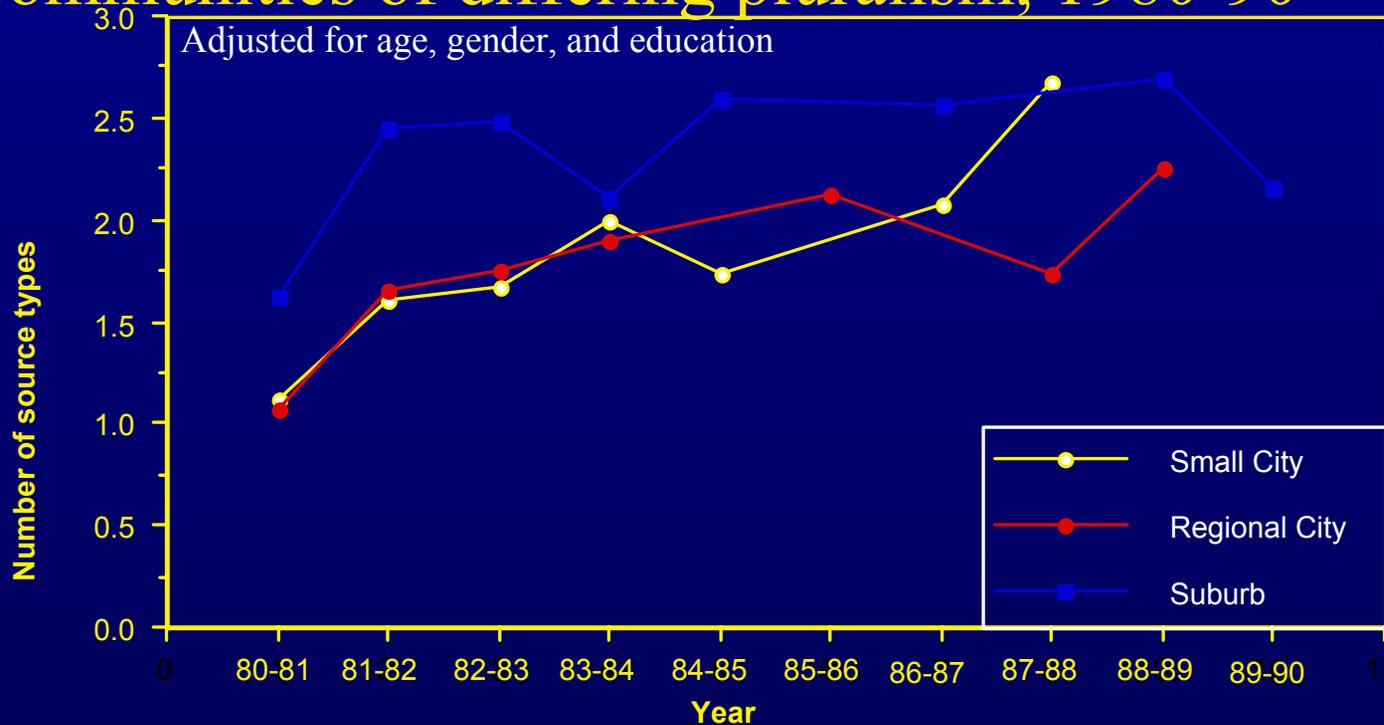
## Minnesota Heart Health Program

# SES differences in exposure to heart health information sources



Education  $F[2,24] = 20.34, p = .0002$  Education x Time  $F[18,24] = 3.79, p = .0014$

# Minnesota Heart Health Program Diversity of CVD information sources in three communities of differing pluralism, 1980-90



Model  $F[41,24] = 30.79, p = .0001, \text{adj. R-square} = .949$

Community  $F[2,24] = 10.08, p = .004$

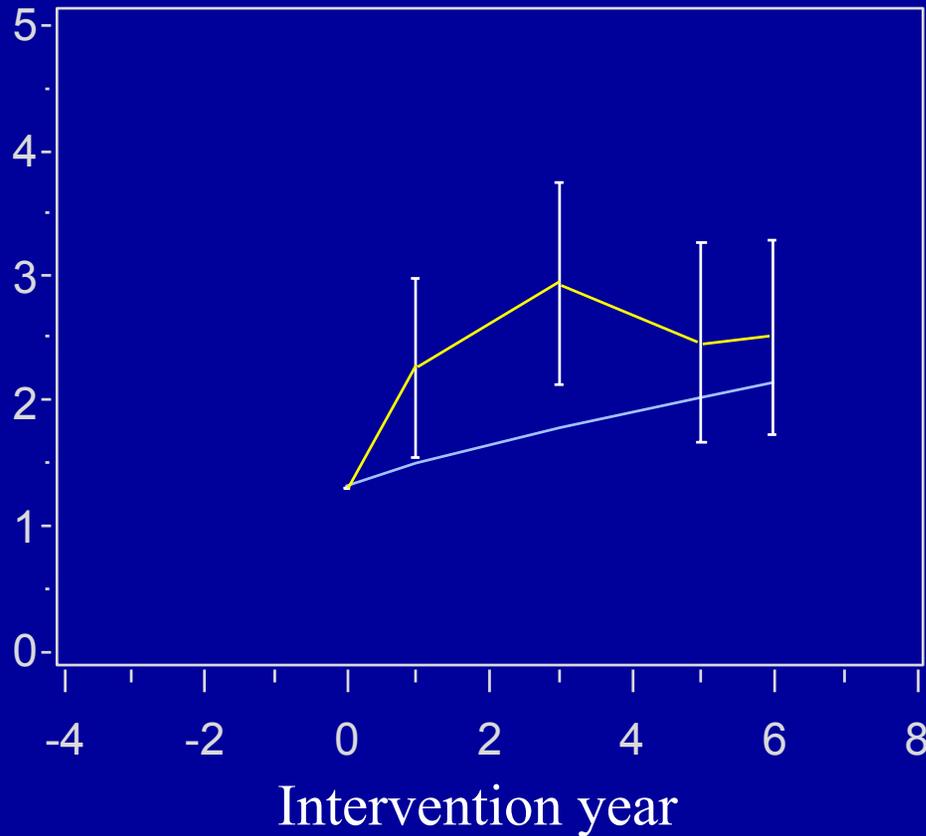
Time  $F[9,24] = 5.71, p = .006$

Interaction  $F[10,24] = 9.28, p = .0001$

## Minnesota Heart Health Program

# 10-point exposure score

Cross-section



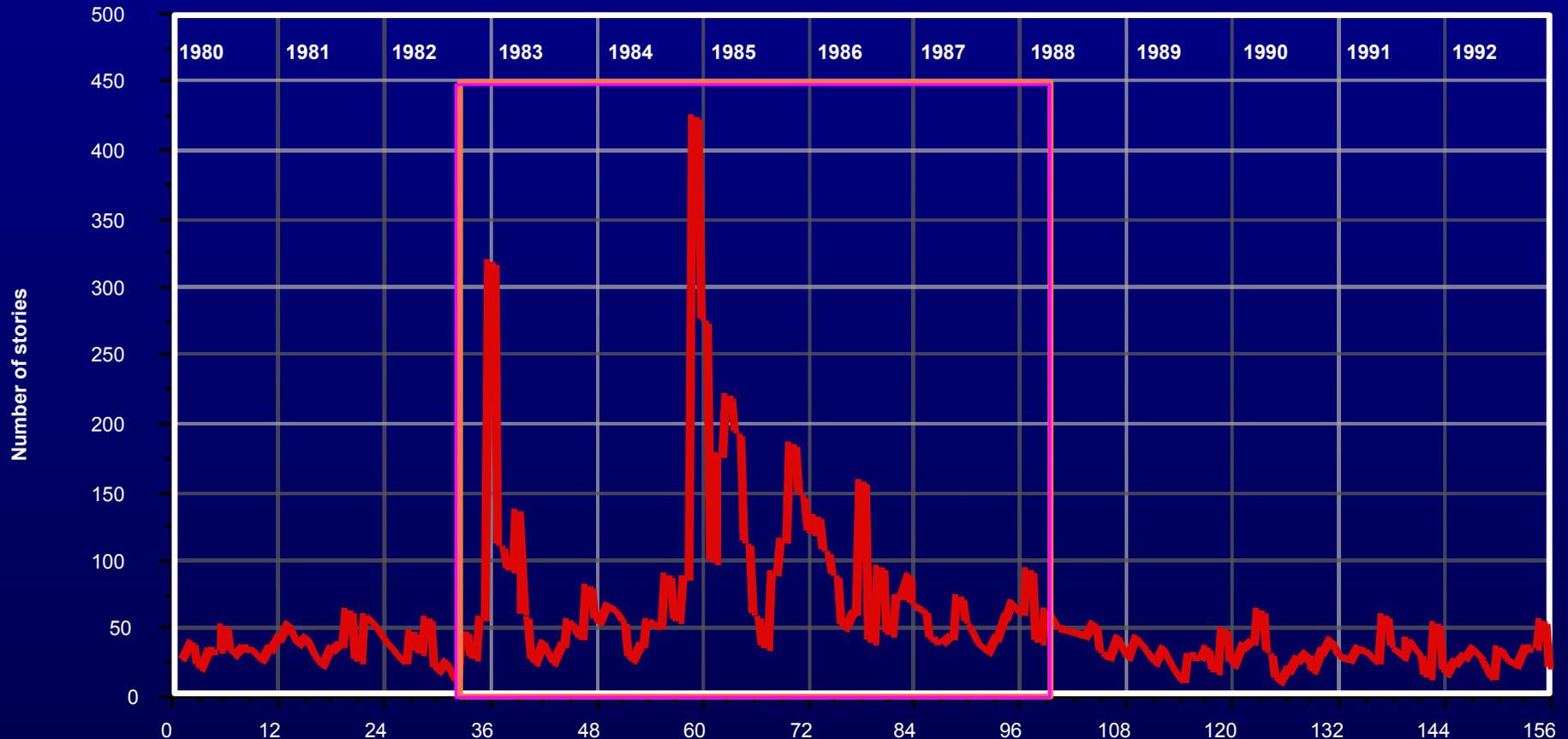
Fitted trend

Intervention effect

95% Confidence limits

Adjusted for age, gender,  
and educational attainment

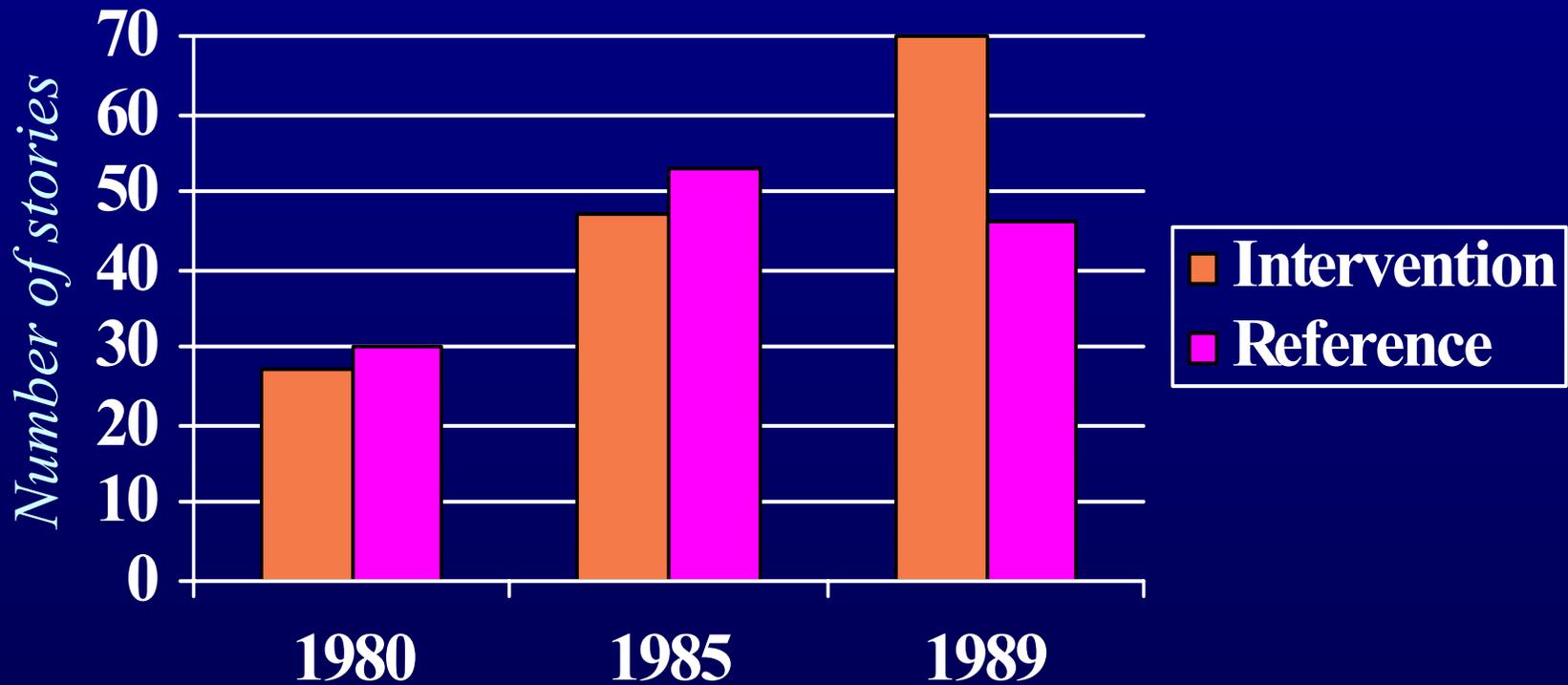
## Heart disease news coverage: 8 major-market newspapers and 3 TV networks, 1980-92\*



\*NY Times, Washington Post, Detroit Free Press, Chicago Tribune, New Orleans Times-Picayune, St. Louis Post-Dispatch, LA Times, San Francisco Chronicle, ABC, CBS, NBC

*Finnegan & Sosale (1997), 4th International Conference on Preventive Cardiology, Montreal, June 29-July 3.*

# Media agenda effects: MHHP



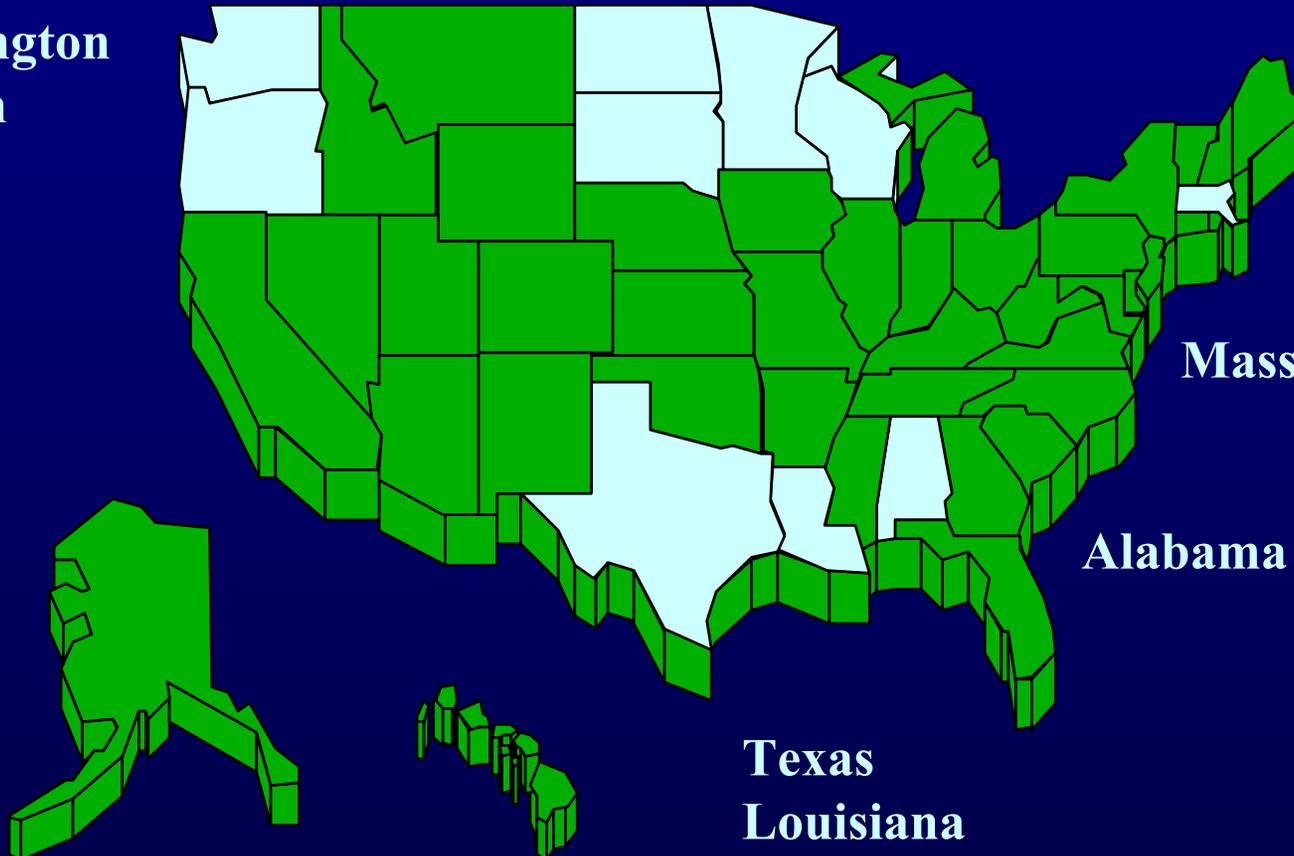
*Heart health stories in community newspapers  
(Constructed-week content analysis; N = 6 newspapers)*

# REACT Study sites

Minnesota, Wisconsin

North Dakota, South Dakota

Washington  
Oregon



Massachusetts

Alabama

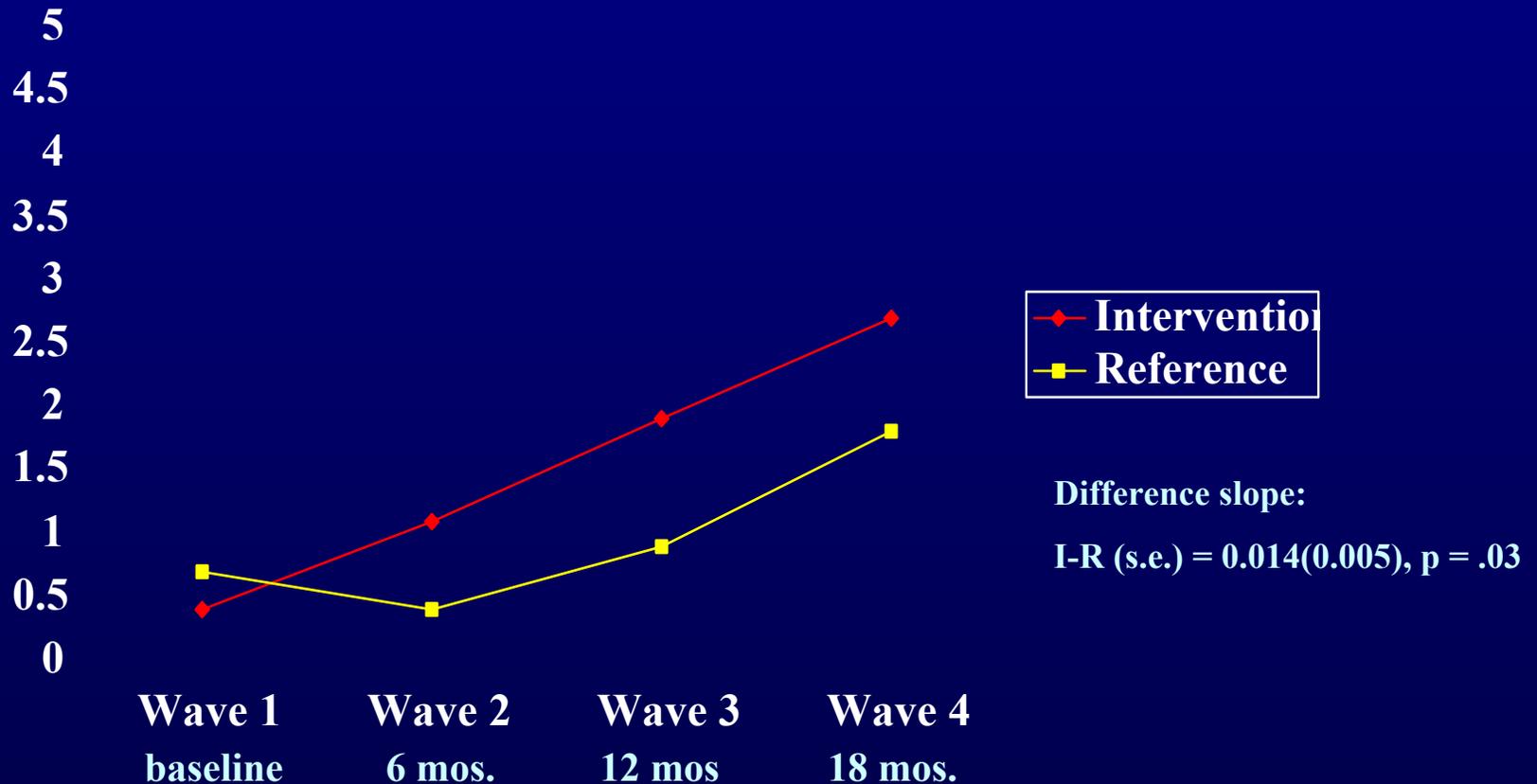
Texas  
Louisiana

# Intervention strategies

- Community organization
- Public education
  - Media
  - Group presentations
  - Magnet events
- Professional education
- High-risk patient education

# REACT Public phone survey

**Spontaneous mention of heart attack messages:** “Thinking back over the past month, what kinds of messages about health do you recall...”



# REACT Study: All Emergency Presentations

1.6

20% increase intervention relative to reference

1.4

1.2

Ratio of  
Intervention  
Reference

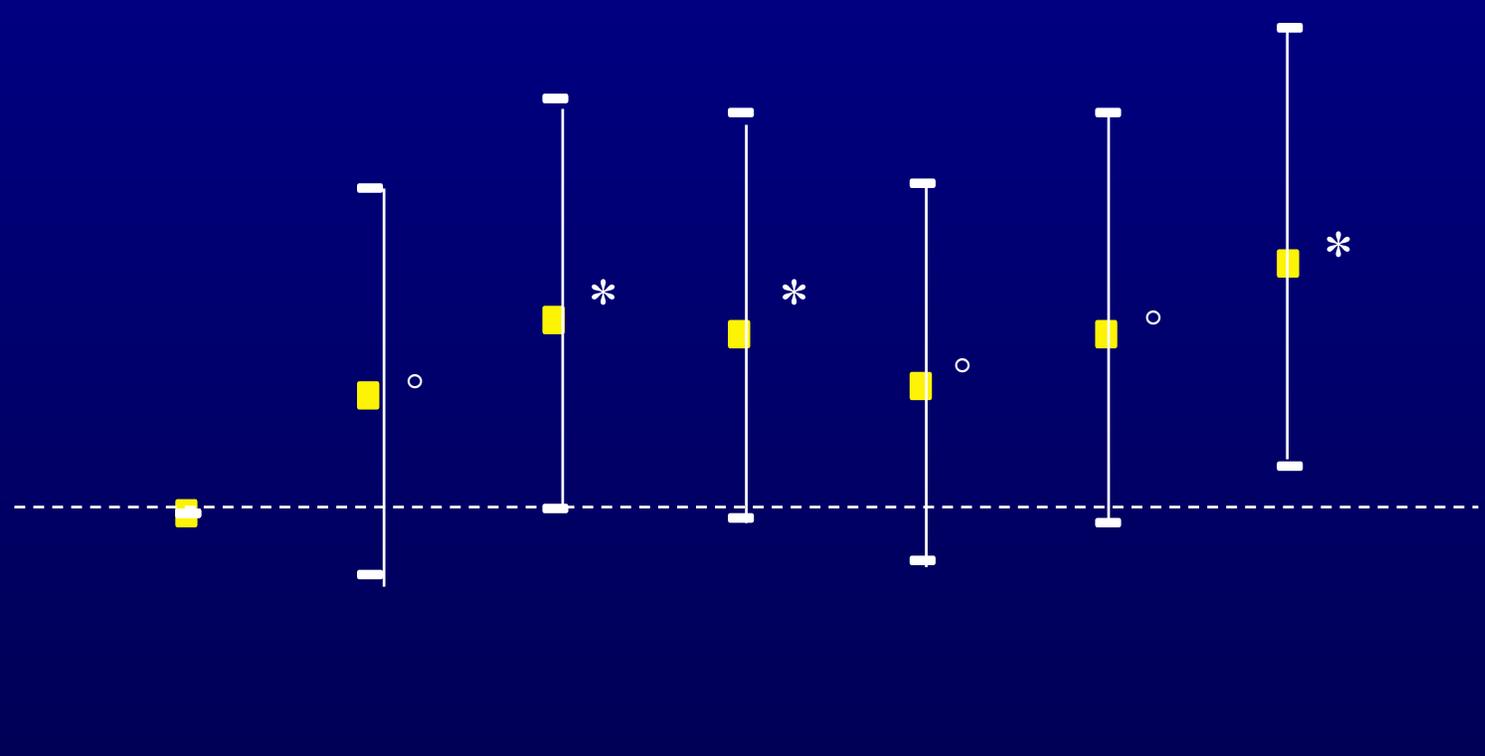
1

0.8

Baseline Q1 Q2 Q3 Q4 Q5 Q6

Quarter

\*  $p < 0.05$   
° NS



# A lesson...

- Community change is ongoing as a secular trend driven by media, community groups, interests, other advocacy
- Change not constant, continuous, equally distributed across population subgroups

# Design, evaluation implications

- Researchers should seek to reduce baseline differences and improve power through:
  - Regression adjustment through covariates
  - Matching communities in the design to reduce baseline differences
  - Choosing matched or unmatched analyses to optimize power

# New community studies

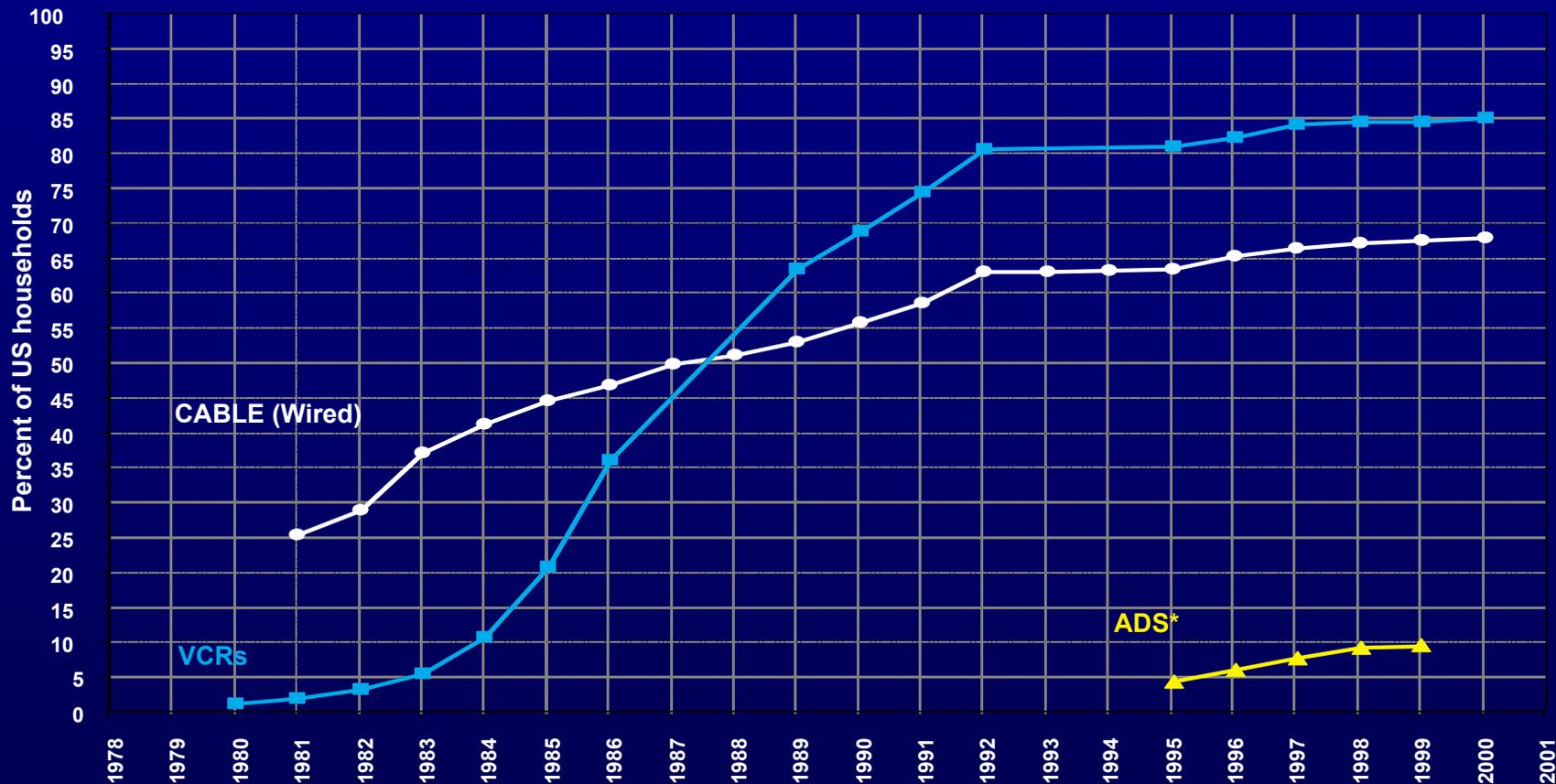
- Studies built around:
  - More small communities or fractions of communities such as worksites, schools, hospitals, etc.
  - More small surveys or continuous surveillance
- Increases N in each treatment condition
- More precise estimation of slopes

# Strategic lessons

- Exposure “web” for lower SES groups requires attention to:
  - Issue salience
  - Channel influence
  - Motivation (self-efficacy, involvement)
  - Community conditions (e.g., conflict, concern, community attachments, culture)

# Cable TV, VCR, ADS\* growth in US households, 1980-2000

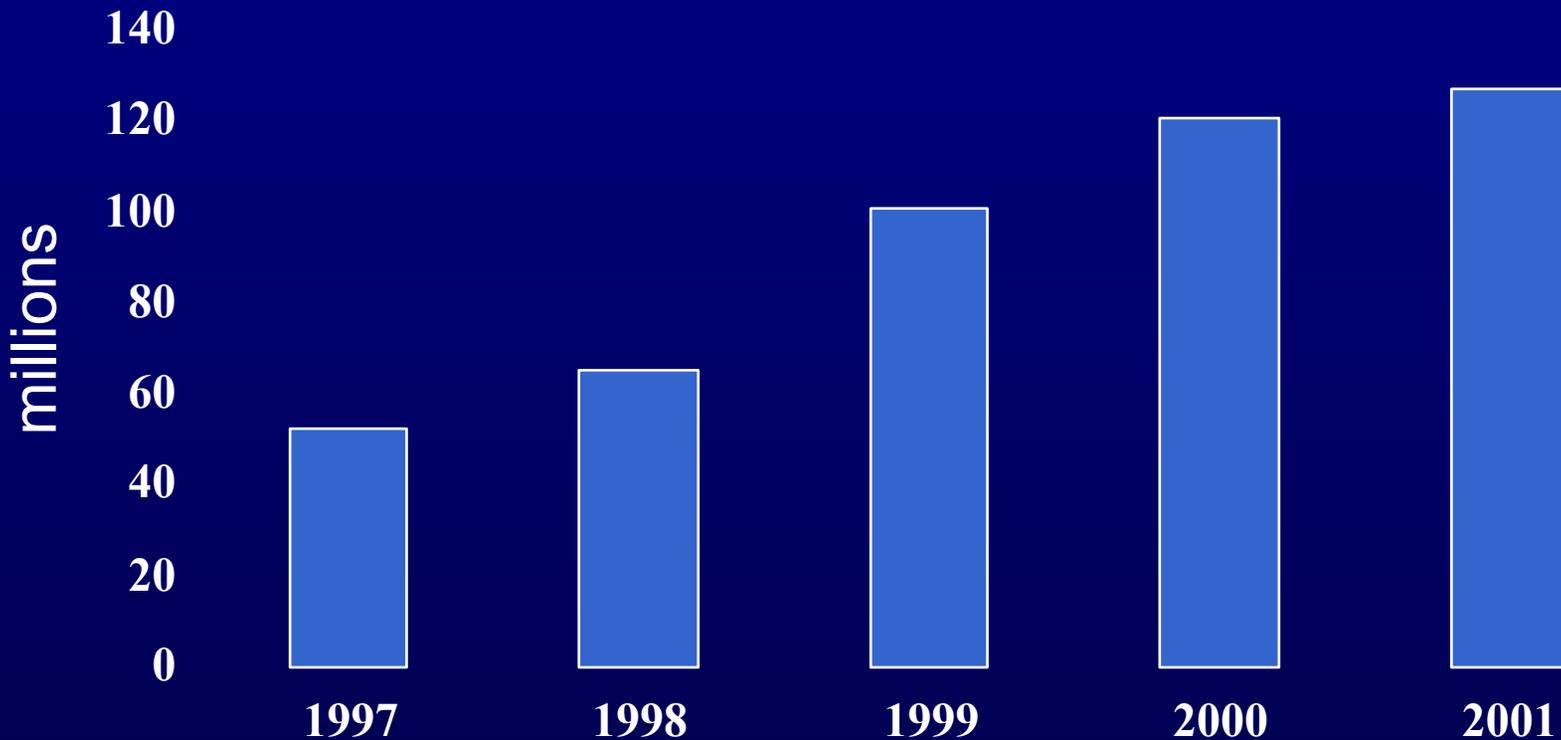
\*Includes Satellite, DBS, Microwave, SMATV



*Sources: Surveying the Digital Future, UCLA, 2000; Harris Interactive, 2001*

# Growth in US Internet Users

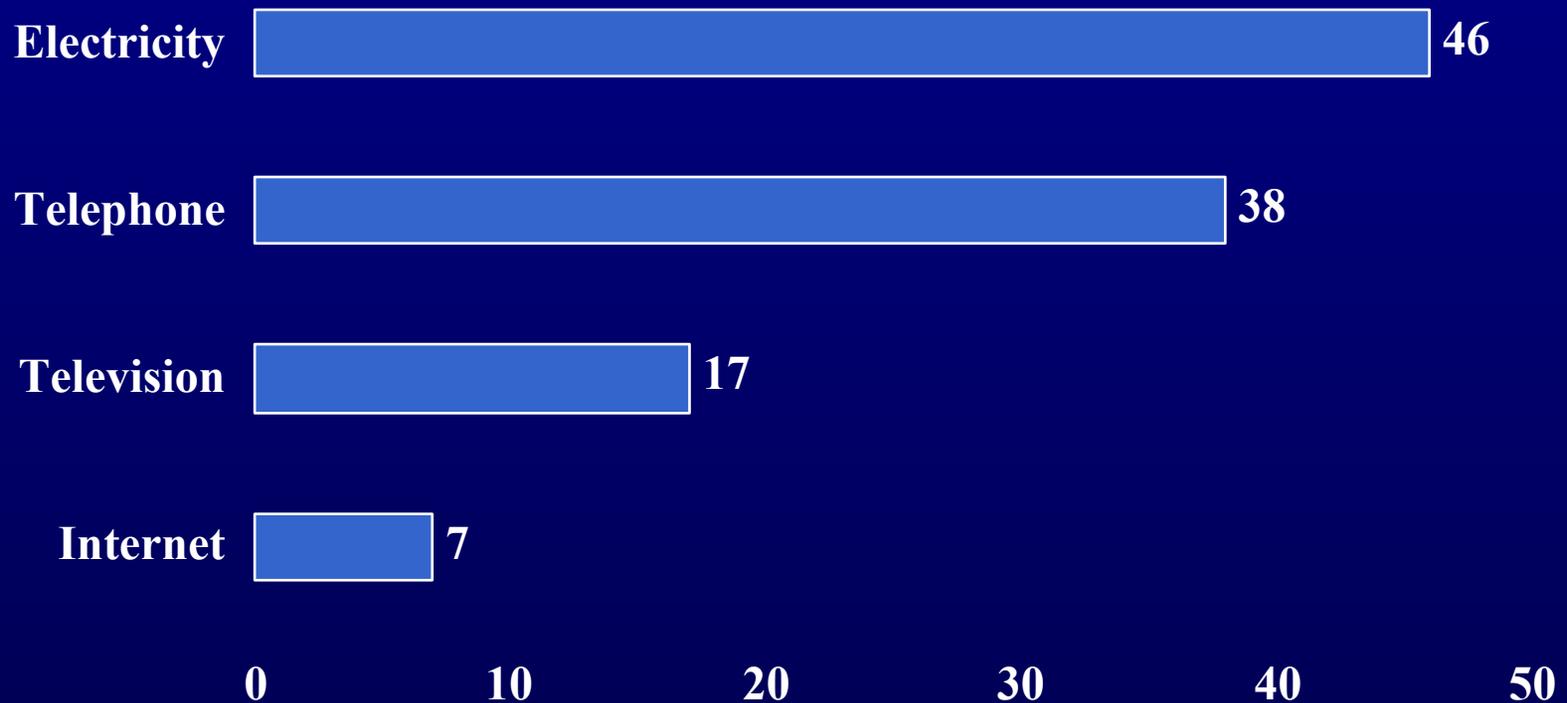
(UCLA Study: N = 2,096 RDD-selected US households; adults 18+  
Harris Study: N = 2,000 RDD-selected US households; adults 18+)



(64% - 66.9% of adults report Internet access)

*Source: Surveying the Digital Future, UCLA, 2000*

# Time to adoption of innovation by 30% of US households

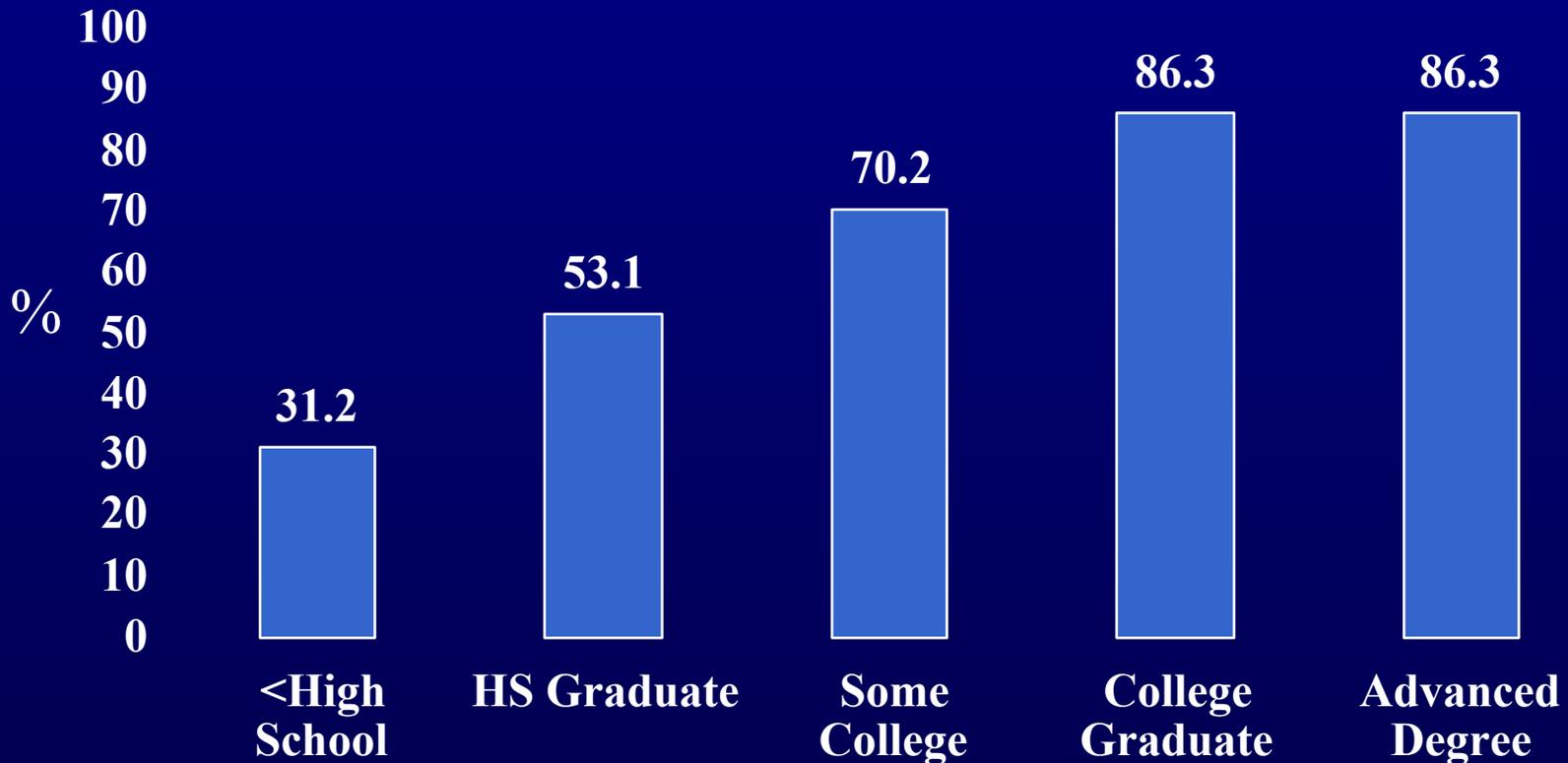


# Internet Promise

- 24/7 availability
- Platform for media convergence
- Graphic interface
- Interactive
- Tailoring of information
  - Multi-cultural; multi-lingual
- Heavy use for health

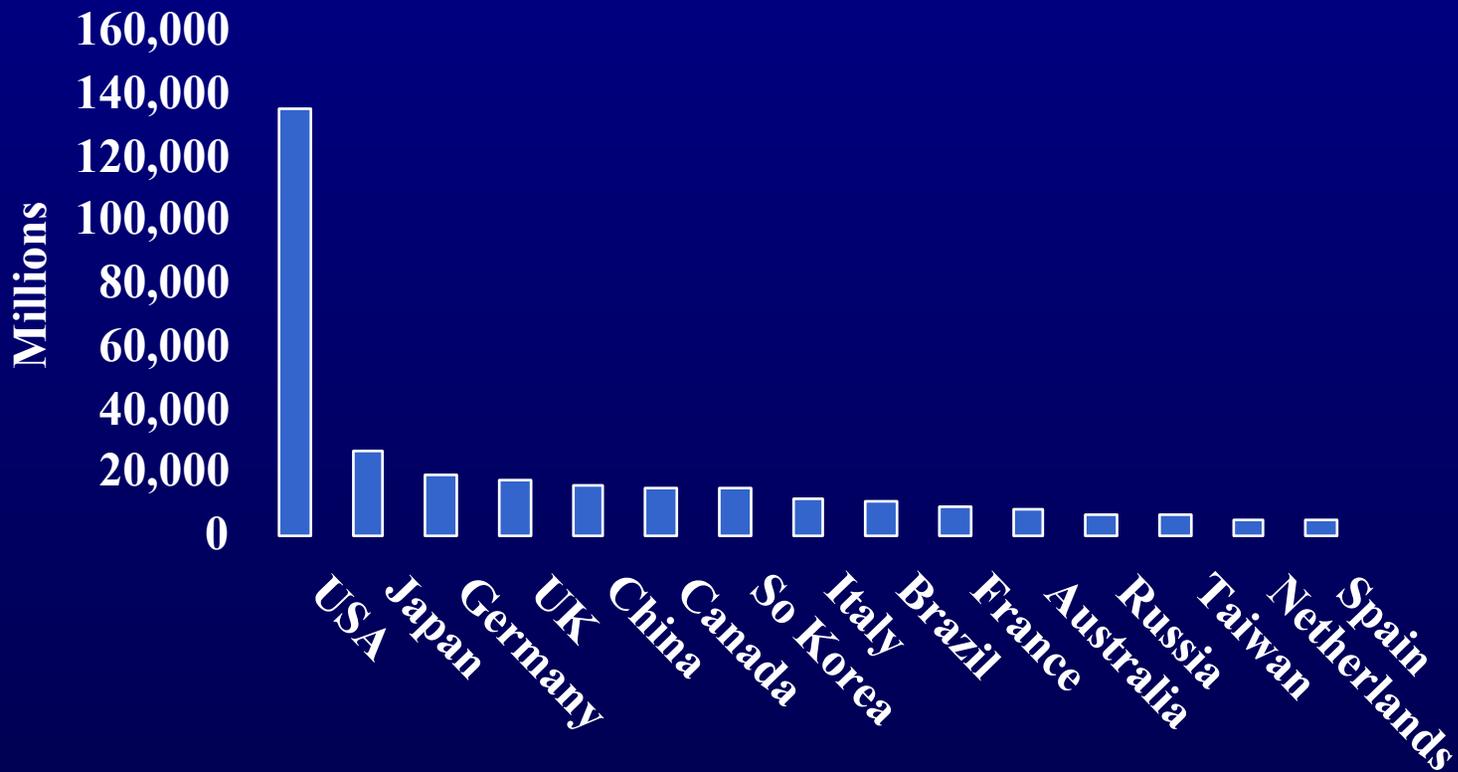
# Education predicts Internet use

(N = 2,096 RDD-selected US households; adults 18+)

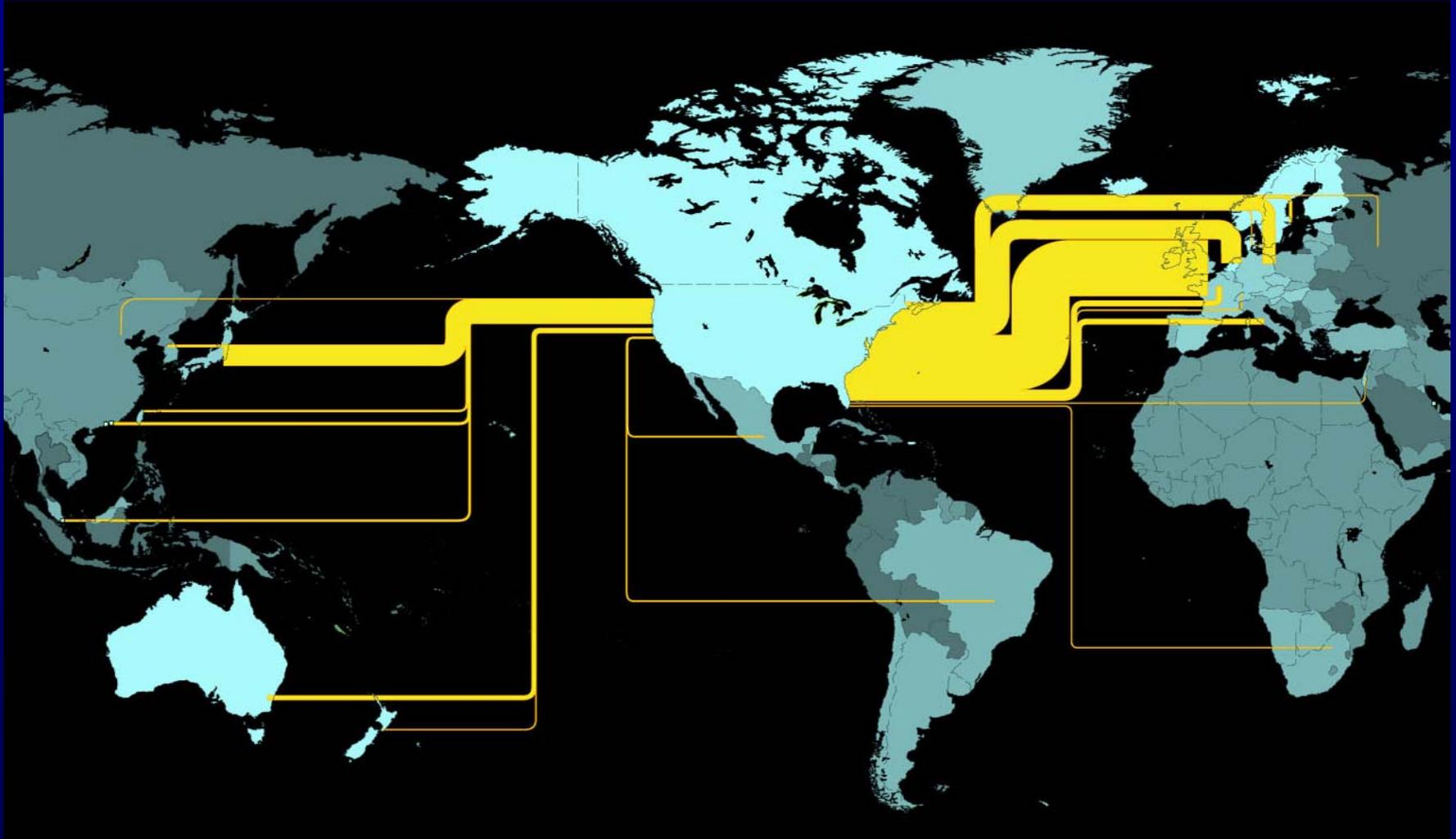


# Top 15 nations Internet users

(Accounting for 82% of Internet users worldwide; 375 million)



# Global Internet links, bandwidth

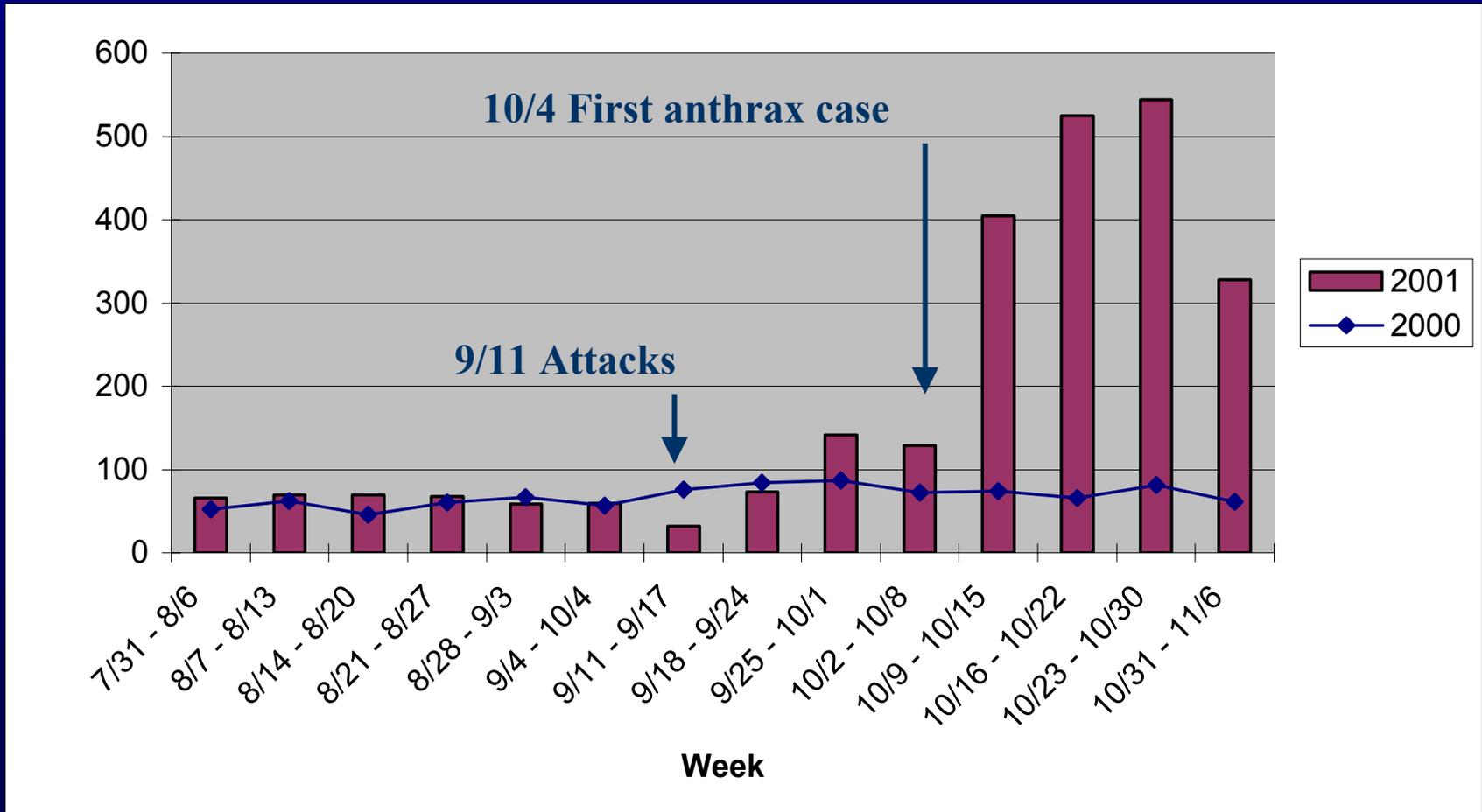


# Global Telecom Traffic

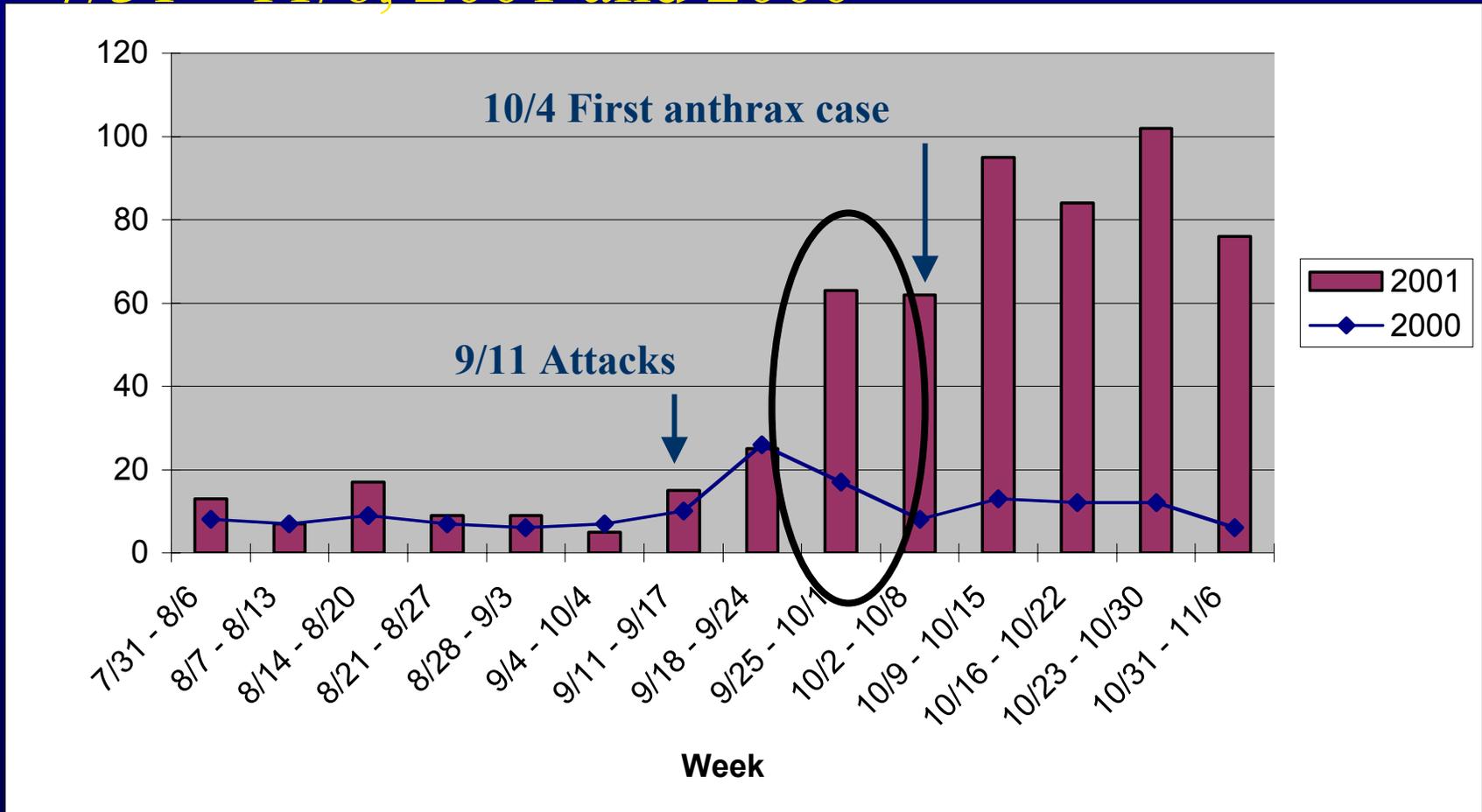


# Newspaper, TV stories re: public health scare, threat, crisis, 7/31 - 11/6, 2001 and 2000

(Lexis-Nexis Academic, major English-language newspapers, TV transcripts)

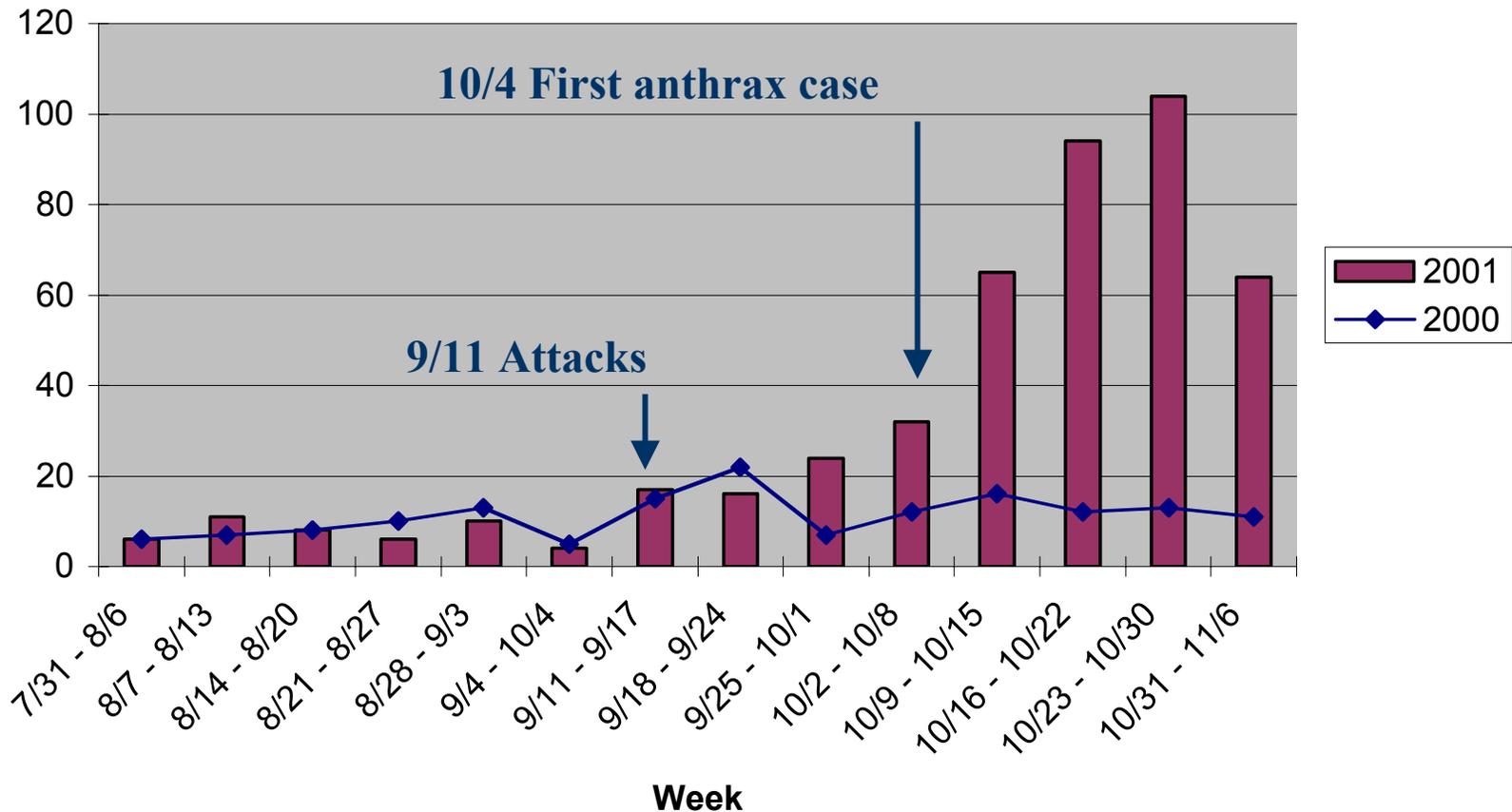


# Newspaper, TV stories re: public health readiness, infrastructure, preparedness, 7/31 - 11/6, 2001 and 2000



# Newspaper, TV stories re: public health and communication, 7/31 - 11/6, 2001 and 2000

(Lexis-Nexis Academic, major English-language newspapers, TV transcripts)



## Appendix: Search strategy

- Database: Lexis-Nexis Academic Universe
- Major world English-language newspapers
  - N = 53 sources
  - U.S. newspapers listed in top 50 circulation in Editor & Publisher Year Book. Newspapers published outside US listed as national circulation newspapers in Benn's World Media Directory or one of the top 5% circulation for the country.

## Appendix: Search strategy

- Database: Lexis-Nexis Academic Universe
- TV Transcripts
  - (N = 34 sources)
  - Includes program and clipping services of major US and global English-language TV outlets
- Dates:
  - 7/31 - 11/6, 2001 - Content period
  - 7/31 - 11/6, 2000 - Reference/comparison period

## Appendix: Search algorithms

- Public health + “threat” OR “scare” or “crisis”
- Public health + “communication”
- Public health + “infrastructure” OR “preparedness” or “readiness”

# Next Generation Trials: California Tobacco Control Program

- Interventions
  - Media campaigns
  - Policies: smoke-free work sites, excise taxes raised
  - Competitive grants, schools, lead agencies
- Analysis: Smoking trends
  - Pre-program period: <1989
  - Early period: 1989-1993
  - Late period: 1994-96

# California Tobacco Control Program

- Early period (52% decline in consumption)
  - 1989: 9.7 packs per smoker per month
  - 1993: 6.5 packs per smoker per month
  - Difference with US rate, same period,  $p < .001$
- Later period (slowed to 28% of early decline)
  - 1993: 6.5 packs per smoker per month
  - 1996: 6.0 packs per smoker per month
- 1996, California prevalence = 18%
- 1996, US prevalence = 22.4%

# California Tobacco Control Program

- Reasons for slowing
  - Reduced program expenditures
  - Increased tobacco advertising, promotion, political activities, pricing schemes
  - Need to revitalize campaign efforts on regular basis

# Community campaigns conclusions

- Strong and favorable secular trends of both increasing health promotion activities and declining CHD risk factors
- Modest but important net improvements from community interventions overall
- Stronger net improvements from particular intervention components

# Community intervention issues

- Design and measurement limitations
  - “contamination” by secular trend
- Expectations of effects
  - M. Fishbein, AJPB editorial, Sep 96
- Regional and SES variations
  - Influencing the targeting of interventions

# Lessons learned

- Health educators should be confident:
  - That many intervention strategies work well
  - that interventions can be effective among program participants
  - that intervention can be delivered to a sufficient number of the target population and with sufficient fidelity to effect change