From Billboards to the Billboard Charts: Media and Health Disparities

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Rideout, 2010
Outline

• Media exposure in 2010
• Disparities in media exposure
• Illustration 1: “Billboards”
  – Exposure to pro-tobacco advertising
• Illustration 2: “Billboard Charts”
  – Exposure to risk behavior in popular music
• Thoughts on where to go from here
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Media Exposure by Race/Ethnicity

Rideout, 2010
Media Use by Race/Ethnicity

Rideout, 2010

Hours per day

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Hours per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>6:22</td>
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<tr>
<td>Black</td>
<td>9:44</td>
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<tr>
<td>Hispanic</td>
<td>9:14</td>
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</tbody>
</table>
Media Exposure Change over Time

Hours/Day

1999 2009

White Black Hispanic

Rideout, 2010
Specific Media Types

Rideout, 2010
Reading by Race/Ethnicity

Rideout, 2010
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Lung Cancer Deaths
Oropharyngeal cancer
Esophageal cancer
Non-Hodgkins Lymphoma
Cancer Deaths per 100,000

Kaiser Family Foundation, 2008
Tobacco and Disparities

“African Americans currently bear the greatest health burden from cigarette smoking.”

Severity of Smoke Load

“Reducing smoke exposure loads in black men would be enough to reverse US black versus white cancer mortality disparities.”

Other Major Racial Disparities

- Stroke
- Cervical cancer
- Infant mortality
- Heart disease
Tobacco-Related Mortality and Race: Possible Factors

• Mentholation
  – 80% of Blacks smoke mentholated cigarettes
  – In vitro facilitates diffusion of toxins
  – Epidemiologic data mixed

• Inherited factors related to metabolism of cotinine
  – CYP2A6 activity varies across race
  – Those with greater nicotine metabolism smoke more extensively
Surgeon General’s Report

Concluded that the top three factors influencing tobacco use among African-Americans were:

- The tobacco industry’s marketing relationship with the African-American community
- The targeting of minority members by the tobacco industry
- The promotion of tobacco in minority neighborhoods and in Afro-centric publications
30-80% Adolescent Smoking Initiation Linked to Media Messages

CDC, 1994; Pierce, 1998; Sargent/Dalton, 2000-2010
Influence of Media

• Pro-tobacco media more influential than:
  – Parental smoking
  – Sibling smoking
  – Sensation seeking
  – Rebelliousness
  – Academic achievement

Charlesworth, 2005; Gilpin, 1997; Carson, 2005; Primack, 2006-10
More Pro-Tobacco Promotions Aimed at Black Populations?
Menthol X

- Introduced in 1995
- Red, green, black
- Association with Malcom X
- Soon removed from market
Uptown Cigarettes

SURGEON GENERAL'S WARNING: Quitting Smoking Greatly Reduces Serious Risks to Your Health.

Uptown. The Place. The Taste.

15 mg. tar, 1.3 mg. nicotine avg. per cigarette by FTC method.
“We don’t smoke the s***, we just sell it. We reserve the right [to smoke] for the young, the poor, the black, and the stupid.”

— RJ Reynolds Tobacco Executive
Mixed Findings

- Some studies more pro-tobacco ads in African-American neighborhoods
- Some studies no difference
- Billboards vs. Magazines
- Difficulty teasing out race and socioeconomic status
- Different findings density vs. concentration
Advertisement *Density*

- Advertisements / 10,000 residents

Hackbarth, J Pub Health Policy, 1995
Advertisement *Concentration*

- Tobacco Ads / Total Ads

Hackbarth, J Pub Health Policy, 1995
Purpose

• To determine if African-Americans are exposed to a higher volume of pro-tobacco mass media messages
  – Density
  – Concentration

• To determine point estimates of any difference
Data Sources

- MEDLINE (1966-June 2006)
- PsychINFO (1973-June 2006)
- CINAHL (1982-June 2006)
Meta-Analysis

• Data sufficient for two outcomes
  – Concentration of tobacco-related billboards/signage
  – Density of tobacco-related billboards/signage

• Pooled Estimates
  – Concentration: Odds Ratios
  – Density: Rate Ratios
  – Random effects model
  – Q statistic assessed heterogeneity ($P<.05$)

• Assessed publication bias
  – Begg rank correlation
  – Egger weighted regression
  – Added studies one at a time by date

• Influence analysis
## Signage Studies

<table>
<thead>
<tr>
<th>Author</th>
<th>City, State</th>
<th>Page</th>
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<tbody>
<tr>
<td>Altman 1991</td>
<td>San Francisco, CA</td>
<td>901</td>
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<tr>
<td>Hackbarth 1995</td>
<td>Chicago, IL</td>
<td>5924</td>
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<tr>
<td>Hackbarth 2001</td>
<td>Chicago, IL</td>
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<td>Luke 2000</td>
<td>St. Louis, MO</td>
<td>1239</td>
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<td>Mayberry 1993</td>
<td>Columbia, SC</td>
<td>155</td>
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<tr>
<td>Pucci 1998</td>
<td>Boston, MA</td>
<td>580</td>
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<tr>
<td>Stoddard 1998</td>
<td>Los Angeles, CA</td>
<td>4376</td>
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</table>
Density

- 5/7 had sufficient data (the remaining two did not assess the number of residents in study areas)
- Pooled density
  - AA: 11.8/10,000 (95% CI: 5.0/10,000, 28.3/10,000)
  - White: 4.5/10,000 (95% CI: 1.3/10,000, 15.2/10,000)
  - RR: 2.6 (95% CI: 1.5, 4.7)
- Translation: There are 2.6 times as many tobacco advertisements per person in African-American neighborhoods compared with Caucasian neighborhoods

Primack et al., *PHR*, 2007
RR (Density)

Primack et al., *PHR*, 2007

Rate ratio (95% CI)

- Altman (1991) 2.8 (1.9, 4.0)
- Hack Barth (1995) 3.3 (2.8, 3.8)
- Hack Barth (2001) 4.9 (3.3, 7.4)
- Mayberry (1993) 2.6 (1.5, 4.4)
- Pucci (1998) 1.1 (0.96, 1.3)
- Pooled data 2.6 (1.5, 4.7)
Concentration

• 6/7 contained sufficient information to compute (the remaining study counted only tobacco advertisements, not total advertisements)

• Pooled concentration
  – AA: 22.0% (95% CI: 17.9%, 26.1%)
  – White: 15.5% (95% CI: 8.8%, 22.2%)
  – Difference: +6.7% (95% CI: 1.5%, 11.8%)
  – OR (for a billboard being smoking related in an African-American area compared to a Caucasian area) was 1.7 (95% CI: 1.1, 2.6).

Primack et al., PHR, 2007
OR (Concentration)

Odds ratio (95% CI)

Altman (1991) 1.6 (1.03, 2.4)
Hackbarth (1995) 0.9 (0.7, 1.04)
Hackbarth (2001) 3.1 (2.0, 4.8)
Luke (2000) 1.5 (1.1, 2.0)
Mayberry (1993) 1.5 (0.8, 2.8)
Stoddard (1998) 2.5 (1.8, 3.5)
Pooled data 1.7 (1.1, 2.6)

Primack et al., *PHR*, 2007
Other Testing

• No publication bias
• Publication year not a significant predictor of density or concentration
• No one study had undue influence on the pooled estimates
Most Popular AA Publications
Find Your Voice Campaign

SURGEON GENERAL’S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.
Find Your Voice Campaign

NEVER
let the goody two shoes get you down.

VIRGINIA SLIMS
Find Your Voice
Questions to Address

• Tobacco marketers more aggressively approaching AA markets?
• Are POS venues in AA markets more likely to seek out tobacco advertisements?
• Other social, economic, or political drivers?
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Song Sample

- 465 non-unique songs represent universe of songs with greatest exposure
- 279 unique songs evenly represented genres
  - Country (N=61)
  - Pop (N=35)
  - R&B/hip-hop (N=55)
  - Rap (N=62)
  - Rock (N=66)
Coding Protocol

• 2 initial coders each analyzed all 279 songs
• Computation of percent agreement and Cohen’s kappa scores
• 2 “confirmatory coders” analyzed all codes on which initial coders disagreed (blind to original codes)
• Consensus easily achieved
Substance Use

Primack, APAM, 2008
Explicit Use by Genre

Primack, APAM, 2008
Primack, *APAM*, 2008
Marijuana

$P < .001$

Primack, *APAM*, 2008
Motivations for Use (All Genres)

Primack, APAM, 2008
Motivations for Use (Rap)

Primack, APAM, 2008
Motivations for Use (Rock)

Primack, APAM, 2008
Primack, *APAM*, 2008
Associated with Sex

Primack, *APAM*, 2008
## References per Hour (Average Adolescent)

<table>
<thead>
<tr>
<th>Substance Type</th>
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<th>Rap</th>
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<tr>
<td>Tobacco</td>
<td>0.7</td>
<td>1.2</td>
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<td>13.7</td>
<td>21.6</td>
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<tr>
<td>Marijuana</td>
<td>11.4</td>
<td>38.3</td>
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<td>Other Substances</td>
<td>11.4</td>
<td>43.4</td>
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<td>Any Substance</td>
<td>35.2</td>
<td>104.5</td>
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Primack, *APAM*, 2008
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Primack, *APAM*, 2008
P. Diddy
Rapper T.I. was officially named Global Creative Consultant of the Rémy Martin Cognac brand today (June 29th). Under teams of the deal, T.I. will work to help with promotions, merchandising and digital media campaigns for a variety of the Rémy Martin cognac marques.

The rapper has already started offering creative input towards Rémy Martin’s “Things are Getting Interesting” campaign. Rémy Martin will help T.I expand his K.I.N.G. Foundation by providing funds to the non-profit, which helps low income families through a variety of community-oriented programs.

“T.I. is a powerful voice in the entertainment world as a recording artist, actor and producer. And Rémy Martin recognizes the similarities between the art of producing fine cognacs and blending music and words to create hit songs,” said Lamar Johnson, Director of Marketing and Branded Entertainment, Rémy Cointreau USA, Inc. Rémy Martin and T.I. will work jointly to market and promote a new signature blend of the premium brand Rémy Martin V.S.O.P., which the rapper developed on a trip to the company’s headquarters.
THREE OLIVES AND LIL' KIM PRESENT
PURPLE

Introducing Purple™ vodka as fun, sassy and sexy as the Queen Bee herself. Three-O’ Purple blends imported English vodka with the juicy flavor of frozen grapes. The result is an exciting new taste that’s notoriously fun and shockingly purple.
<table>
<thead>
<tr>
<th>Star</th>
<th>Year</th>
<th>Brand</th>
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<tbody>
<tr>
<td>2Pac, Dr. Dre, Snoop Dogg</td>
<td>1992</td>
<td>St. Ides Malt Liquor</td>
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<tr>
<td>P. Diddy</td>
<td>2001</td>
<td>Ciroc Vodka</td>
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<tr>
<td>Willie Nelson</td>
<td>2002</td>
<td>Old Whiskey River Bourbon</td>
</tr>
<tr>
<td>Jay-Z</td>
<td>2002</td>
<td>Armandale Vodka</td>
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<tr>
<td>Busta Rhymes, P. Diddy</td>
<td>2002</td>
<td>Courvoisier (cognac)</td>
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<tr>
<td>Lil John</td>
<td>2008</td>
<td>Little Jonathan Winery</td>
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<td>Snoop Dogg</td>
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<td>Landy Cognac</td>
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<td>Young Jeezy</td>
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<td>Ludacris</td>
<td>2009</td>
<td>Conjure Vodka</td>
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<td>TI</td>
<td>2010</td>
<td>Remy Martin Cognac</td>
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<td>Lil’ Kim</td>
<td>2010</td>
<td>Three Olives Vodka</td>
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<td>Mariah Carey</td>
<td>2010</td>
<td>Angel Champagne</td>
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<td>50 Cent, Tony Yayo</td>
<td>2010</td>
<td>“Pass the Patron”</td>
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</table>
Sex in Songs (N = 279)

Primack, *AJPM*, 2009
Sex Type 1

“I’m gonna light the bedroom candles /
Take the phone out of the wall /
We can lay around and talk for hours /
Or maybe we won't talk at all /
I’m gonna resurrect the love /
That slipped away from us /
And the man you've been missin’ /
Startin’ with some long, slow kisses”
Sex Type 1

“I’m here to cater to you /
Any thing that you want me to do I’ll do it /
Cause I’ll be your lover /
I’ll be your lover /
I’ll be your best friend /
Tell me what I gotta do /
Tell me what I gotta do and I’ll do it”
Sex Type 2

“Get on top then get to bouncing round like a low rider
I'm a seasoned vet when it come to this shit
After you work up a sweat you can play with the stick
I'm tryin to explain baby the best way I can
I melt in your mouth girl, not in your hands”
“Ay bitch! /
Wait ‘til you see my dick /
Wait till you see my dick /
Ay bitch! /
Wait ‘til you see my dick /
Imma beat that pussy up”
Type of Sex (N = 103)

Primack, AJPM, 2009
Sex

Primack, *AJPM*, 2009
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Female</td>
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<tr>
<td>White</td>
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<td>African-American</td>
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<tr>
<td>Age</td>
<td>15.0 (0.8)</td>
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<td>Music exposure, hrs/wk</td>
<td>31.0 (21.1)</td>
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<tr>
<td>Degrading sex in music, hrs/wk</td>
<td>14.7 (17.0)</td>
</tr>
</tbody>
</table>
Intercourse by Exposure to Degrading Sex

Primack et al., AJPM, 2009
Covariates

- Age
- Race
- Gender
- Parental education
- Grades

- Authoritative parenting
  - Demanding
  - Responsive
- Sensation seeking
- Rebelliousness
## Associated with Intercourse

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
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<tbody>
<tr>
<td>Low grades (&lt;B’s)</td>
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<tr>
<td>Exposure to degrading sex</td>
<td>3.1</td>
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<tr>
<td>Rebelliousness</td>
<td>2.9</td>
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<td>Black Race</td>
<td>2.2</td>
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<tr>
<td>Sensation seeking</td>
<td>2.0</td>
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<tr>
<td>Demanding parenting</td>
<td>0.7</td>
</tr>
<tr>
<td>High maternal education</td>
<td>0.6</td>
</tr>
<tr>
<td>Female</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Primack et al., *AJPM*, 2009
Outcome: Intercourse
Exposure: Degrading Sex

$P = .004$

Primack et al., *AJPM*, 2009
Outcome: Non-Coital Progression
Exposure: Degrading Sex

Exposure to Degrading Sex in Music

\[ P = 0.004 \]

Primack et al., AJPM, 2009
Outcome: Intercourse
Exposure: Non-Degrading Sex

Primack et al., *AJPM*, 2009
Outcome: Non-Coital Progression
Exposure: Non-Degrading Sex

Primack et al., *AJPM*, 2009
Major Findings

• Exposure to degrading sex in music was independently associated with both sexual outcomes

• Exposure to non-degrading sex in music was not associated with sexual outcomes

Primack et al., AJPM, 2009
Mechanism

• Degrading sex portrayed as expected, direct, uncomplicated
• Offers “scripts” adolescents play out
• Non-degrading sex may portray more of the complications and complexities of sexual activity
• Sexually active people may seek out music with more degrading sex
Primack et al., *Addiction*, 2010

![Graph showing increase in cannabis exposure in music over tertiles T1, T2, and T3.](image)

- **Ever Used Cannabis**
  - Trend: Increasing across tertiles
  - Significance: $P < .001$

- **Current Use Cannabis**
  - Trend: Increasing across tertiles
  - Significance: $P < .001$
Cannabis Exposure in Music (Tertiles)

- Ever Used Alcohol: 
P = NS

- Current Use Alcohol: 
P = NS

Primack et al., *Addiction*, 2010
Major Findings

• Exposure to marijuana in music strongly and independently associated with marijuana use
• Stronger than nearly all other measured factors
• Not an artifact of high risk behavior

Primack et al., *Addiction*, 2010
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Research

• More rigorous designs
  – Longitudinal
  – Measurement issues

• Other outcomes
  – Alcohol
  – Violence

• Other exposure types
  – Television
  – Video games

• Specific associations of concern
Education

• Difficulty of fighting fire with fire
• Media Literacy
  – Analyze and evaluate media messages
    • *Who* made this and why?
    • *What* tricks did they use?
    • *How* this different from real life?
  – Developmentally appropriate
• Parent/community education/motivation
  – Empowerment
  – Collaboration
Policy and Advocacy

• Difficulties with many traditional methods
  – Warning labels
  – Free speech
  – Capitalism

• Stars and producers
  – Pressure
  – Partnerships
  – “Runaway Love” example
Moderation

• Also don’t want to be over-anxious
• Media is part of our society
  – A tool like any other
  – Point is not to vilify media
• Use negative as a springboard to teaching good things to young people
• Use valuable techniques of mass media for public health
Thank You!

bprimack@pitt.edu