



CENTER FOR RESEARCH ON MEDIA, TECHNOLOGY, AND HEALTH

ANNUAL REPORT 2015

CRMTH MISSION



Twenty-first century society exposes us to media and technology the majority of our waking hours. Social media, internet, television, film, music, video games, and advertisements abound.

Studies suggest that some of these exposures negatively influence key health behaviors such as substance use and diet and exercise patterns. However, other media messages—such as those from public service announcements or health-promoting smartphone applications—may improve health outcomes. Better understanding

of how media, technology, and health outcomes interact will empower us to develop educational and policy-related interventions which encourage the positive and lessen the negative.

With this in mind, the Center's first focus is to investigate associations between media messages, technological innovations, and health outcomes. In particular, we focus our interest on those relating to substance use (such as nicotine and alcohol), mental health, and communications between patients and healthcare providers.

Second, we aim to improve health outcomes via developing, implementing, and evaluating interventions related to media messages and technological advances. Interventions may involve policy implementation, education, or other organizational or procedural change.

We also provide research mentoring and experience to trainees throughout the University of Pittsburgh.



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DIRECTOR'S MESSAGE

MEET DR. PRIMACK

Dr. Brian Primack is the director of the Center for Research on Media, Technology, and Health and Assistant Vice Chancellor for Research on Health and Society.

After graduating Yale University with degrees in English and Mathematics, Dr. Primack spent four years teaching adolescents and studying human development for his master's degree, which he received from Harvard University. He subsequently graduated first in his class from Emory Medical School and trained in Family Medicine in Pittsburgh.



WELCOME



In 2015, for the first time in history, the Oxford English Dictionary's "Word of the Year" was not a word. It was the "laughing while crying" emoji pictured to the left. This movement from words to social media based images represents how quickly our society is changing. Our Center keeps up with this rapid movement to a technology based culture and studies the implications for health.

For example, 2015 saw a rapid shift related to tobacco—which is still the leading cause of preventable death in the U.S. For the first time in modern history, prevalence of e-cigarette use and hookah smoking were both higher than cigarette use among U.S. high school students. Some see this as a potential benefit; perhaps the technology and marketing behind e-cigarettes are helping smokers reduce the toxins to which they are exposed. On the other hand, large numbers of non-smokers are now using e-cigarettes and hookahs. Therefore, these vehicles may represent pathways to tobacco and nicotine use among many people who otherwise would not have been exposed.

In November of 2015, our lead article in *JAMA Pediatrics* added a piece to this puzzle. It represented the first longitudinal, national data to substantiate what many had feared—that the growing cohort of never-smokers who experiment with e-cigarettes tend to progress to traditional cigarette smoking, even if they did not ever intend on smoking regular cigarettes in the first place.

But this represented the tip of the proverbial iceberg for us. Since 2010, our studies have been cited over 2000 times, and the UPMC Media Relations office estimates that press related to our work in 2015 alone reached 23,000,000 impressions. This year's publications represented an exciting mix of topics (effectiveness of media literacy, proliferation of alcohol-related messages on YouTube, policy around new forms of tobacco and nicotine) and of methodology (a randomized crossover trial, longitudinal cohorts qualitative analyses, and a meta-analysis).

Please enjoy perusing this annual report. We welcome any feedback or suggestions.

THE PEOPLE OF CRMTH

Jaime E. Sidani, PhD, MPH, CHES
Assistant Director



Dr. Sidani joined the Center in 2011 after practicing as a university health educator for five years. After graduating from the University of Rochester with a BA in Health & Society, she completed a Master of Public Health Degree from the Northwest Ohio Consortium for Public Health and a PhD in Health Education from the University of Toledo. Her main research interests include adolescent health behavior and tobacco use prevention, with a specific focus on media and technology.

Ariel Shensa, MA
Statistician and Data Manager

Ms. Shensa joined the Center in 2010 and is responsible for all aspects of data management and analysis. Ariel received her Bachelor of Arts in Psychology from Chatham University and Master of Arts in Research Methodology from the University of Pittsburgh. Her interests include structural equation modeling, social media use and addiction, media literacy, and tobacco use prevention.



Leila Giles, BS
Communications Officer



Ms. Giles came to CRMTH in 2015 from a digital media role at a non-profit involved in substance use topics. She graduated from Indiana University of Pennsylvania with a degree in Communications Media. She focuses on the Center's communications and media activities.

Allison Ghirardi-Raithel, AA
Research Assistant

Ms. Ghirardi-Raithel was previously in a health education and promotion role at the University of Pittsburgh's Student Health Center. She joined CRMTH in 2015. She focuses on assisting various projects and promoting the mission of the Center.



SPOTLIGHTS

Jason B. Colditz, MEd

Program Coordinator,
2012-present

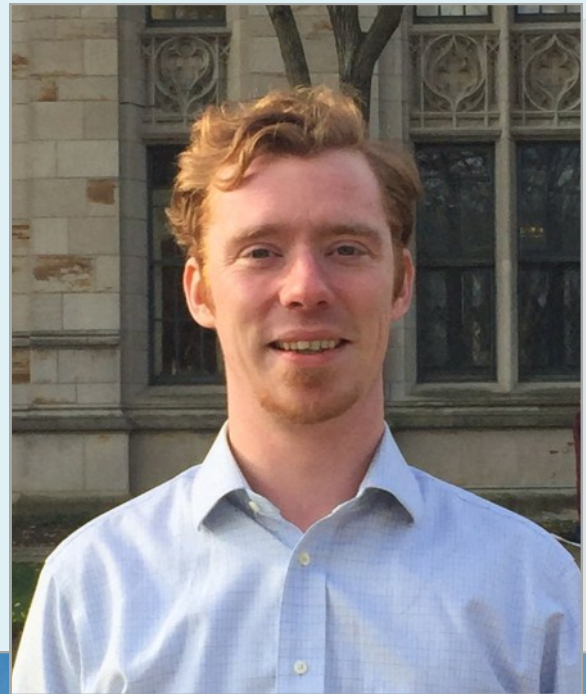
STAFF SPOTLIGHT

The Center for Research on Media, Technology, and Health juggles an ambitious collection of projects. Hookahs, electronic cigarettes, alcohol, Twitter, Yelp, Tumblr, and YouTube all feature on the regular agenda. As such, it's fortunate that CRMTH has the skills of project coordinator Jason Colditz.

Since joining the team in 2012, he has been involved in five ongoing projects regarding media messages and their influence on health. His research on these topics has earned him numerous authorships. His first-author publication analyzing policy gaps related to waterpipe tobacco smoking will soon be appearing in the *American Journal of Health Promotion*. As part of his role with CRMTH, he mentors both undergraduate and graduate students in development of research projects.

CRMTH is not Mr. Colditz's first exposure to the University of Pittsburgh. He earned his Master's in Education in 2012 from Pitt, studying social and comparative analysis in education. His undergraduate degrees in communications and psychology are also from Pitt.

In addition to his many Pitt projects, Jason finds the time to volunteer with and serve on the boards of local non-profit organizations. He also enjoys gardening, woodworking, and tinkering with electronics.



PAST STUDENT SPOTLIGHT



Mary Carroll, BA, BSN

CRMTH mentee, 2006-2013

Currently triage nurse, Squirrel Hill Health Center

Mary Carroll accomplished much during her six years as a CRMTH mentee. She joined us in her sophomore year of college, and during her time with the Center co-authored nine papers and took the role of lead author on a tenth. She presented on hookahs and internet video at the Society for Adolescent Health and Medicine Annual Meeting in New Orleans, where she won a student research scholarship.

Amid her many research projects, she also took two years to work in Turkmenistan with the Peace Corps, developing health education classes for children and for pregnant mothers.

Since her time at CRMTH, Mary received her BSN degree from University of Pittsburgh and began to work as a triage nurse at the Squirrel Hill Health Center. She applies her linguistic skills at the federally qualified health center, using Arabic and American Sign Language to better help both their refugee, immigrant, and deaf patients. Much of her day involves patient education and coordination of their OB/GYN program.

"My experience at CRMTH inspired me to get into healthcare in family practice where I can be actively involved in health education and preventive medicine," Mary said. Looking forward, she hopes to further her education in advanced practice nursing and to continue to be involved in healthcare research.

CURRENT STUDENT SPOTLIGHT

Laura Lin, BA

CRMTH mentee, 2014-present

Currently medical student, University of Pittsburgh



Laura's year-long fellowship with CRMTH allowed her to become deeply involved with a project on associations between social media and mental health issues. Her lead author publication will soon appear in the high-impact journal *Depression and Anxiety*.

Laura's abstract on this work also earned her a place presenting at the 2015 Society of General Internal Medicine meeting in Toronto. She also worked with the rest of the CRMTH team on three other presentations given at the same conference. She is also a co-author on an article about social media and emotional support which was recently published in the *Journal of Community Health*.

As she continues through her fourth year of medical school, Laura is applying for a residency in combined family medicine and psychiatry.

STUDENTS

University of Pittsburgh students thrive at CRMTH. The Center offers students guidance and direction, work experience, and insight into the world of academic research. The following showcases our students in 2015 and their research topics.

MEDICAL STUDENTS

Jamil Alhassan and Simon Yohannes
An after-school program focusing on health, social, and environmental issues among urban, at-risk youth

Mercy Baffour
Social media and eating disorders

Bethany Corbin
Prescription education for medical students

Beth Hoffman
Literature review on medical television

Laura Lin
*Social media and mental health
(See spotlight)*

Erin Whaite
*Social media and mental health,
Facebook 'likes'*

MASTERS IN PUBLIC HEALTH STUDENTS

Priam Chakraborti
Analysis of Twitter data on HPV vaccines

Ravi Choudhuri
Pennsylvania policy on alternative tobacco products

Jacquelynn Jones
Social media and mental health

Mara Leff
Using social marketing and participatory action research to increase hand washing in India

Joy Xu
Statistical analysis of media data

UNDERGRADUATE STUDENTS

Maharsi Naidu
Data visualization, social media data

Christine Stanley
Project coordination assistance

Nancy Adkins, Paige Haring,
Molly March-Steinman, Gabrielle Scherer,
and Sarah Whyler
*Assessment of data on Twitter related to
alternative tobacco and nicotine sources*





AFFILIATED FACULTY

CRMTH is positioned across the health sciences, which includes the University of Pittsburgh schools of medicine, public health, nursing, pharmacy, rehabilitation sciences, and dental medicine. We also work with many researchers outside of health sciences, for example in the schools of social work and arts and sciences. The following are some of our key collaborators within Pitt and their particular areas of expertise.

Michael Fine, MD, MSc

Medicine, Clinical and Translational Research,
Health Disparities

A. Everett James, JD, MBA

Health Policy and Government

Wishwa Kapoor, MD, MPH

Medicine, Outcomes and Effectiveness Research

Kevin Kraemer, MD, MSc

Alcohol Use, Clinical Medicine

Steven Martino, PhD,

RAND, Health Psychology

Kathleen McTigue, MD, MPH, MS

Epidemiology, Prevention, Obesity

Elizabeth Miller, MD, PhD

Pediatrics, Adolescent Medicine,
Community-Based Research

Gordon Mitchell, PhD

Communication

Brooke Molina, PhD

Psychiatry, Psychology,
Youth Development,
Substance Use

Ana Radovic, MD

Adolescent Medicine

Daniel Rosen, PhD

Social Work, Substance Use, Aging, Technology,
Business

William Shadel, PhD

RAND, Health Psychology, Media Messages, Substance
Use

Galen Switzer, PhD

Medicine, Psychiatry, and Psychometrics

John Wallace, PhD

Health Disparities, Social Work, Urban Education

Charles Wessel, MLIS

Library Science, Systematic Reviews



PUBLICATIONS, 2015



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Sidani JE, Shensa A, Primack BA. Waterpipe steam stones: Familiarity with and use among US young adults. *Nicotine & Tobacco Research*.

Soneji S, Sargent JD, Tansky SE, Primack BA. Associations between initial waterpipe tobacco smoking and snus and subsequent cigarette smoking: Results from a longitudinal study of US adolescents and young adults. *JAMA Pediatrics*.

Phelps-Tschang J, Miller E, Rice K, Primack BA. Web-based media literacy to prevent tobacco use among high school students. *Journal of Media Literacy Education*. In press, 2016.

Primack BA, Colditz JB, Pang K, Jackson KM. Portrayal of alcohol intoxication on YouTube. *Alcoholism: Clinical and Experimental Research*.

Primack BA, Carroll MV, Davis W, Shensa A, Levine MD. Hookah-related images posted by and about females on Tumblr. *Journal of Health Communication*. In press, 2016.

Primack BA, Soneji S, Stoolmiller M, Fine MJ, Sargent JD. Progression to traditional cigarette smoking after electronic cigarette use among US adolescents and young adults. *JAMA Pediatrics*.

Primack BA, Freedman-Doan P, Sidani JE, Rosen D, Shensa A, James AE, Wallace J. Sustained waterpipe tobacco smoking and trends over time among US high school seniors: Findings from Monitoring the Future. *American Journal of Preventive Medicine*.

Colditz JB, Ton J, James AE, Primack BA. Waterpipe tobacco policy: Qualitative synthesis of national, state, and local policy texts. *American Journal of Health Promotion*. In press, 2016.

Shensa A, Phelps-Tschang JS, Miller E, Primack BA. A randomized crossover study of Web-based media literacy to prevent smoking. *Health Education Research*.

Primack BA, Carroll MV, Weiss PM, Shihadeh AL, Shensa A, Farley ST, Fine MJ, Eissenberg T, Nayak S. Systematic review and meta-analysis of inhaled toxicants from waterpipe and cigarette smoking. *Public Health Reports*.

Shensa A, Sidani JE, Lin L, Bowman ND, Primack BA. Social media use and perceived emotional support among US young adults. *Journal of Community Health*. In press, 2016.

Sidani JE, Shiffman S, Shensa A, Switzer GE, Primack BA. Behavioral Associations with Waterpipe Tobacco Smoking Dependence among U.S. Young Adults. *Addiction*. In press, 2016.

Lin LY, Sidani JE, Shensa A, Radovic A, Miller E, Colditz JB, Hoffman BL, Giles LM, Primack BA. Association between social media use and depression among US young adults. *Depression and Anxiety*. In press, 2016.

Levenson JC, Shensa A, Sidani JE, Colditz JB, Primack BA. Social media use and sleep disturbance among young adults. *Preventive Medicine*. In press, 2016.

PUBLICATIONS, 2013–2014

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Primack BA, Douglas E, Land SR, Miller E, Fine MJ. Comparison of media literacy and usual education to prevent tobacco use: A cluster randomized trial. *Journal of School Health*.

Primack BA, Colditz JB, Cohen E, Switzer GE, Robinson G, Seltzer DL, Rubio DM, Kapoor WN. Measurement of social capital among clinical research trainees. *Clinical and Translational Science*.

Primack BA, Mah J, Shensa A, Rosen D, Yonas MA, Fine MJ. Associations between race, ethnicity, religion, and waterpipe tobacco smoking. *Journal of Ethnicity in Substance Abuse*.

Robinson GF WB, Switzer GE, Cohen ED, Primack BA, Kapoor WN, Seltzer DL, Bakken LL, Rubio DM. Shortening the Work Preference Inventory for use with physician scientists: WPI 10. *Clinical and Translational Science*.

Sidani JE, Shensa A, Barnett TE, Cook RL, Primack BA. Knowledge, attitudes, and normative beliefs as predictors of hookah tobacco smoking initiation: A longitudinal study of university students. *Nicotine & Tobacco Research*.

Primack BA, Khabour OF, Alzoubi KH, Switzer GE, Shensa A, Carroll MV, Azab M, Eissenberg T. The LWDS-10J: Reliability and validity of the Lebanon Waterpipe Dependence Scale among university students in Jordan. *Nicotine & Tobacco Research*.

Primack BA, McClure A, Li Z, Sargent JD. Receptivity to and recall of alcohol brand appearances in US popular music and alcohol-related behaviors. *Alcoholism: Clinical and Experimental Research*.

Carroll MV, Chang J, Sidani JE, Barnett TE, Soule E, Balbach E, Primack BA. Reigniting tobacco ritual: Waterpipe tobacco smoking establishment culture in the United States. *Nicotine & Tobacco Research*.

Rubio DM, Robinson GF WB, Gilliam VA, Primack BA, Switzer GE, Seltzer DL, Kapoor WN. Characterization of investigators' approach to translational research: A qualitative study. *Clinical and Translational Science*.

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Carroll MV, Shensa A, Primack BA. A comparison of cigarette and hookah-related videos on YouTube. *Tobacco Control*.

Primack BA, Land SR, Fan J, Kim KH, Rosen DA. Associations of mental health problems with waterpipe tobacco and cigarette smoking among college students. *Substance Use and Misuse*.

Nuzzo E, Shensa A, Kim KH, Fine MJ, Barnett TE, Cook R, Primack BA. Associations between hookah tobacco smoking knowledge and hookah smoking behavior among US college students. *Health Education Research*.

Primack BA, Shensa A, Kim KH, Carroll MV, Hoban MT, Leino EV, Eissenberg T, Dachille KH, Fine MJ. Waterpipe smoking among US university students. *Nicotine & Tobacco Research*.

Barnett TE, Shensa A, Kim KH, Cook RL, Nuzzo E, Primack BA. The predictive utility of attitudes toward hookah tobacco smoking on current use and use among a sample of college students. *American Journal of Health Behavior*.

Robinson GF WB, Switzer GE, Cohen ED, Primack BA, Kapoor WN, Seltzer DL, Bakken LL, Rubio DM. A shortened version of the Clinical Research Appraisal Inventory: CRAI-12. *Academic Medicine*.

Alzoubi KH, Khabour OF, Azab M, Shqair DM, Shihadeh A, Primack BA, Eissenberg T. Carbon monoxide exposure and puff topography are associated with the Lebanese Waterpipe Dependence Scale score. *Nicotine & Tobacco Research*.

BY THE NUMBERS

Citations since 2010: 2,036*

Publications since 2010: 58

**News articles on
CRMTH in 2015: 884[†]**

**Total audience reached
in 2015: 23,300,000[†]**



[†] Estimates provided by University of Pittsburgh Medical Center Media Relations Office

* Google Scholar estimate

CRMTH's Top Five Most Cited Publications	Citations
Prevalence of and associations with waterpipe tobacco smoking among US university students <i>Annals of Behavioral Medicine</i> , 2008	222
Role of video games in improving health-related outcomes: A systematic review <i>American Journal of Preventive Medicine</i> , 2012	119
Association between media use in adolescence and depression in young adulthood: A longitudinal study <i>Archives of General Psychiatry</i> , 2009	118
College students and use of K2: an emerging drug of abuse in young persons <i>Substance Abuse Treatment, Prevention, and Policy</i> , 2011	101
Water-pipe tobacco smoking among middle and high school students in Arizona <i>Pediatrics</i> , 2009	93

CURRENT GRANTS

Waterpipe Tobacco Smoking among Adolescents and Young Adults in the United States

National Cancer Institute (NCI R01)

2010–2017

Emergence of Gender Inequitable Practice in Adolescence

National Institute of Child Health and Human Development (NICHD R24)

2013–2015

Alcohol-Related Messages in Social Media

ABMRF Alcohol Research Foundation (ABMRF)

2013–2015

Exploring Sex Differences in Waterpipe Tobacco Smoking

NIH Office of Women's Health (NIH R01 supplement)

2014–2016

Sponsored Health Information Technology and Evidence-Based Prescribing among Medical Residents

Agency for Healthcare Research and Quality (AHQR R21)

2014–2016

Improving US Health Policy Regarding Water-pipe Tobacco Smoking

National Cancer Institute (NCI R21)

2014–2016

Alcohol Marketing and Underage Drinking

National Institute of Alcohol Abuse and Alcoholism (NIAAA R01)

2014–2017

Cessation in Non-Daily Smokers: An RCT of NRT with Ecological Momentary Assessment

National Institute on Drug Abuse (NIDA R01)

2014–2018



CENTER NEWS



THE SOCIETY OF GENERAL INTERNAL MEDICINE'S ANNUAL MEETING

The faculty and staff of The Center for Research on Media, Technology, and Health represented the University of Pittsburgh with six poster and four oral presentations on a variety of topics at the Society of General Internal Medicine's annual conference in Toronto this April. A summary of the presentations follows.

- **Brian Primack:**
 - Systematic Review And Meta-Analysis Of Inhaled Toxicants From Waterpipe And Cigarette Smoking.
 - Initiation of Cigarette Smoking after Electronic Cigarette Use: A National Study of Young Adults.
 - Waterpipe Tobacco Smoking among US Young Adults Both in And Not in School: A Nationally-Representative Study.
- **Jaime Sidani:**
 - Associations Between Social Media Use and Eating Disorder Risk Among US Young Adults.
 - Waterpipe Tobacco Smoking Dependence among US Young Adults.
- **Jason Colditz:**
 - 'World Vape Day' 2014: Lessons from the Twittersphere.
- **Ariel Shensa:**
 - Associations between Social Media Use and Perceived Emotional Support among a Nationally-Representative Cohort of Young Adults.
- **Laura Lin:**
 - Associations between Social Media Use and Depressive Symptoms among US Young Adults.
- **Beth Hoffman:**
 - The Use of Fictional Medical Television in Medical Education: A Systematic Review.
 - Exposure to Fictional Medical Television and Patients' Health: A Systematic Review.

OUR INFLUENCE

WORLD HEALTH ORGANIZATION



The World Health Organization guides public health policy and best practices for health internationally. In 2015, they released the second edition of their advisory note on waterpipe tobacco use. WHO had issued their first report on the topic in 2005. This second edition was three times the length of the original, and it cited CRMTH research.

In particular, their report titled “Waterpipe tobacco smoking: health effects, research needs and recommended actions for regulators” cited our manuscript published in *JAMA Pediatrics* to support the association between hookah use and subsequent other tobacco exposure.

VAPE SHOP AGE RESTRICTIONS

Pennsylvania is one of only 10 states that have not set an age limit on the sale of electronic cigarettes. This gives minors easy access to these nicotine products.

However, some local ‘vape shops’ have cited CRMTH research in their decision to voluntarily institute an age limit to their stores as a matter of policy.

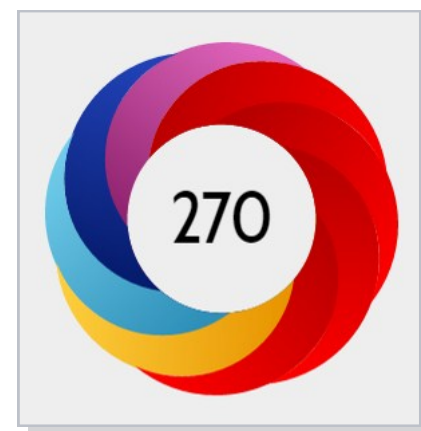
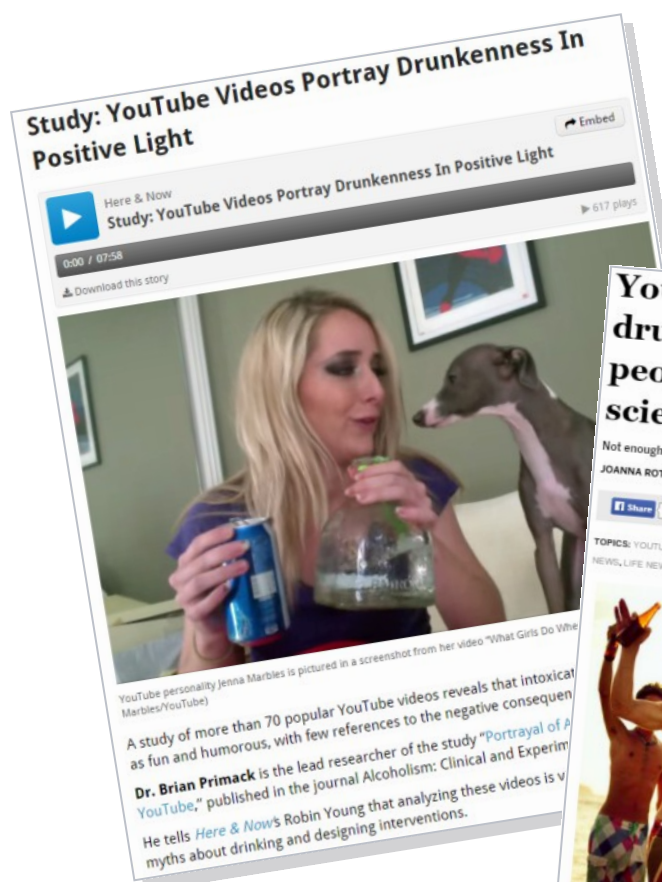


IN THE HEADLINES

INTOXICATION ON YOUTUBE

Multiple CRMTH studies made their media mark in 2015. Leading substance use journal *Alcoholism* published "Portrayal of alcohol intoxication on YouTube" in April. The manuscript summarized characteristics of popular online videos featuring colloquial keywords such as 'drunk' or 'hammered.'

Dozens of newspapers, radio stations, television networks, and online news sites took interest in the research. U.S. sources included *The Atlantic*, *NPR*, and *Huffington Post*. The research reached an international audience through outlets such as the *Daily Mail* of Great Britain, the *French Tribune*, and *The Times of India*.



The above is the publication's Altmetric score. This vibrant graphic quantifies the amount of public exposure the article has received. A score of 270 ranks in the top 5% of all Altmetrics, and the top 1% of articles in *Alcoholism*. The red stripes indicate references by news outlets as a top source of visibility.

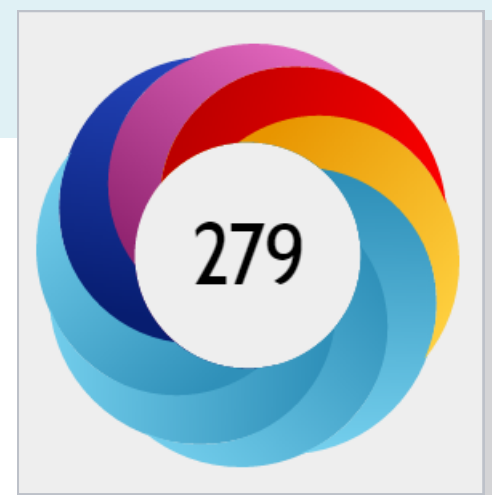
AFTER E-CIGS



In November 2015, *JAMA Pediatrics* published an article which CRMTH researchers wrote in partnership with Dartmouth's Geisel School of Medicine. "Progression to Traditional Cigarette Smoking After Electronic Cigarette Use Among US Adolescents and Young Adults" was the first longitudinal study to examine progression to traditional cigarettes in a national sample.

Articles about the study appeared in *Time*, *The Washington Post*, *LA Times*, and *US News and World Report*, for a total of 336 news outlets. This included an *NPR* interview with Dr. Primack on Essential Pittsburgh and another for *NPR* Boston, two of sixteen radio pieces on the subject.

To the right is the publication's Altmetric score. This graphic quantifies the amount of public exposure the article has received. A score of 279 puts the article in the top 5% of all Altmetric, and the top 3% of *JAMA Pediatrics* articles. Each color in the wheel signifies a media category; the widest, blue section indicates prevalent shares occurring on Twitter.



MORE HEADLINES

Sustained waterpipe tobacco smoking and trends over time among US high school seniors: Findings from Monitoring the Future. *American Journal of Preventive Medicine.*

EurekAlert!:

Hookah tobacco smoking seems to be increasing in both prevalence and frequency: Young users of hookah and snus 'more likely to take up cigarettes'

PrWeb:

Hookah smoking on the rise in high school senior

Medical Press:

Hookah tobacco smoking seems to be increasing in both prevalence and frequency



Associations between initial waterpipe tobacco smoking and snus and subsequent cigarette smoking: Results from a longitudinal study of US adolescents and young adults. *JAMA Pediatrics.*



Medical News Today:

Young users of hookah and snus 'more likely to take up cigarettes'

Medical Daily:

Hookah leads to smoking cigarettes in teens: Why FDA needs to move forward with regulations

United Healthcare:

Teens who use hookahs more likely to start smoking cigarettes, study says

CONTACT US



For more information
about the Center, visit:

<http://www.crmth.pitt.edu/>

University of Pittsburgh
Center for Research on Media, Technology, & Health
230 McKee Place, Suite 600
Pittsburgh, PA 15213

Email:

crmth@pitt.edu

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