

# Media Influences on Adolescent Smoking Behavior

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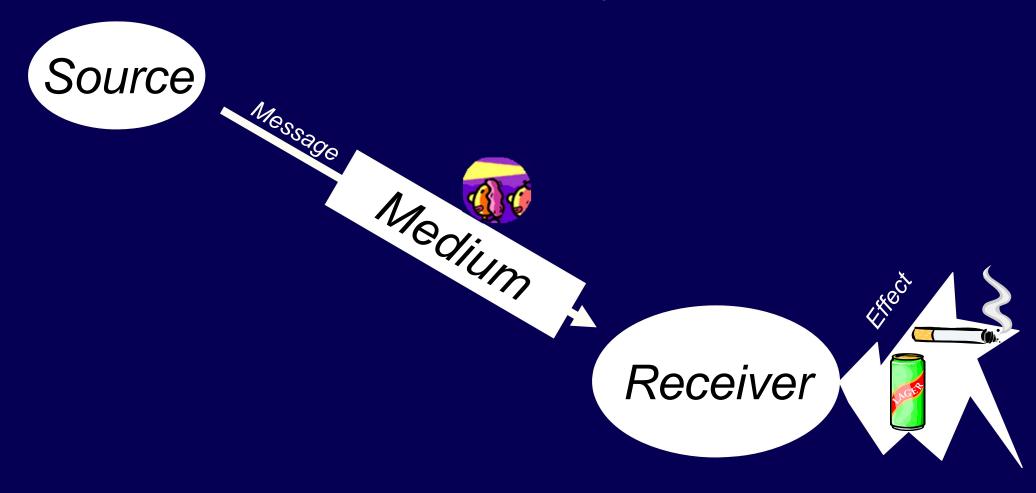
Supported by National Institutes of Health (CA077026, AA015591)

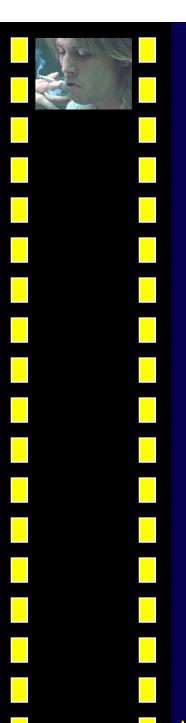




### **Mass Communication**

Simple one-way communication





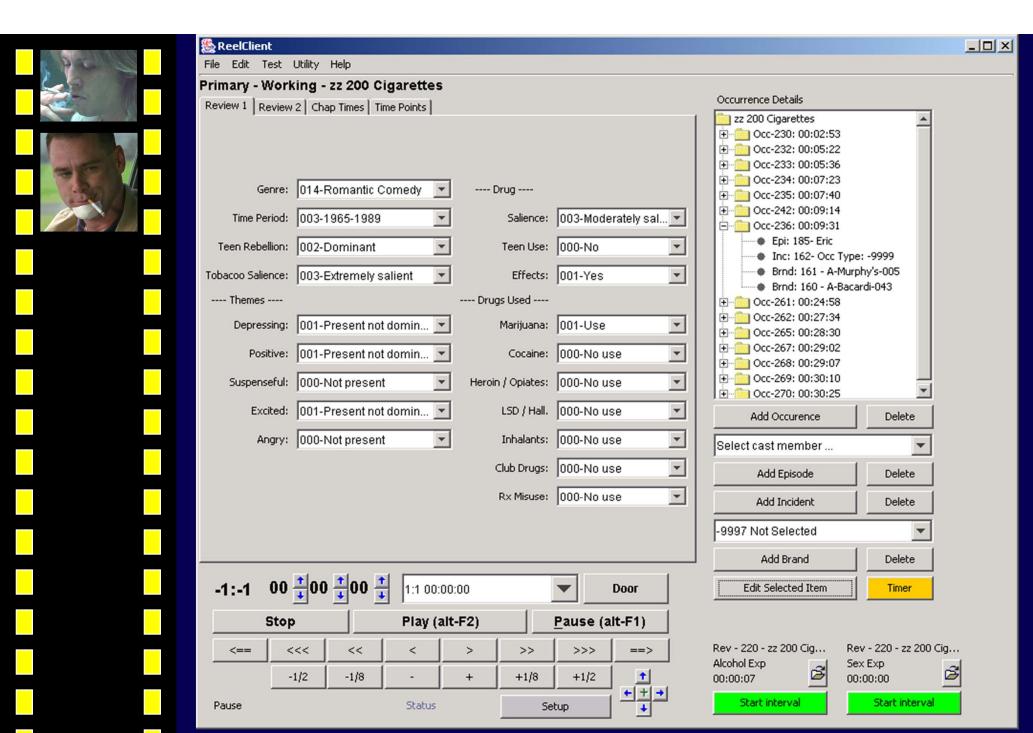
# Media Influences on Adolescent Smoking Behavior

Supported since 1997 by National Institutes of Health (CA-77026)

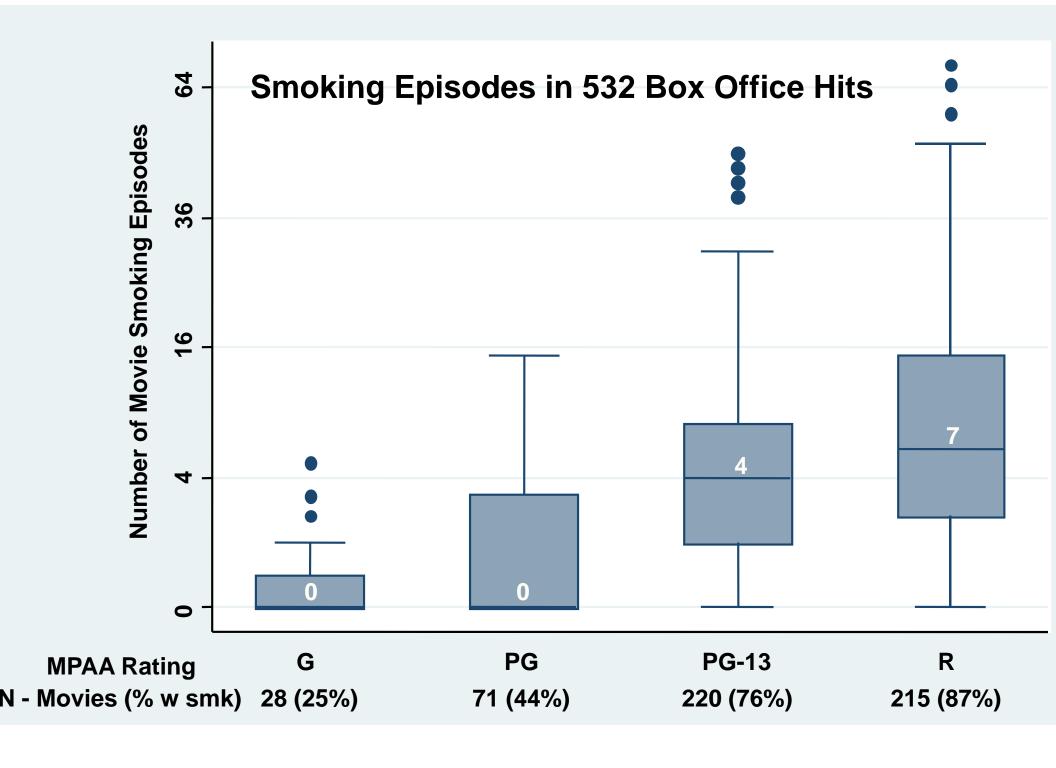
#### <u>AIMS</u>

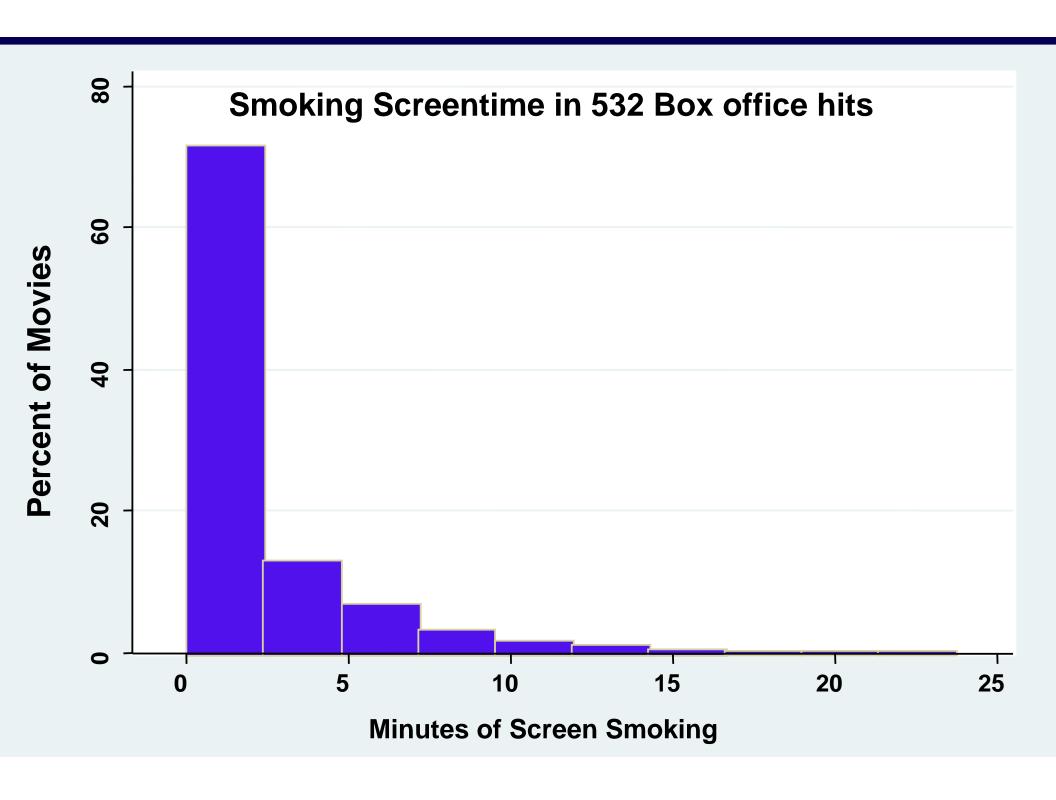
- Describe smoking in popular contemporary movies
- Assess exposure to movie smoking among adolescents
- Determine if movie smoking exposure is linked with adolescent smoking

Johnny Depp: "Blow"



<u>Jim Carrey: "Me, Myself and Irene'</u>







# Linking Smoking in Movies with Adolescent Smoking











### **Papers**

BMJ 2001;323(7326):1394-7

# Effect of seeing tobacco use in films on trying smoking among adolescents: cross sectional study

James D Sargent, Michael L Beach, Madeline A Dalton, Leila A Mott, Jennifer J Tickle, M Bridget Ahrens, Todd F Heatherton

#### Abstract

Objective To test the hypothesis that greater exposure to smoking in films is associated with trying smoking among adolescents.

Design Cross sectional survey of 4919 schoolchildren aged 9-15 years, and assessment of occurrence of smoking in 601 films.

Setting Randomly selected middle schools in Vermont and New Hampshire, USA.

Main outcome measure Number of schoolchildren

tobacco advertising. Yet the typical adolescent spends 2-3 hours per day watching television and films.<sup>2-4</sup>

Movie channels and home videos have greatly increased children's access to films.<sup>3-5</sup> A recent survey found that American adolescents watch an average of three films a week (150 a year).<sup>2</sup> Although cigarette smoking is infrequent on primetime television,<sup>6</sup> it is depicted in almost all films.<sup>7-10</sup> Adolescents see film stars smoking in the context of sexuality (Sharon Stone in *Basic Instinct*), toughness (John Travolta in *Broken Arrow*), romance (Charlie Sheen in *The Chase*), and

Department of Pediatrics, Dartmouth Medical School, One Medical Center Drive, Lebanon, NH 03756, USA James D Sargent associate professor Madeline A Dalton research assistant

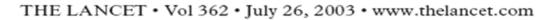
M Bridget Ahrens

program manager

professor

olding a cignrofte

Nicholas Cage: "Matchstick Men"



# @ Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study

Madeline A Dalton, James D Sargent, Michael L Beach, Linda Titus-Ernstoff, Jennifer J Gibson, M Bridget Ahrens, Jennifer J Tickle, Todd F Heatherton

Scarlett Johansson: "Lost in Translation"



# **PEDIATRICS**°

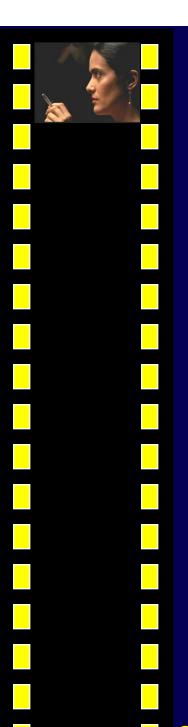
Exposure to Movie Smoking: Its Relation to Smoking Initiation Among US
Adolescents

James D. Sargent, Michael L. Beach, Anna M. Adachi-Mejia, Jennifer J. Gibson, Linda T. Titus-Ernstoff, Charles P. Carusi, Susan D. Swain, Todd F. Heatherton and Madeline A. Dalton

Pediatrics 2005;116;1183-1191

DOI: 10.1542/peds.2005-0714

Jennifer Love Hewitt: "Heartbreakers"



# **Study Design**

- Random digit dial telephone (RDD) survey
- •Telephone protocol identified U.S.

households with 10-14 year-old adolescents

(N = 6522)

- •Major undertaking, 400,000 RDD numbers
  - Could never have been accomplished without NIH funding

• Box office hits

Top 100, 1998-2002

Stonil My Gress (0) C C C C

• Box office hits N
Top 100, 1998-2002 500
> \$10mil revenues, 2003 32

#### **Content Analysis**

• Count the tobacco use occurrences in each movie

| <ul> <li>Box office hits</li> </ul> | N   |
|-------------------------------------|-----|
| Top 100, 1998-2002                  | 500 |
| > \$10mil revenues, 2003            | 32  |

#### **Generate Movie Lists**

- Randomly select 50 movies for each survey
- Use stratified sampling to ensure representative distribution by rating (R, PG 13, PG, G)

#### **Survey Adolescents (Sep 2003)**

 Questionnaire assesses which of the 50 movies the adolescent has ever seen

#### **Content Analysis**

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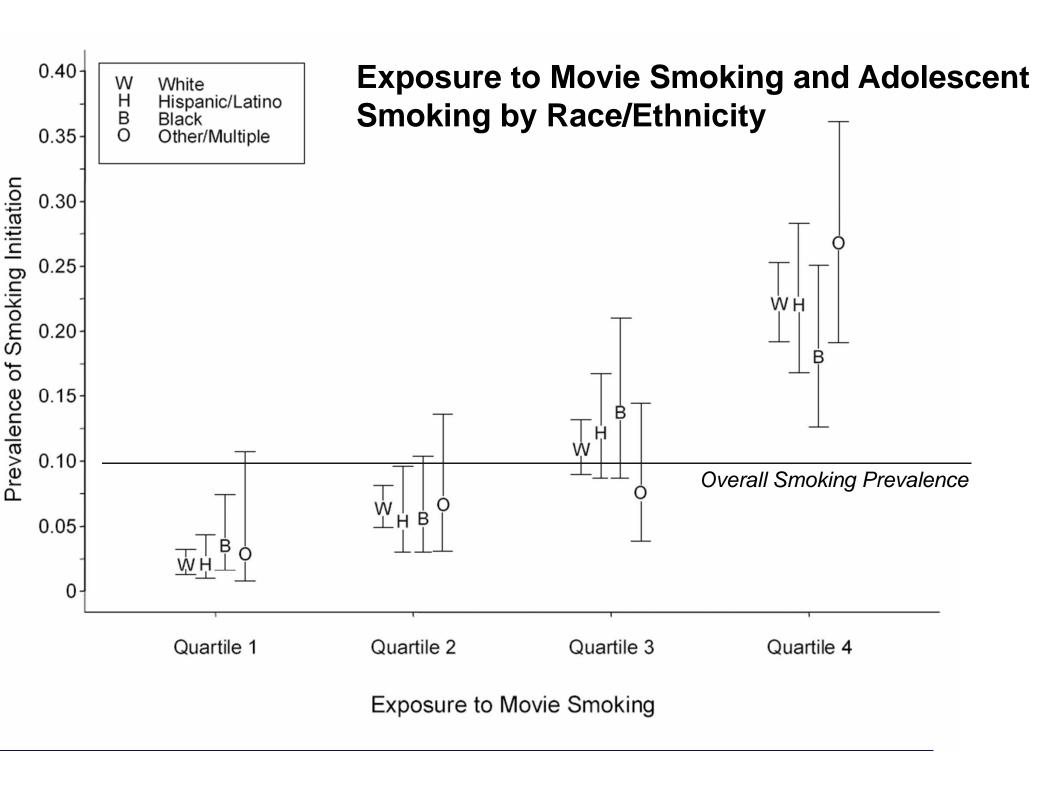
#### **Content Analysis**

 Count the tobacco use occurrences in each movie

Merge

**Movie Smoking Exposure Variable** 

Number movie tobacco use occurrences seen



# **Controlling for Covariates**

#### Sociodemographics

- Grade in school
- Gender
- Parent Education

#### Social Influences

- Parent smoking
- Sibling smoking
- Friend smoking

#### Personality Characteristics

- Self esteem
- Sensation seeking
- Rebelliousness

#### **Parenting**

- Maternal responsiveness
- Maternal supervision
- Parental disapproval of smoking

# Multivariate Analyses

|                        |  |                | Odds   | Ratios (95% CI) |                                  |                |
|------------------------|--|----------------|--|-----------------|----------------------------------|----------------|
| Characteristic         | Northern New England:<br>Cross-sectional<br>(N=4919) |                | Northern New England:<br>Longitudinal (N=2603) |                 | U.S. National Sample<br>(N=6502) |                |
|                        | Crude  | Adjusted       | Crude  | Adjusted        | Crude                            | Adjusted       |
| Movie smoking exposure |  |                |  |                 |                                  |                |
| Quartile 1             | Reference  |                | R  | eference        | R                                | eference       |
| Quartile 2             | 3.1  | 1.9 (1.3, 2.7) | 3.0  | 2.0 (1.3, 3.2)  | 2.9                              | 1.7 (1.1, 2.6) |
| Quartile 3             | 5.5  | 2.6 (1.8, 3.7) | 3.7  | 2.2 (1.4, 3.4)  | 5.5                              | 1.8 (1.2, 2.8) |
| Quartile 4             | 8.8  | 2.5 (1.7. 3.5) | 5.3  | 2.7 (1.7. 4.3)  | 12.6                             | 2.6 (1.7. 4.1) |



# Promoting Change within the Movie Industry

#### STATE ATTORNEYS GENERAL

A Communication From the Chief Legal Officers of the following States and Jurisdictions:

Arkansas • California • Colorado • Connecticut • Hawaii • Illinois • Maine • Maryland • Massachusetts • Minnesota • Mississippi• Northern Mariana Islands • New Hampshire • New Jersey • New Mexico • New York • Ohio • Oklahoma • Oregon • Pennsylvania • Tennessee • Utah • Vermont • Washington • West Virginia

August 26, 2003

Jack Valenti, President Motion Picture Association of America 15503 Ventura Boulevard Encino, California 91436

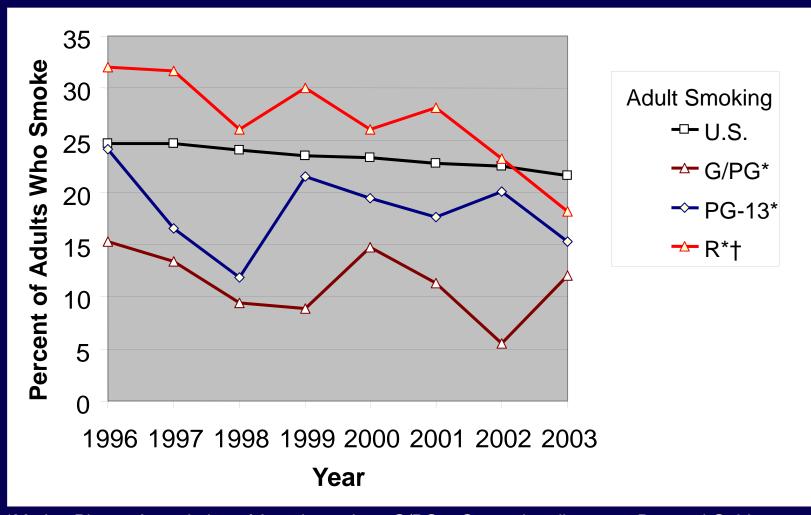
Dear Mr. Valenti:

We, the undersigned Attorneys General, write to ask you, with your longstanding prominence and influence in the American motion picture industry, to exercise your exemplary leadership to effect potentially far reaching benefits for public health. A Dartmouth Medical School study released last month confirms what other research has suggested: reducing the prevalence of cigarette smoking in motion pictures could significantly decrease the initiation of smoking in youth. With this new evidence of how effective reducing smoking in motion pictures would be in preventing youth smoking, the motion picture industry stands in a uniquely powerful position to bring about a profoundly beneficial impact on the health and well-being of millions of Americans.

Sandra Bullock: "28 Days"



## Movie Character Smoking Trends



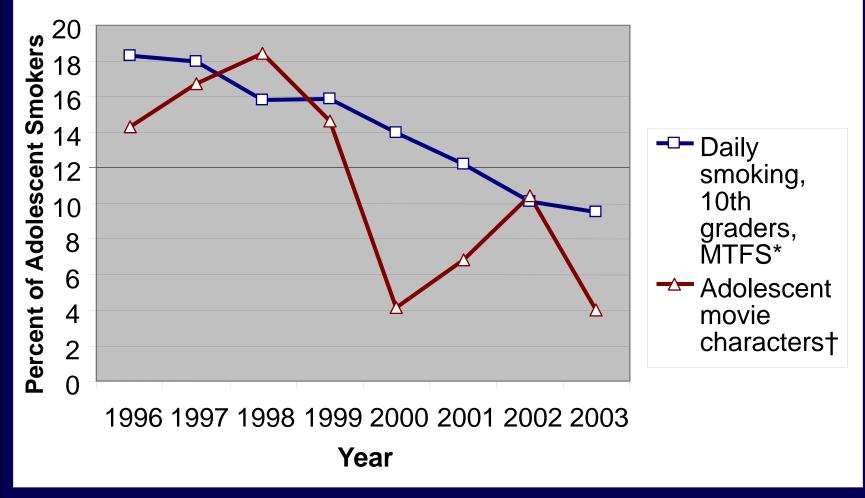
\*Motion Picture Association of America rating: G/PG = General audiences + Parental Guidance suggested PG-13 = Parental advisory, may not be appropriate for audiences under 13; R = No one under age 17 admitted without parental permission +Downward trend is statistically significant

†Downward trend is statistically significant

Pierce Brosner: "Die Another Day"



# Movie Character Smoking--Adolescents



\* Monitoring of the Future Survey † p-value < 0.01 for downward trend among teen movie characters Selma Blair: "Down to You"



Reach—Gross impressions
 –U.S. adolescents 10-14: 2003

Elizabeth Perkins: "All I Want"

| <ul> <li>Box office hits</li> </ul> | N   |  |
|-------------------------------------|-----|--|
| Top 100, 1999-2003                  | 500 |  |
| Top 50, 2003 (assessed 5/03)        | 32  |  |

#### **Generate movie lists**

- Randomly select 50 movies for each survey
- Use stratified sampling to ensure representative distribution by rating (R, PG 13, PG, G)

#### **Survey Students**

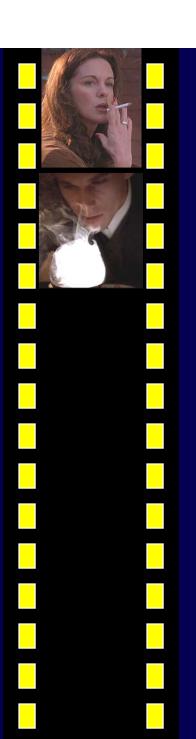
 Questionnaire assesses which of the 50 movies the adolescent has ever seen

Adolescent landomly assigned to Asout Stalle addressentative sample of about Stalle So a representative sample of about Stalle So a representative sample of about Stalle So. responded to each movie

# Lifetime Smoking Impressions US Adolescents 10-14 in 2003, 532 Popular Contemporary Movies

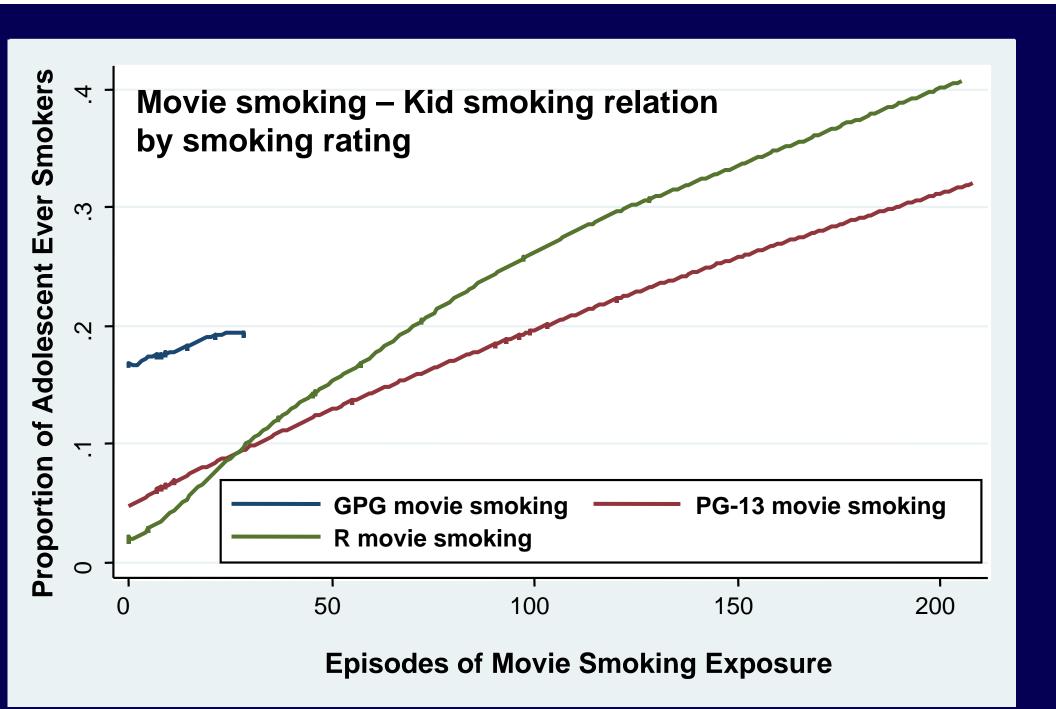
- Impression: each time an adolescent saw a smoking scene
- These movies delivered:
- 13.8 billion lifetime smoking impressions
  - Does not count repetitive viewing

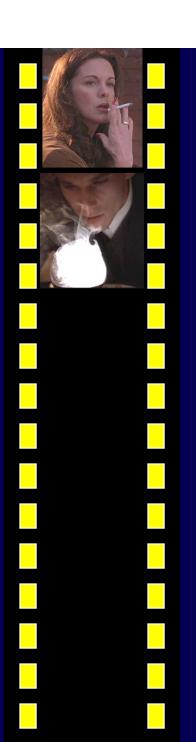
|                                   | Smoking            |
|-----------------------------------|--------------------|
| Movie Name                        | <b>Impressions</b> |
| The Perfect Storm                 | 376,864,857        |
| Wild Wild West                    | 289,696,946        |
| Lord of the Rings: The Fellowship | 262,477,026        |
| Saving Private Ryan               | 243,563,364        |
| Catch Me If You Can               | 194,780,852        |
| Mr. Deeds                         | 191,206,820        |
| <b>Atlantis: The Lost Empire</b>  | 183,341,250        |
| Hardball                          | 169,479,480        |
| Pearl Harbor                      | 158,866,496        |
| Men of Honor                      | 156,232,560        |
| Die Another Day                   | 155,236,802        |
| Charlie's Angels                  | 145,904,308        |
| Men in Black II                   | 136,704,258        |



### What's in Store?

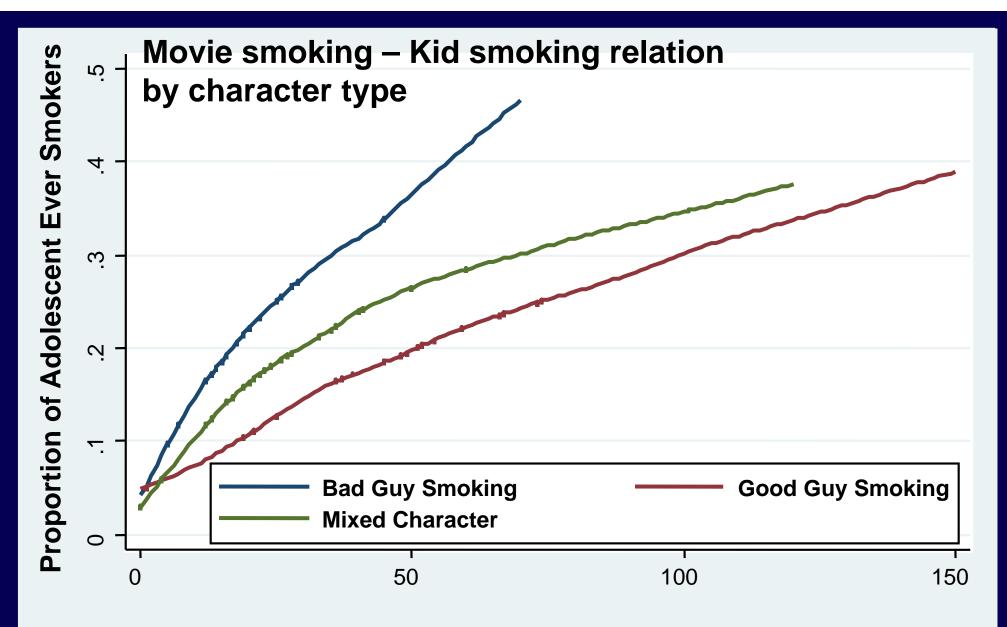
- Reach—Gross impressions
- Contextualized smoking
  - -Movie industry response
    - Eliminate G and PG smoking





### What's in Store?

- Reach—Gross impressions
- Contextualized smoking
  - -Movie industry response
    - Eliminate G and PG smoking
    - "Most smoking is bad guy smoking"



**Episodes of Movie Smoking Exposure**