Youth and adults in 21st-century society are exposed to various types of media and technology—including social media, Internet, television, films, music, video games, and advertisements—during the majority of their waking hours.

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

With this in mind, the first focus of MTH is to investigate associations between media messages, technological innovations, and health outcomes. In particular, we focus our interest on topics relating to substance use (such as tobacco 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 involve policy implementation, education, and other organizational or procedural change.

A vital part of our work is focused around mentorship. MTH supports interdisciplinary research interests for all mentees, including undergraduate and graduate students, medical trainees, and post-doctoral scholars. The symbiotic relationship between MTH and mentees results in one-of-a-kind educational experiences as well as innovative research ideas.
Additionally, our research on using social media to monitor substance use trends had a big year with the emergence of JUUL as an e-cigarette brand popular among youth and on-going analysis of waterpipe tobacco use. A particular article of note was our methods paper, published in the American Journal of Public Health, which detailed how we use Twitter to analyze health messages—a practical guide for other researchers interested in helping to examine the wealth of material available publicly online to help improve health.

Thank you for your continued support of the work being done at MTH. We look forward to continuing this important research toward improving health, while keeping an eye on the ever changing media landscape and new ways it might affect our health.

Meet Brian A. Primack, MD, PhD

Dr. Brian Primack is the Director of the Center for Research on Media, Technology, and Health; Professor of Medicine, Pediatrics, and Clinical and Translational Science; Dean of the University Honors College; and Bernice L. and Morton S. Lerner Endowed Chair.

After graduating from Yale University with degrees in English and Mathematics, Brian 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

We were honored this July to be identified as having contributed the top article of 2017 to the American Journal of Preventive Medicine with our publication, “Social media use and perceived social isolation among young adults in the U.S.”

This year, we’ve expanded on that work by creating and administering a new survey on social media and health outcomes. We surveyed nearly 2,400 adults ages 18-30 at baseline, 3 months, and 6 months. This work continues to influence recommendations on how to minimize harm of social media use, while recognizing that it may not be possible, or beneficial, to quit using social media completely.

Additionally, our research on using social media to monitor substance use trends had a big year with the emergence of JUUL as an e-cigarette brand popular among youth and on-going analysis of waterpipe tobacco use. A particular article of note was our methods paper, published in the American Journal of Public Health, which detailed how we use Twitter to analyze health messages—a practical guide for other researchers interested in helping to examine the wealth of material available publicly online to help improve health.

Thank you for your continued support of the work being done at MTH. We look forward to continuing this important research toward improving health, while keeping an eye on the ever changing media landscape and new ways it might affect our health.
THE PEOPLE OF MTH

Ariel Shensa, MA • Statistician and Research Scientist

Ariel Shensa has been with MTH since 2010. She received her BA in Psychology from Chatham University and MA in Research Methodology from the University of Pittsburgh. She is currently enrolled in the University of Pittsburgh’s Clinical and Translational Science PhD program. Her current research focuses on social media-derived support, classification of problematic social media use patterns, and developing longitudinal models of social media use and mental health outcomes among young adults.

Beth L. Hoffman, BSc • Research Assistant

Beth Hoffman joined MTH in 2014. She received a degree in Human Biology from Brown University. She is currently a Master of Public Health student and in 2019 will begin her PhD in the Department of Behavioral and Community Health Sciences at the Graduate School of Public Health at the University of Pittsburgh. Her research focuses on the portrayal of health topics in primetime television shows and anti-vaccination sentiment on Facebook.

César G. Escobar-Viera, MD, PhD • Postdoctoral Associate

César G. Escobar-Viera became part of MTH in 2016 and is currently working on several projects related to the impact of social media on mental health outcomes, especially potential risk and protective factors associated to social media use among sexual minority individuals and other minority populations. He received his PhD in Health Services Research from the University of Florida. César completed his medical education and clinical training in Psychiatry in Paraguay, where he also served as CMO of the only public psychiatric hospital during the Psychiatric Reform in the country. His main research interests include leveraging social media and consumer information technology to improve both mental health outcomes and access to mental health services for minority individuals.

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

Jaime Sidani joined MTH 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 received 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 and young adult health behavior and tobacco use prevention, with a specific focus on media and technology.
THE PEOPLE OF MTH

Jason B. Colditz, MEd • Program Coordinator

Jason Colditz has been with MTH since 2012 and is responsible for overseeing day-to-day operations and research staff. He received a BS in Psychology and Communications and an MEd in Social and Comparative Analysis, both from the University of Pittsburgh. Jason is currently a PhD student in the Clinical and Translational Science program at the University of Pittsburgh. His primary research interests include social media use typologies, early-intervention models and social support for behavioral health conditions using online technologies, and econometrics of research.

Kar-Hai Chu, PhD • Assistant Professor of Medicine & Pediatrics

Kar-Hai Chu joined MTH in 2016 after being a Research Scientist at the University of Southern California for several years, studying various public health issues, including tobacco control, community health coalitions, and social media based health surveillance. He received his BS in Computer Science from Johns Hopkins University, MS in Computer Science from Columbia University, and PhD in Communication and Information Sciences from the University of Hawaii. His current research is focused on innovative methods of using online technologies to support health science.

Michelle S. Woods, BA • Communications Officer

Michelle Woods became part of MTH in 2016 after working in the publishing industry and in social media management. She received a BA in Writing from Grand Valley State University in Michigan and earned a copy editing certificate at the University of Chicago. She is currently enrolled in the Master of English program at the University of Pittsburgh. She is interested in adolescent and young adult media use.

Sara Matheny, BS • Research Assistant

Sara joined MTH in 2018 as a research assistant. She received a BS in Biological Sciences from the University of Pittsburgh. Sara became a Certified Tobacco Treatment Specialist through a certificate program at Duquesne University, where she is also currently a MS student in Biotechnology. Her research interests are tobacco cessation, the use of biotechnology to improve health, and social media use.
Steven Farley
Operations Associate, Achievement First, a charter school network
2010–2013

With a broad interest in the field of public health, Steven Farley joined MTH to focus on substance use research. He began by coding Billboard 100 lyrics for references to substance use. Following that project, he researched material related to pharmaceutical industry advertising for a media literacy educational module for medical students and residents. He also assisted on a review and meta-analysis comparing toxicants from waterpipe and cigarette smoking, which was published in Public Health Reports and presented at the Society for General Internal Medicine.

Sometimes doing research felt like searching for a needle in a haystack, but Steven found support and confidence in being a member of the MTH team, contributing to project update meetings and gaining valuable work experience. He learned to be open to opportunities and to not be afraid to make them for himself, advice he’d like to pass on to other students interested in research.

Currently, Steven works at Achievement First, where he supports a team of educational consultants working with schools around the country to increase quality and rigor, with an aim to address the achievement and opportunity gap. His responsibilities include managing data collection, recruiting and vetting new partnerships, and creating systems to increase efficiency. He also volunteers for organizations addressing food insecurity through community gardens and access to affordable fruits and vegetables. In the future, he plans to continue fostering innovative partnerships between organizations in the public or non-profit sector.

Sabrina Karim, BA
Medical student, University of Pittsburgh
2016–present

Sabrina Karim was driven to do research at MTH by the opportunities to study social media from a public health perspective and work with Dr. Brian Primack after seeing him speak about MTH’s social media research at a symposium. In context of her medical school education, she saw social media as a mechanism through which to understand modern medicine, interact with professionals, and connect with her patients regarding their use of it.

To that end, Sabrina began an intensive one-month research project focused on how the difference between self-reported positive and negative experiences on social media are related to both social isolation and depression. Her work earned her publications in the American Journal of Health Promotion and Depression and Anxiety, and was also presented at the American Public Health Association Annual Meeting in 2017. An additional takeaway from her research month was a new familiarity with STATA statistical software gained through experimentation and mentoring from Dr. Primack. Overall, her experience introduced her to the importance and joy of collaboration in research. She also cultivated skills in communicating her research and projects at conferences, to the media, and in interviews.

In addition to medical school and her work with MTH, Sabrina is also a member of the PalPITTations a cappella group for graduate students in the health sciences, a Schweitzer Fellow (through which she taught yoga and meditation at the Allegheny County Jail), and a member of the Gold Humanism Honor Society. Reflecting on the many lessons she learned while at MTH, one in particular stands out to her that she recommends for all students: the Japanese idea of “Ikigai.” An idea that Dr. Primack introduced to her as she was considering career possibilities, it translates to “a reason for being” and has provided a helpful framework for her to think about her professional aspirations and priorities. Starting summer 2019, Sabrina will be embracing her “Ikigai” in a pediatric residency, where she is confident her research in social media will inform how she counsels, treats, and cares for her future patients.
Students of all levels, both from the University of Pittsburgh and outside of it, thrive at MTH. The Center offers students guidance and direction, work experience, and insight into the world of academic research. The following showcases our students in 2018 and their research topics.

### GRADUATE

<table>
<thead>
<tr>
<th>Name</th>
<th>Research Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meghan Bisbey</td>
<td>Type of social media use and emotional health</td>
</tr>
<tr>
<td>Daniel Rzewnicki</td>
<td>Sleep and experiences on social media</td>
</tr>
<tr>
<td>Sabrina Karim</td>
<td>Social media content and social isolation</td>
</tr>
<tr>
<td>Sanya Taneja</td>
<td>Machine learning and natural language processing</td>
</tr>
</tbody>
</table>

### UNDERGRADUATE

<table>
<thead>
<tr>
<th>Name</th>
<th>Research Topic</th>
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<tbody>
<tr>
<td>Erica Barrett</td>
<td>JUUL use behaviors on Twitter</td>
</tr>
<tr>
<td>Eleanna Melcher</td>
<td>Depression and perceived value of social media</td>
</tr>
<tr>
<td>Sara Matheny</td>
<td>Systematic review of tobacco cessation apps</td>
</tr>
<tr>
<td>Daria Williams</td>
<td>Qualitative analysis of anti-vaccination posts</td>
</tr>
<tr>
<td>Charis Williams</td>
<td>Vaping and JUUL use on Twitter</td>
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### HIGH SCHOOL

<table>
<thead>
<tr>
<th>Name</th>
<th>Research Topic</th>
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</thead>
<tbody>
<tr>
<td>Rachel Himmel and Riley Wolynn</td>
<td>Anti-vaccination posts on Facebook</td>
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</tbody>
</table>
MTH 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, including the schools of social work and arts and sciences. The following are some of our key collaborators within Pitt and beyond.

**AFFILIATED FACULTY**

Nicholas Bowman, PhD  
Communications, Social Media  
West Virginia University

Sophia Choukas-Bradley, PhD  
Social Media, Body Image, LGBT

Carl Fertman, PhD, MBA, CHES  
Education, Adolescent Development

Michael Fine, MD, MSc  
Medicine, Clinical and Translational Research, Health Disparities

Megan Hamm, PhD  
Qualitative Methods

Na-Rae Han, PhD  
Computational Linguistics

Renee Hobbs, EdD  
Media Literacy Education, Communications  
University of Rhode Island

A. Everette James, JD, MBA  
Health Policy and Government

Kevin Kraemer, MD, MSc  
Alcohol Use, Clinical Medicine

Jessica Levenson, PhD  
Clinical Psychology, Sleep

Mike Marshal, PhD  
Public Health, LGBT

Steven Martino, PhD  
Health Psychology  
RAND Corporation

Elizabeth Miller, MD, PhD  
Pediatrics, Adolescent Medicine, Community-Based Research

Brooke Molina, PhD  
Psychiatry, Psychology, Youth Development, Substance Use

Ana Radovic, MD  
Adolescent Medicine

William Shadel, PhD  
Health Psychology, Media Messages, Substance Use  
RAND Corporation

Ron Stall, PhD  
Public Health, LGBT

David Stoffer, PhD  
Statistical Methods

Galen Switzer, PhD  
Medicine, Psychiatry, Psychometrics

Shyam Visweswaran, MD, PhD  
Machine Learning

Joel Welling, PhD  
Computer Science

Charles Wessel, MLIS  
Library Science, Systematic Reviews
MTH’s Top Five Most Cited Publications

<table>
<thead>
<tr>
<th>Publication</th>
<th>Citations</th>
</tr>
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<tbody>
<tr>
<td>Role of video games in improving health-related outcomes: A systematic review. American Journal of Preventive Medicine, 2012</td>
<td>317</td>
</tr>
<tr>
<td>Prevalence of and associations with waterpipe tobacco smoking among U.S. university students. Annals of Behavioral Medicine, 2008.</td>
<td>316</td>
</tr>
<tr>
<td>Progression to traditional cigarette smoking after electronic cigarette use among U.S. adolescents and young adults. JAMA Pediatrics, 2015.</td>
<td>271</td>
</tr>
<tr>
<td>Association between initial use of e-cigarettes and subsequent cigarette smoking among adolescents and young adults: A systematic review and meta-analysis. JAMA Pediatrics, 2017.</td>
<td>173</td>
</tr>
</tbody>
</table>

* Google Scholar estimate
† Estimates provided by University of Pittsburgh Medical Center Media Relations Office
<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Publication</th>
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<tbody>
<tr>
<td></td>
<td>Initiation of traditional cigarette smoking after electronic cigarette use among tobacco-naïve U.S. young adults.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soneji S, Sung H-Y, Primack BA, Pierce JJ, Sargent JD. Quantifying population-level health benefits and harms of e-cigarette use.</td>
<td>PLOS ONE.</td>
</tr>
<tr>
<td></td>
<td>Primack BA, Bisbey M, Shensa A, Bowman B, Karim SA, Knight J, Sidani JE. The association between valence of social media experiences and depression.</td>
<td>Depression and Anxiety.</td>
</tr>
<tr>
<td></td>
<td>Taleb ZB, Laestadius LI, Asfar T, Primack BA, Maziak W. #Hookahlife: The rise of waterpipe promotion on Instagram.</td>
<td>Health Education &amp; Behavior.</td>
</tr>
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2017 PUBLICATIONS


### 2016 PUBLICATIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal/Media</th>
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<tbody>
<tr>
<td>Associations between internet-based professional social networking and emotional distress.</td>
<td>Cyberpsychology, Behavior, and Social Networking.</td>
</tr>
<tr>
<td>Consensus statement on assessment of waterpipe smoking in epidemiological studies.</td>
<td>Tobacco Control.</td>
</tr>
<tr>
<td>Trajectories of substance use as predictors of antisocial personality disorder, major depressive episode, and generalized anxiety disorder.</td>
<td>Addictive Behaviors.</td>
</tr>
<tr>
<td>Association between social media use and depression among U.S. young adults.</td>
<td>Depression and Anxiety.</td>
</tr>
<tr>
<td>The association between social media use and sleep disturbance among young adults.</td>
<td>Preventive Medicine.</td>
</tr>
<tr>
<td>Systematic review and meta-analysis of inhaled toxicants from waterpipe and cigarette smoking.</td>
<td>Public Health Reports.</td>
</tr>
<tr>
<td>Social media use and perceived emotional support among U.S. young adults.</td>
<td>Journal of Community Health.</td>
</tr>
<tr>
<td>A randomized crossover study of Web-based media literacy to prevent smoking.</td>
<td>Health Education Research.</td>
</tr>
<tr>
<td>Waterpipe tobacco policy: Qualitative synthesis of national, state, and local policy texts.</td>
<td>American Journal of Health Promotion.</td>
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**UNIVERSITY OF PITTSBURGH**

**FOUNDED 1787**
**CURRENT GRANTS**

**Social media use and depression outcomes among U.S. lesbian, gay, and bisexual young adults**
National Institute of Minority Health and Health Disparities (NIMHD K99/R00)
PI: César G. Escobar-Viera
2018–2023

**Leveraging Twitter to monitor nicotine and tobacco-related cancer communication**
National Cancer Institute (NCI R01)
PI: Brian A. Primack
2018–2022

**Leveraging mobile applications to maximize tobacco cessation**
National Cancer Institute (NCI K07)
PI: Kar-Hai Chu
2018–2022

**Tobacco cessation for sexual minorities**
Clinical and Translational Science Institute
University of Pittsburgh
PI: Kar-Hai Chu
2018–2019

**Optimizing mental health in the age of social media**
Fine Foundation
PI: Brian A. Primack
2017–2019

**Cessation in non-daily smokers: An RCT of nicotine replacement therapy with ecological momentary assessment**
National Institute on Drug Abuse (NIDA R01)
Co-PI: Brian A. Primack (with Hilary A. Tindle)
2014–2019

**Waterpipe tobacco smoking among adolescents and young adults in the United States**
National Cancer Institute (NCI R01)
PI: Brian A. Primack
2010–2018
MTH Welcomes Dr. Jean Twenge

On March 16, MTH welcomed Dr. Jean Twenge—Professor of Psychology at San Diego State University and author of more than 140 scientific publications and 6 books—to speak about generational differences in media use, goals, attitudes, and development.

Dr. Twenge’s research on iGen (people born 1995-2012) has found increased loneliness and depression compared to previous generations, along with more time online and on social media.

Dr. Brian A. Primack Invited to Speak at Washington Post Live

On June 13, Dr. Brian Primack joined a panel of policymakers, advocates, researchers, and healthcare experts to discuss “Mental Health and Well-Being in America.” Specifically, his section of the panel focused on media and technology’s role in the mental well-being of children to college-age students.

Amy Joyce (left), editor and reporter for On Parenting blog at the Washington Post; Dr. Robert Findling, director of Child and Adolescent Psychiatry at the Johns Hopkins University School of Medicine; Dr. Yalda Uhls, assistant adjunct professor at UCLA’s Department of Psychology; MTH’s Dr. Brian Primack (right).
On October 26, MTH participated in the Modeling Social Dynamics & Health Behavior Conference, presented by Pitt Public Health’s Center for Social Dynamics & Community Health and Public Health Dynamics Laboratory, and the Clinical and Translational Science Institute’s Biomedical Modeling Core at the University of Pittsburgh. Beth Hoffman presented a poster on her research, “It’s not all about Autism: The emerging landscape of anti-vaccination sentiment on Facebook.” Dr. Kar-Hai Chu moderated a panel on substance use.

**Tobacco Free Allegheny**

Dr. Kar-Hai Chu was the keynote speaker for Tobacco Free Allegheny’s December presentation on current trends in adolescent smoking. His presentation focused on adolescents and electronic nicotine delivery systems, including the recent popularity of e-cigarette brand JUUL.

**Other Notable 2018 MTH Presentations**

**Dr. Brian Primack**
- “Media Messages and Health: Challenges and Opportunities for the 21st Century.” Kelley School of Business Keynote Presentation. Indianapolis, IN: October.

**Meghan Bisbey, Ariel Shensa, and Dr. Brian Primack**

**Dr. Kar-Hai Chu**
In June, MTH published “The association between valence of social media experiences and depressive symptoms” in *Depression and Anxiety*.

The study was widely covered by news sources including *Forbes*, *U.S. News and World Report*, the *Pittsburgh Post-Gazette*; radio stations such as WBUR (Boston’s NPR) and KDKA (Pittsburgh); and international news outlets such as *Daily Mail UK*, *Tribune India*, and *Geo News* in Pakistan.

MTH’s growing expertise in social media and health outcomes has made the Center a go-to for news stories seeking commentary on the latest trends, news, and research related to social media.
MTH was also called upon for expertise on tobacco-related news over the past year. Additionally, original research from MTH published in *Tobacco Control* found that among waterpipe and cigarette smokers, the waterpipe accounted for more than half of the consumed tobacco smoke volume. Media coverage this May included ABC, Pittsburgh Post-Gazette, and NPR Pittsburgh among others.

The e-cigarette brand JUUL was in news frequently in 2018. MTH’s October article, “JUUL: Spreading Online and Offline” in the *Journal of Adolescent Health* was covered by the U.S. News and World Report, Reuters, Business Insider, and CBS Health. In November, when JUUL announced its decision to stop using Facebook and Instagram, lead study author Dr. Kar-Hai Chu provided commentary on the decision for news sources including CNN.
We have worked with researchers in other countries to help them adapt our Smoking Media Literacy Scale for various languages, including most recently a translation into Indonesian this year. Additionally, we work within an international research community in which we share our research with other investigators and peer review papers from authors around the world.

Each year the Provost of the University of Pittsburgh designates a theme for special events and programs and the academic year 2018–2019 was designated the Year of Pitt Global. MTH research has had a global impact since its inception and continues to reach to have an international reach. From translating our research scales to perform new research to sharing media coverage of our publications in multiple languages, the reach of MTH is transforming communities.

These commitments to furthering health science inquiry across the world are a couple of examples of how we “convene a global community of researchers that advances our frontiers of knowledge and tackles real-world problems,” a goal of the Year of Pitt Global.

The type of research done by MTH addresses issues that are globally relevant and thanks to journalists around the world who value our work and translate it into other languages for their audiences, other countries can benefit from it as well.
CONTACT US

For more information visit:
http://www.mth.pitt.edu/

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