

NCIPC Board of Scientific Counselors

February 26, 2018

**National Center for Injury Prevention and Control
Centers for Disease Control and Prevention
Atlanta, Georgia**

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**DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
BOARD OF SCIENTIFIC COUNSELORS (BSC)
Centers for Disease Control and Prevention (CDC)
National Center for Injury Prevention and Control (NCIPC)**

Twenty-Third Meeting
February 26, 2018

Teleconference Meeting
Atlanta, Georgia 30346

Summary Proceedings

The twenty-third meeting of the National Center for Injury Prevention and Control (NCIPC) Board of Scientific Counselors (BSC) was convened Monday February 26, 2018 via teleconference and Adobe Connect. The BSC met in open session in accordance with the Privacy Act and the Federal Advisory Committee Act (FACA). Dr. Christina Porucznik served as chair.

Call to Order / Roll Call / Introductions / Meeting Logistics

Christina A. Porucznik, PhD, MSPH
Chair, NCIPC BSC
Associate Professor, Department of Family and Preventive Medicine
University of Utah

Dr. Porucznik called to order the twenty-third meeting of the NCIPC BSC at 1:00 PM on Monday, February 26, 2018. She requested that Mrs. Tonia Lindley, NCIPC Committee Management Specialist, call the roll.

Mrs. Tonia Lindley conducted a roll call of NCIPC BSC members and *ex officio* members, confirming that a quorum was present. Quorum was maintained throughout the day. A list of meeting attendees is appended to the end of this document as Attachment A.

Dr. Porucznik welcomed the BSC members and *ex officio* members, thanking them for their time and participation. She indicated that the minutes of the meeting would become part of the official record and would be posted to the CDC website at www.cdc.gov/maso. In addition, she reviewed housekeeping / logistics and requested that members participating via teleconference or Adobe Connect send an email to ncipcbsc@cdc.gov acknowledging their participation in the meeting. Dr. Porucznik thanked members of the public for joining the call and indicated that time would be allotted at 3:30 PM should anyone wish to provide public comments.

Approval of Last Meeting Minutes

Dr. Porucznik referred members to the copy of the minutes from the last NCIPC BSC meeting September 26-27, 2017 NCIPC BSC meeting included in their binders. With no revisions proposed, she called for an official vote.

Motion / Vote

Dr. Allegrante made a motion to approve the September 26-27, 2017 NCIPC BSC meeting minutes. **Dr. Crawford** seconded the motion. The motion carried unanimously with no abstentions.

NCIPC Updates

Director's Update

Debra Houry, MD, MPH
Director
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Debra Houry expressed her gratitude for the NCIPC BSC members' expertise and guidance as NCIPC works to advance injury and violence prevention. Before sharing recent highlights from NCIPC, she provided an update on CDC leadership. Dr. Fitzgerald resigned on January 31, 2018 and Dr. Anne Schuchat is currently Acting Director while HHS and the Administration conduct a search for a permanent Director. Dr. Schuchat also served as Acting Director subsequent to Dr. Frieden's departure. In addition to her background in infectious disease, Dr. Schuchat has been a major supporter of NCIPC's topics. Last summer, Dr. Schuchat attended the National Action Alliance for Suicide Prevention Meeting on CDC's behalf. Last October, she represented CDC at a Congressional hearing on the opioid epidemic that lasted 5.5 hours. Dr. Schuchat will be a tremendous advocate for NCIPC while in her acting position, and Dr. Houry looks forward to working closely with her. While the timeline for appointing a new Director is unknown, NCIPC will keep the BSC membership posted through partner updates when further information is available.

Regarding NCIPC updates since the September 2017 BSC meeting, Dr. Houry reported that the Division of Violence Prevention (DVP) launched a [video](#) in later November 2017 to educate the public and professionals about Adverse Childhood Experiences (ACEs). The video uses storytelling and engaging graphics to help viewers better understand what works to protect children and families and help communities thrive. The video has been viewed more than 15,000 times since its release, and NCIPC is excited for that number to continue to rise. Dr. Houry requested that everyone view the video and share it widely with their networks. She has personally shared it with many friends and colleagues, and it is very impactful in terms of all that can be done in communities to prevent ACEs. People often think that ACEs are fatalistic and nothing can be done, but this video discusses how they can be prevented in a storytelling format.



NCIPC's crosscutting division, the Division of Analysis, Research and Practice Integration (DARPI), launched its Web-based Injury Statistics Query and Reporting System™ (WISQARS™) Data Visualization tool earlier in February 2018. This innovative platform allows users to explore NCIPC's vital statistics data for the United States (US) and by state, county,

age, race, Hispanic ethnicity, sex, leading cause of death, injury intent, and injury mechanism categories. This is another way NCIPC is making data available and accessible and understandable to stakeholders in that it moves the data to action. She encouraged everyone to utilize this [tool](#).

Also in February 2018, NCIPC's Division of Unintentional Violence Prevention (DUIP) released [Report to Congress. The Management of Traumatic Brain Injury in Children: Opportunities to Action](#). This report outlines the challenges parents face in navigating medical systems after a TBI. Opportunities for action within the report include better ways to support parents in bridging these systems, and how to assist children as they return to school. DUIP has created several accompanying [materials](#) such as fact sheets for parents, partners, providers, and educators. These materials are available on NCIPC's website. She encouraged everyone to share this information widely with their networks. NCIPC looks forward to the mild TBI (mTBI) guideline in 2018 as well. Dr. Houry thanked everyone who has been involved in the workgroup (WG) and the discussions on the guideline during several prior BSC meetings.

The picture of the opioid epidemic continues to change, which NCIPC is helping to capture through its data and publications. In October, Dr. Houry, Deborah Dowell, and Rita Noonan published a paper in the *Journal of the American Medical Association (JAMA)* on the underlying factors in drug overdose deaths [Dowell D, Noonan R, Houry D. Underlying Factors in Drug Overdose Deaths. *JAMA* 2017;318(23):2295-2296]. Available data suggest that contamination of the heroin supply with illicitly manufactured fentanyl is the overwhelming driver of the recent increases in opioid-related overdose deaths. The deaths involving fentanyl more than doubled between 2015 to 2016, and that difference accounts for nearly all of the overdose deaths as a whole from 2015 to 2016.

At the end of January 2018, CDC released a list of the 10 most talked about *Morbidity and Mortality Weekly Report (MMWR)* reports of 2017. Half of these articles focus on injury and violence topics, of which the 4 highlighted in yellow have NCIPC authors. This is a tremendous testament to the quality of NCIPC's science and programs, and the continued relevance of its work for the public:

10 Most Talked About MMWR Reports of 2017

From in depth *Vital Signs* studies, to compelling "Notes from the Field," full reports, and "QuickStats," CDC's *Morbidity and Mortality Weekly Report (MMWR)* remained at the forefront of timely, accurate, authoritative scientific publishing in 2017. Check out the [10 Most Talked About MMWR Reports of 2017](#).

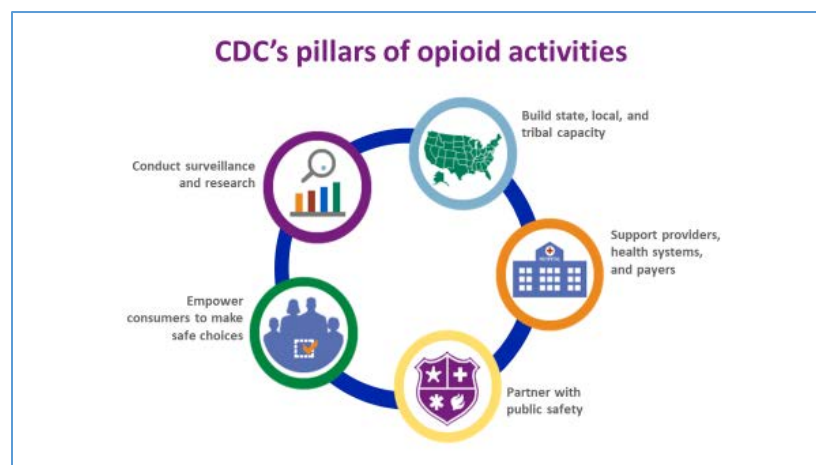
1. [Notes from the Field: Pan-Resistant New Delhi Metallo-Beta-Lactamase-Producing Klebsiella pneumoniae — Washoe County, Nevada, 2016](#)
2. [Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015](#)
3. [Notes from the Field: Late-Onset Infant Group B Streptococcus Infection Associated with Maternal Consumption of Capsules Containing Dehydrated Placenta — Oregon, 2016](#)
4. [Vital Signs: Update on Zika Virus–Associated Birth Defects and Evaluation of All U.S. Infants with Congenital Zika Virus Exposure — U.S. Zika Pregnancy Registry, 2016](#)
5. [Vital Signs: Changes in Opioid Prescribing in the United States, 2006–2015](#)
6. [Malignant Mesothelioma Mortality — United States, 1999–2015](#)
7. [QuickStats: Suicide Rates, for Teens Aged 15–19 Years, by Sex — United States, 1975–2015](#)
8. [Racial and Ethnic Differences in Homicides of Adult Women and the Role of Intimate Partner Violence — United States, 2003–2014](#)
9. [Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2017–18 Influenza Season](#)
10. [Deaths Involving Fentanyl, Fentanyl Analogs, and U-47700 — 10 States, July–December 2016](#)

There are many exciting releases on the horizon, two of which Dr. Houry highlighted. In March 2018, CDC will publish a *Vital Signs* on non-fatal opioid overdose based on emergency department (ED) data from July 2015 through September 2017. This analysis will examine the data by sex, age group, state, and urban level. In June 2018, CDC will publish another *Vital Signs* on suicide. Unique about this *Vital Signs* is that it will report cases in suicide over time across states and will compare decedents with and without mental health problems. This will be an important opportunity to bring greater awareness to suicide and help connect people to some of the resources in the technical package. This will be the first suicide *Vital Signs* NCIPC has published.

Regarding the Director's priorities, recent data indicate that life expectancy has decreased for the second year in a row largely because of increases in unintentional injuries, suicide, and Alzheimer's Disease. Unintentional injuries like drug overdose making the largest contribution. In fact, an analysis led by Deborah Dowell of the life expectancy data found that Americans lost 2.5 months of life expectancy to opioid overdose from 2000 through 2015 [Dowell D et al. Contribution of Opioid-Involved Poisoning to the Change in Life Expectancy in the United States, 2000-2015. *JAMA* 2017; 318: 1065-1067].

The issue of ACEs has also made the news recently. One study showed a link between childhood trauma and a later risk for health conditions such as heart disease¹. Data from the Administration for Children and Families (ACF) show that the number of children in the US foster system has increased largely due to an uptick in substance abuse by parents² [1Cory Turner; What Do Asthma, Heart Disease And Cancer Have In Common? Maybe Childhood Trauma; Tuesday, January 23, 2018; National Public Radio (NPR); Heard on Weekend Edition Saturday; 2Richard Gonzales, NPR, Number of American Children in Foster Care Increases For 4th Consecutive Year; November 30, 2017].

Dr. Houry emphasized that the work that NCIPC does regarding opioid overdose, suicide, and ACES is critical, timely, and often connected. Noting that Dr. Sumner would be presenting an update later in the agenda on NCIPC's work in suicide prevention, Dr. Houry provided updates on the two other Director's priorities. As noted during the last BSC meeting, CDC established an Opioid Response Coordinating Unit in May 2017 to support opioid prevention activities across the agency. The unit met with 17 centers, institutes, and offices (CIOs) to conduct interviews and assemble information on CDC-wide activities on opioid overdose prevention and response. This resulted in a strategic framework for the agency that articulates shared visions, goals, assessments, and metrics. The following graphic illustrates the 5 focus areas from that framework:



As highlighted earlier, the opioid epidemic has become complicated by the rise in illicitly manufactured opioids like fentanyl, so CDC has developed innovative partnerships with public safety as a leader in prevention strategies in the US Drug Enforcement Administration (DEA) High Intensity Drug Trafficking Areas (HIDTA). CDC's public health approach, surveillance activities, and data in areas of greatest need can educate the public safety community about opioid use disorder (OUD) being a chronic disease. One process born out of that partnership with public safety is The Martinsburg Initiative out of Martinsburg, West Virginia. This initiative represents a police-school-community partnership spearheaded by the Martinsburg Police Department, Berkeley County Schools, Shepherd University, and the Washington/Baltimore HIDTA. This initiative leverages the impact of ACEs to build an opioid prevention program that will assess, identify, and eliminate drug abuse before it starts among at-risk children, adults, and families. The ultimate goal is to strengthen families and empower the community. CDC has provided funding for the project and looks forward to helping to evaluate and potentially replicate this innovative program. NCIPC looks forward to helping to support real-time efforts such as this and its research to assess potential connections between opioid overdose, ACEs, and suicide.

NCIPC has also developed a partnership with the Surgeon General's (SG) office pertaining to the Director's priorities. Dr. Houry has met several times with the SG. NCIPC is supporting the SG's effort to create a postcard to educate the general public on the simple steps they can take to help curb this epidemic. The SG is participating in NCIPC's roll-out to partners and clinicians on its upcoming *Vital Signs* focused on non-fatal opioids. NCIPC looks forward to continuing to work with the SG on others areas of interest in ACEs and prevention of veteran suicide.

Budget Update

Debra Houry, MD, MPH
Director
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Houry reported that on February 12th the White House released the President's Budget for 2019. CDC's topline budget request for year 2019 is \$5.6 billion, which is about a 19% decrease from the year 2018 Continuing Resolution (CR). There were several increases, including an increase for Global Health Security Agenda (GHSA) activities and funds for critical repairs and improvements in CDC's facilities and laboratories. There is also continued support for opioid overdose prevention activities. The budget request includes a \$40 million elimination initiative to reduce infectious diseases occurring as a result of the opioid crisis, \$125 million to address the opioid epidemic that reflects the ongoing work of our Center, and \$175 million in additional opioid allocation for CDC.

The budget request also contains two significant organizational changes. The first involves the transfer of the Strategic National Stockpile (SNS) to HHS's Office of the Assistant Secretary for Preparedness and Response (ASPR) to increase operational efficiencies, as well as streamline medical countermeasure development and procurement process. The second change involves transferring the National Institute for Occupational Safety and Health (NIOSH) to the National Institutes for Health (NIH) to consolidate research programs to support larger research endeavors at the US Department of Health and Human Services (HHS).

The budget request proposes \$266 million in funding for NCIPC, which is a decrease of \$17.8 million from the year 2018 CR. NCIPC will know more once CDC's Congressional Budget Justification (CBJ) has been released. However, based on the information that is currently available, the decrease is coming primarily from three areas: a reduction in the Unintentional Injury line, a reduction in the Injury Prevention Activities line, and an elimination of the Injury Control Research Centers (ICRC) line. This carries forward the President's Fiscal Year (FY) 2018 Budget Request. The \$17.8 million reduction does not take into account the proposed additional \$175 million for opioid work. Also noteworthy is that the budget request combines a couple of budget lines. For example, it proposes an Opioid Abuse and Overdose Prevention line that combines Prescription Drug Overdose and Illicit Opioids Use Risk Factors budget lines for state programs.

As a reminder, the President's budget request is the first step in the extensive and complex appropriations process. NCIPC will be hosting a broad partner call to walk through the budget in more detail and answer questions and will ensure that everyone from the BSC receives the invitation for that call.

Discussion Points

Dr. Porucznik congratulated NCIPC on the amazing presentations and publications coming out of the center, and expressed her appreciation for seeing the data turned into strong communications for the public and other stakeholders. She inquired as to how much the proposed NIOSH move to NIH accounted for the 19% decrease.

Ms. Solhtalab indicated that while she did not have the exact figures, they could share them on the broader partner call. She emphasized that this is only a proposed budget and that no final decisions have been made.

Ms. Castillo added that the budget for NIOSH for 2019 that would be transferred to NIH is \$200 million.

Dr. Frye recognized that the budget is preliminary and that there is a long way to go until it is set but expressed interest in hearing comments on the implications of the funding loss, particularly with respect to injury. She observed that mass school shootings are on everyone's minds and that there is a new video on ACEs. Her children's school is focusing intensely on managing the mental health effects of this on children. She wondered where shootings and mental health effects fit into the ACEs agenda and how that is being integrated into the CDC injury prevention response.

Dr. Houry replied that almost all of CDC's centers experienced a budget decrease, most of which were larger than NCIPC's decrease.

Mrs. Solhtalab added that elimination of the ICRC line would eliminate any funding NCIPC could give to ICRCs. NCIPC is awaiting further details in the CBJ, which generally has been published with the President's Budget but has not yet been released. Once they have the CBJ, NCIPC will have more details about where the cuts will occur in the other lines.

Dr. Houry suggested that perhaps NCIPC could present and engage in a more robust discussion on ACEs during the next BSC meeting. That aligns well with the videos and child programs NCIPC is conducting in many states. Exposure to violence is a significant ACE. The center's related work focused on the related topics of youth violence (YV) and child

maltreatment (CM), and firearm-related violence can be addressed in the context of these topical areas. Should Congress provide CDC funding, NCIPC might be able to pursue research activities that align with the priorities identified by the Institute of Medicine (IOM) pertaining to reduction of firearm-related violence. The short answer is that NCIPC is currently engaged in work in ACEs that fits with this. Its mental health work addresses suicide among those with and without mental health issues and will provide additional information. If additional specific funding is received for firearm-related violence, NCIPC would fund additional work in that area.

Dr. Comstock noted that some people in Colorado have contacted their Senators and have been told that CDC is not prohibited from using federal funding to conduct firearm prevention research. She requested clarification regarding NCIPC's current understanding of whether CDC is permitted to use federal funding for such research.

Dr. Houry replied that CDC is not permitted to engage in advocacy. While NCIPC is permitted to conduct firearm violence prevention research through its appropriation lines for YV and CM, the agency does not have a dedicated appropriation line for firearm violence research like they do for YV and CM. This is why NCIPC's research has been limited in the area of firearm violence prevention. However, they have engaged in surveillance activities, Epi-Aid investigations, and assembled other data to document the public health burden of firearm injuries.

Social Media

Social Media: Practical Applications for Suicide Prevention

Steven A. Sumner, MD, MSc
Medical Epidemiologist
Division of Violence Prevention
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Sumner discussed data from social media, pointing at that this new type of data may have public health utility. One of the greatest desires in public health work is to have a population-level impact as quickly as possible. The steps in the public approach include conducting surveillance to define the problem, conducting research studies to identify risk and protective factors, developing and testing interventions, and assuring widespread adoption of effective strategies. The challenge is that each of the steps followed in the public health approach, each of these important steps can be a multi-year effort in and of itself. This can be a significant challenge to the public health community when the issues it is working to address such as suicide are increasing rapidly year after year.

There are potential ways to improve the speed and impact of the public health community's work, including application of the public health model. Before answering that question, it is important to outline some of the ideal wishes with respect to using data to prevent injury and violence. There is a tremendous need for real-time data in nearly every problem studied. Real-time data are needed not only to assess trends, but also to immediately assess the effectiveness of interventions so that there is a close feedback loop between public health data and programmatic work underway. There is a tremendous amount of data currently from a variety of clinical sources that cover events like fatalities and hospitalizations, but the goal is to get further upstream to prevent injury before a person suffers any morbidity at all. To do that, information is needed on upstream risk factors. There is a considerable need to use data to better identify emerging health threats, whether that is a new method of suicide among youth or

a new drug of abuse. In addition, there is a need for new data sources to explore and understand new risk and protective factors that have not yet been examined or cannot be examined through current data sources. NCIPC has many partners implementing interventions in their cities and communities who need a way to better understand the impact of the solutions they are undertaking, which can be done only if there are precise data at small levels of geography.

These challenges are numerous and there is no simple solution to all of them. However, recently scientific literature focuses on the use of new data sources, including the use of social media, merits consideration for its public health utility. Using non-traditional data to better understand and improve health is actually not a far-flung idea. Although it is relatively recent, there is a growing number of experts writing in top-tier journals such as the *New England Journal of Medicine (NEJM)* and *JAMA* about how the public health community would benefit from turning its attention to these new data sources.

In terms of how researchers have begun to explore the utility of social media for suicide and mental health epidemiologic trend monitoring, the first paper was published that examined state-level suicide rates in 2013. In this study, the group of researchers used a relatively simple approach in which they filtered for certain key words that were indicative of suicidal behavior. What the investigators found in this research study was that there was a higher than expected number of such tweets that correlated easily with actual suicide rates. As depicted in the following map, many of the Western states and Alaska have higher suicide rates:



The Western states and Alaska were correctly identified, which are known to have higher rates, were identified correctly using this strategy [Jashinsky J, Burton SH, Hanson CL, West J, Giraud-Carrier C, Barnes MD, Argyle T. Tracking suicide risk factors through Twitter in the US. *Crisis*. 2014;35(1):51-9. doi: 10.1027/0227-5910/a000234].

Researchers at Microsoft also used Twitter data along with a complex machine learning algorithm to try to understand population-level measures of depression [Munmun De Choudhury, Scott Counts, Eric Horvitz; Microsoft Research, Redmond WA 98052; Social Media as a Measurement Tool of Depression in Populations, WebSci'13, May 2-4, 2013, Paris, France. Copyright 2013 ACM 978-1-4503-1889-1].

These investigators developed a Natural Language Processing (NLP) model and then applied that algorithm to a large body of Tweets nationally and found that their findings reasonably correlated with CDC's Behavioral Risk Factor Surveillance Systems (BRFSS) survey data on depression prevalence. As illustrated by this figure, their findings also correlated strongly with city-level rankings based on the number of prescriptions filled for depression in the city-based study:

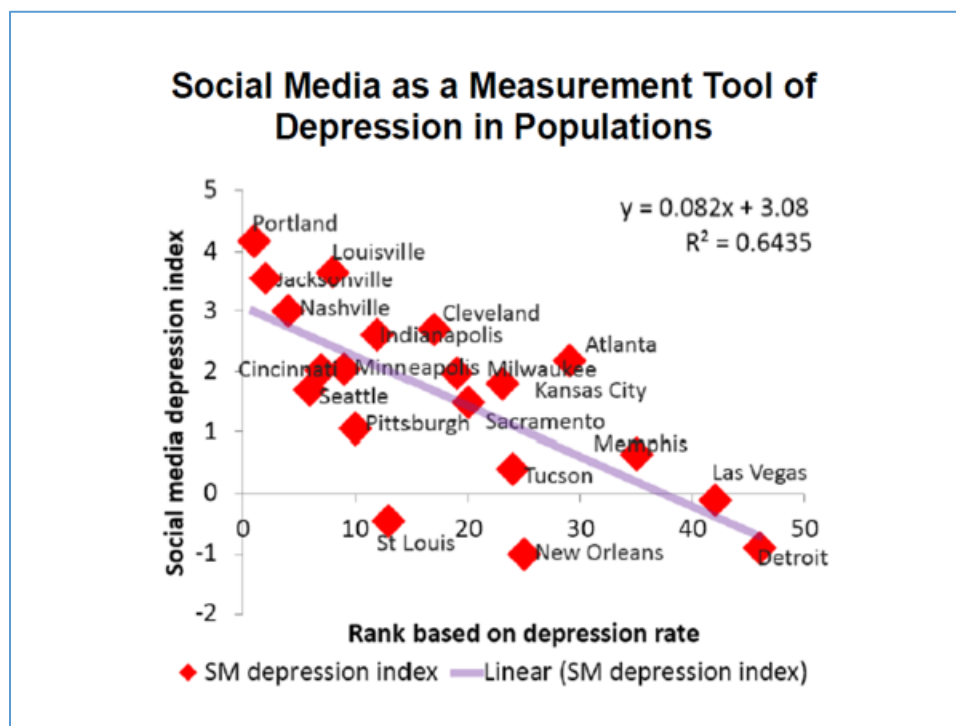
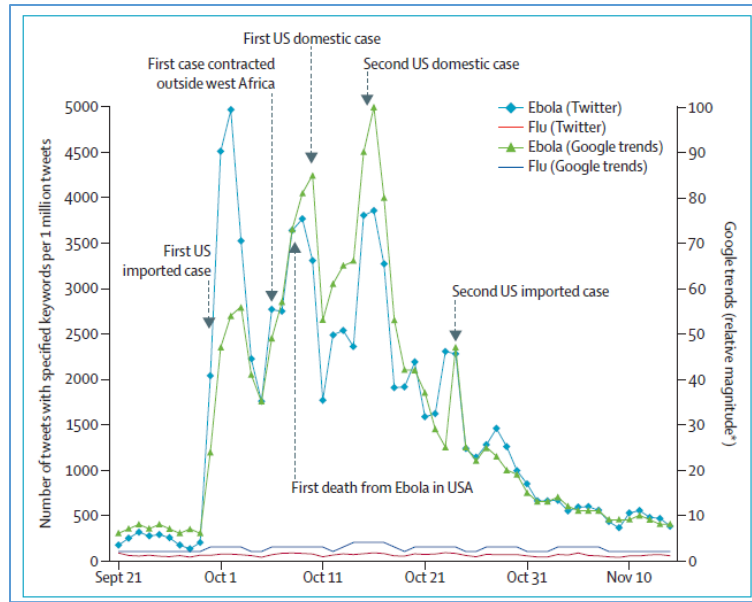


Figure 4

Thus, the limited emerging research studies on social media data for public health trend monitoring at the population-level seems to indicate that there is some promise in potentially providing a more real-time picture of mental health nationally that correlates with official data.

In terms of thinking about how to get increasingly upstream with prevention work, it is also important to think about some of the early work being done with social media to assess norms and beliefs on a very large scale in real-time, including understanding how things such as networks shape these.

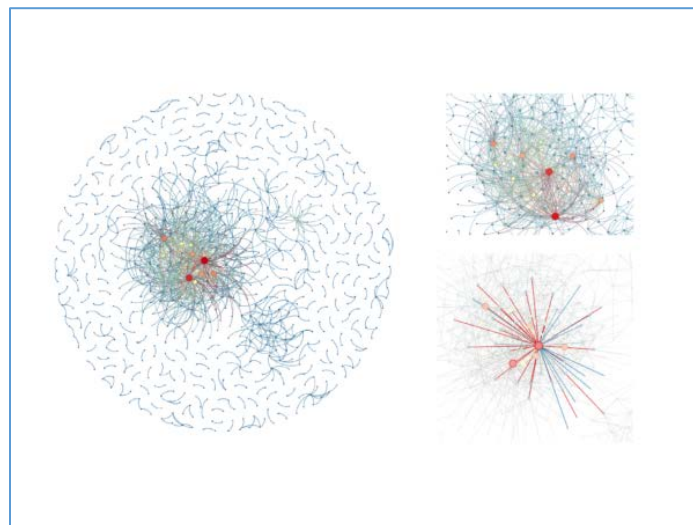
This next example borrows from the infectious disease literature. There was a recent influential paper published in *The Lancet*. In this work, investigators evaluated in real-time what proportion of messages about Ebola were associated with fear or anxiety to try to assess the pulse of the public in an emerging public health issues, as depicted in this figure:



Figure

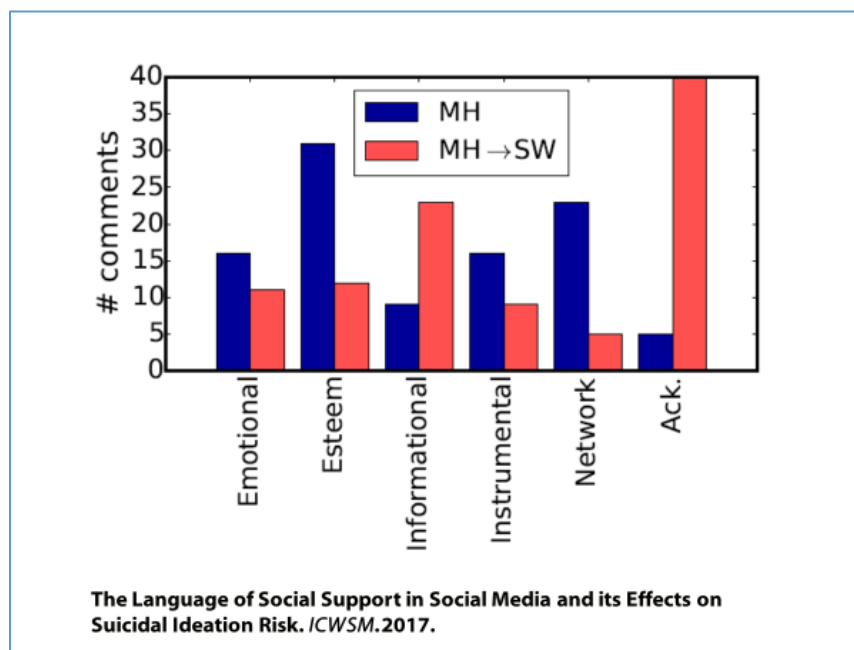
Dr. Sumner noted that he highlighted this study because it emphasizes one of the potentially biggest benefits of social media analysis in that it allows the public health community to assess the effectiveness of large-scale events and the populations' reaction to those events, whether they are infectious- or injury-related [Isaac Chun-Hai Fung, Zion Tsz Ho Tse, Chi-Ngai Cheung, Adriana S Miu, King-Wa FuEbola; Ebola and the social media; *The Lancet*, Volume 384, No. 9961, p2207, 20 December 2014].

Related to norms, it is also important to mention some early important research that has been conducted to understand the transmission of harmful beliefs and practices such as encouraging or promoting suicide. Unfortunately, this is quite common on line. In this particular study published in a computer science journal¹, researchers identified that users posting suicidal content were linked together tightly in social networks. Pathways were identified that promoted the spread of harmful information, and there was a cascade of concerning content as illustrated in the following images:



Similar studies have also shown a high degree of connectivity among users discussing prescription drug abuse on online. There may be unique opportunities not only to understand better, but also to potentially mitigate the spread of harmful behaviors and promote the spread of positive ones [Gualtierio B. Colombo, Pete Burnap, Andrei Hodorog, Jonathan Scourfield; Analyzing the Connectivity and Communication of Suicidal Users on Twitter; Computer Communications; Volume 73, Part B, 1 January 2016, Pages 291-300; 2014].

Dr. Sumner emphasized the potential of new effective prevention strategies to emerge from this work. There is a growing body of work looking at how positive messaging on line can reduce suicidality. In this study, also published in a computer science journal, researchers looked at some of the largest suicide forums on line. They studied two propensity score matched groups as shown in the following graph:



The blue bars represent individuals who only expressed mental health concerns such as depressions, and the red bars represent individuals who began by expressing mental health concerns such as progression and then later progressed to developing suicidality. The researchers in this study assessed different types of messaging that the users received and found that those individuals receiving a higher proportion of messages promoting self-esteem and social connectedness were the most protected against developing suicidal thoughts; whereas, users who simply received messages providing information or acknowledgement were associated with a greater fraction progressing to developing suicidal thoughts. Thus, messages really do seem to matter if delivered in the right way [Munmun De Choudhury, Emre Kiciman; Inproceedings; Proceedings of the International Conference on Web and Social Media (ICWSM); The Language of Social Support in Social Media and its Effects on Suicidal Ideation Risk. ICWSM. 2017].

This last figure is from a recent landmark study published in proceedings from the National Academy of Sciences (NAS) linking Facebook data to California death certificates:



Figure 3A

Remarkably, these investigators showed that increased healthy online social integration would result in real-world reductions in mortality. Those effects were strongest for suicide and drug overdose [William R. Hobbs, Moira Burke, Nicholas A. Christakis, and James H. Fowler; Online social integration is associated with reduced mortality risk; PNAS October 31, 2016. 201605554; published ahead of print October 31, 2016].

In conclusion, there are a number of challenges when looking at any type of new data. First, there are a number of unique ethical issues to be considered. Over the next several months, CDC will be hosting a panel of national ethics experts to discuss new data, the importance of social media, and important considerations. There are also important technical and methodological considerations with any new data source. However, it appears that the early emerging research suggests that use of web-based data, including social media data, has the potential to help the public health community better understand the trends and burdens of illness and injuries, norms and beliefs on a much larger scale, and may even lead to new ways to protect and prevent against illnesses and injuries.

Using Social Media to Monitor Mental Health Discussions

Chandler McClellan, PhD
Center for Behavioral Statistics and Quality
Substance Abuse and Mental Health Services Administration
US Department of Health and Human Services

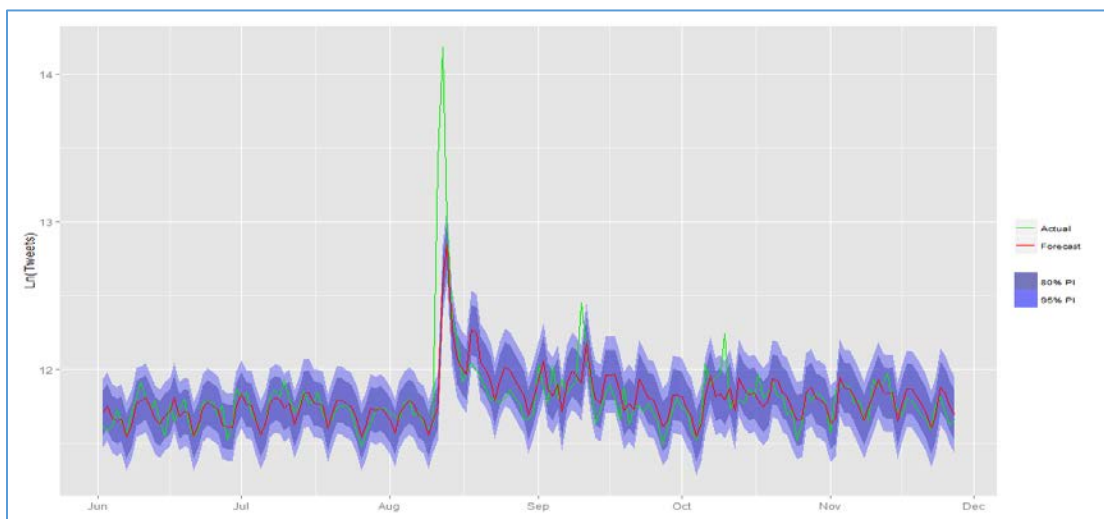
Dr. McClellan reported on research that the Substance Abuse and Mental Health Services Administration (SAMHSA) conducted with RTI International Social. He emphasized that media and “big data” have great public health potential in terms of real-time and merged data with which to examine public health issues. One example of this is monitoring influenza through Twitter and Google Trends to examine the number of mentions of influenza and tracking that as influenza outbreaks. A nice aspect of social media is its heavy use by teens and other hard-to-

reach study populations. In terms of behavioral health, it is particularly difficult to study these individuals, and the survey tools available do not necessarily capture minorities adequately. Because social media is so heavily used by these individuals, it is beneficial to study these individuals. The down side of this and something that requires caution with social media is that it is not necessarily representative of the population as a whole because it is so skewed toward these other demographics.

Given these considerations, the natural question for behavioral researchers regards how to harness social media to study behavior. SAMHSA and RTI decided that one of the easiest ways to examine this initially would be to try to identify periods of increased interest in behavioral health on Twitter. This was driven somewhat by the suicide of Robin Williams, which was reported widely throughout the news. There was a huge uptick in discussions regarding suicide when this occurred. Identifying that sort of interest in behavioral health on Twitter and other social media is pretty easy, given that everyone is talking about it. What is not so easy is trying to figure out whether there are other times.

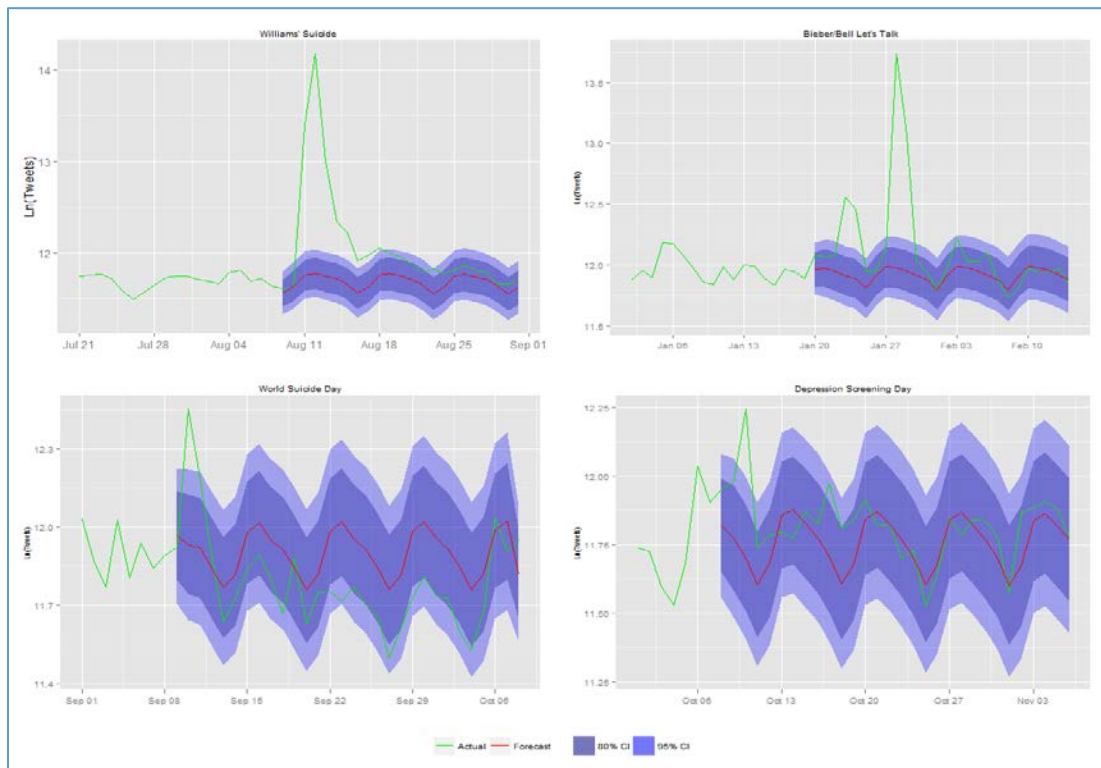
If there were 33,000 tweets regarding discussion on suicide on Twitter yesterday, what does that actually mean? Is that high? Is that low? Are people paying attention? That is the question the investigators set out to ask in order to put the number of tweets seen each day into context to try to figure out whether that is associated with increased interest. To do that, they developed a forecast using an autoregressive integrated moving average (ARIMA) model, which is a metric tool that is used successfully in finance and economics to forecast a time series analysis. Development of this model allowed the investigators to make predictions about what the next day's tweet volume should be. If there is heightened interest and excess volume is observed in the prediction, it can be said that there is a clearly defined interest.

Here is the day ahead forecast for June through November 2014:



The red line is the actual point forecasted value, the shaded areas are the 95% confidence intervals, and the green line is the actual tweet volume during that timeframe. This illustrates that the model accurately predicts tweet volume. There are three spikes where the actual tweet volume vastly exceeded the forecasted volume, which is exactly what they were looking for. These spikes suggest that there is some type of heightened event pertaining to suicide and depression that exceeds the normal volume.

The spikes were then classified into two different types of shocks, expected and unexpected, shown here for all of 2014:



On closer examination, there were actually 5 spikes outside the predicted values. Three of these fall under the *Expected* classification in that they correspond with the expected events of World Suicide Prevention Day (WSPD), National Depression Screening Day (NDSD), and Bell Let's Talk. The two other shocks fall into the *Unexpected* category and include Robin Williams' suicide and the arrest of Justin Bieber for drag racing and anti-depressants. This is a perfect example of increased interest in behavioral health on Twitter and represents a perfect opportunity for mental health professionals and communication experts to reach out and build a conversation about anti-depressants and suicide while people are paying attention [McClellan, C., Ali, M. M., Mutter, R., Kroutil, L., & Landwehr, J. (2017). Using social media to monitor mental health discussions—evidence from Twitter. *Journal of the American Medical Informatics Association [JAMIA]*, 24(3), 496-502].

Many questions remain regarding this research. The model needs to be refined to better focus on behavioral health and eliminate homographs. The investigators also would like to incorporate geography and expected events into the model in order to make more precise forecasts and determine what localized interventions might shift the conversation around behavioral health on social media. A question that remains with respect to all social media use regards whether increased interest on suicide, depression, and other key words on Twitter translates to real world outcomes.

Applicability of Social Media for Programmatic Work

James Wright, LCPC

Public Health Advisor, Suicide Prevention

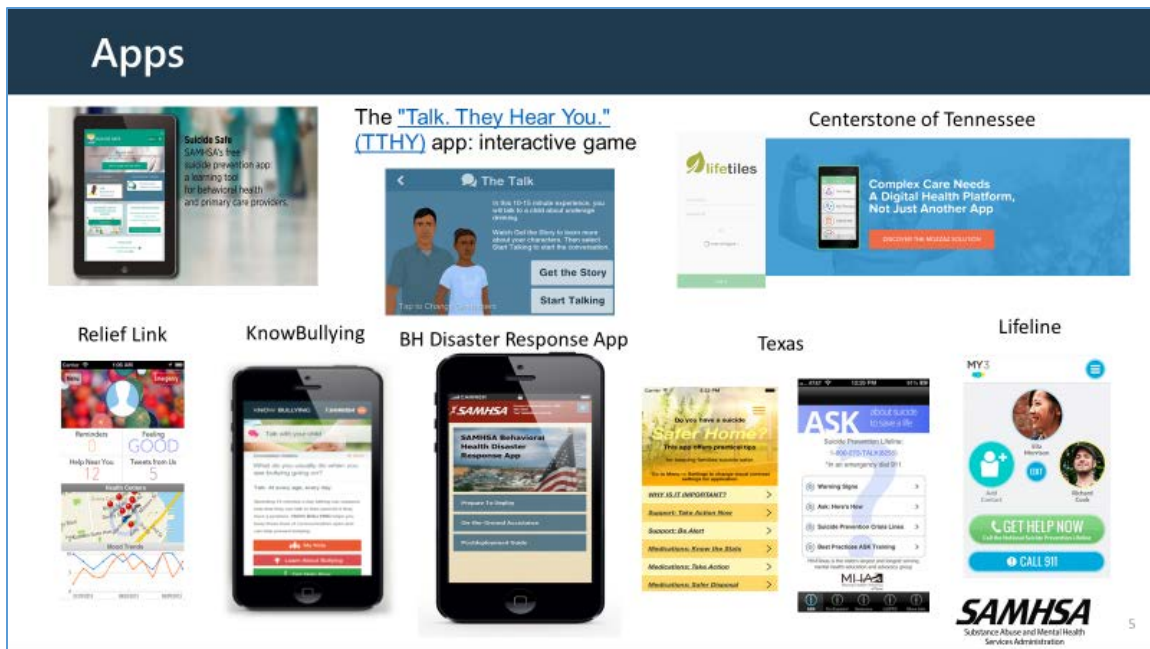
Substance Abuse and Mental Health Services Administration

US Department of Health and Human Services

Dr. Wright indicated that he works on SAMHSA's Health Information Technology (Health IT) Team, which has been looking at health utilization and social media and the impact it has programmatically. He shared information about a couple of SAMSHA's efforts in this arena, and offered some context regarding how it is currently being utilized. Two ways social media has been used in suicide prevention specifically is as a way to share information with the public via information dissemination, and having a dialogue in which an individual is permitted to create content. There are pros and cons to each. If information is provided and there is no feedback, the impact the information is having may not be known. In a user-generated content form, especially with suicide prevention, there must be a way to respond when there is a case of escalated risk or imminent danger. SAMSHA determined this through the crisis center work that has been done throughout the country. Email is a perfect example. Most organizations put a "Contact Us" form on their websites and left it opened-ended, "If you have questions, concerns, or comments, contact us." Given that they were crisis and behavioral health centers, they began receiving emails on Friday and Saturday nights saying, "I'm not going to be here on Monday. I'm going to kill myself." They did not have a way to respond to those in enough time.

Thus, it is important to start measuring how to collect information and what to do with it. There are some barriers that must be addressed. Even with an app download, this is not an overnight process. Transitioning to new technologies takes patience, time and courage. For an individual, it is easy to utilize a service. However, this challenges historical ways of organizational thinking and the current processes and structures in place. It is difficult to embed social media within what an organization does and how it systematically thinks about the impact that it will have to individuals of interest. Consideration must be given to the structures in place and what will be needed in the future if creating and utilizing new technologies, including social media. It is also important to be mindful of rural areas that may lack technology infrastructure. Having an app with emergency contact information may be useless if there is an inability to connect to the internet and response times are slow.

SAMHSA has invested in initiatives specifically aimed at increasing behavioral health service utilization nationwide through the use of technology. The first is mobile app development. SAMHSA has created a number of apps focused on suicide prevention and related areas, as have some of its grantees. Another initiative is the [National Suicide Prevention Lifeline](#) for which Dr. Wright is the Project Officer. SAMHSA does a lot through chat and social media, so much so that they have partnered with members such as Facebook to define the responses online and create standards of care. He encouraged members to look at the National Suicide Prevention Website and the [video](#) that shows components of the lifeline that respond online to individuals in crisis. The ultimate question regards how to track this information to understand what is important and impactful. Here is a sample of a few of the apps, some of which Dr. Wright highlighted:



“Suicide Safe” shown in the top left includes information for clinician to utilize when assessing individuals. Other apps are more interactive such as “Talk. They Year You (TTHY),” “Behavioral Health Disaster Response,” and the “KnowBullying.” These are the 4 apps SAMSHA has currently in this area. Relief Link is an app challenge done by SAMSHA, which utilizes information dissemination and user-generated content. If an individual downloads and utilizes this post-discharge from an ED if they were suicidal, it gives them lifetime links to emergency intervention as needed. The goals are to track mood over time and be able to get individual help before one’s next scheduled visit if need be.

The apps on the right half were created by grantees. The National Suicide Prevention Lifeline uses Lifeline in the bottom right, which focuses on the 3 people one would reach out to if in need of help. Texas has created a couple of apps. One is Safer Home, which pertains to making the home safer. The other is ASK, which helps one to identify warning signs in others. The most relevant for the BSC meeting is “lifetiles” from the Centerstone of Tennessee. They are one of the largest behavioral health organizations, if not *the* largest, in the US. “lifetiles” imbeds within the electronic medical record of Centerstone of Tennessee’s healthcare system, and the individual who downloads this app can have two-way communication during specific times, taking assessments as needed and automatically linking up with treatment teams. Through a combination of this app and biometrics, it is possible to track whether someone is sedentary, making behavioral changes, et cetera. This is an opt-in app that people choose to use, but it gives the end-user and the healthcare system joint responsibility to ensure an individual’s safety. This app is the product of grant funding that SAMSHA provided to Centerstone of Tennessee and the State of Tennessee.

In terms of what this means for the larger scope, more focus is needed in suicide surveillance, research, and prevention. In terms of the type of impact identified on social media and how that translates into real-world outside events, what SAMSHA saw with Robin Williams’ suicide was a 120% increase of calls to the National Suicide Prevention Lifeline. Long-term, there has been a substantiated 20% increase post-death. This means that there was a specific impact that occurred long-term that could have been identified not only on social media, but also by an

actual increase in health seeking behavior. Short-term outcomes are often easier to identify than long-term impact. The rates for suicide continue to rise every year. Use of social media and apps provides another level of engagement for individuals who historically are not reaching out for help. The majority of individuals who chat into the Lifeline specifically are under the age of 30, and the majority are under the age of 20. Those are not the individuals who have historically been calling the Lifeline, so this offers an opportunity to reach individuals before and during a suicidal crisis. Little is known regarding the impact of apps and social media engagement in suicide prevention in terms of how to know if these are effective and whether it is possible to track the individuals who download or like something, and what that means with regard to whether that can be tracked to a reduction in suicidal behavior and, at best, life-saving behavior in the future. While there are still major gaps, many opportunities exist as well.

Discussion Points

Dr. Porucznik reminded everyone that having presentations such as this from partner agencies was discussed during a previous BSC meeting, which will help to better understand the landscape of what is occurring in the country and avoid duplication of efforts at other agencies. She asked whether anyone had considered how social media interactions might work with seniors and the elderly.

In terms of the impact of social media on seniors and the elderly, **Dr. McClellan** said that it was nice to get these types of smaller demographics. However, it is important to keep in mind that this does not represent the US as a whole. In fact, a large portion of the US is probably missing. It does seem like older people are getting online more every day. While older people are getting on social media increasingly every day, they probably are still not fully representative. This is important to be aware of in these efforts.

Dr. Sumner added that social media in the US has been tracked over time, and it is tremendous how rapidly it has grown. In 2005, a little over 10 years ago, less than 10% of the population was using social media. Based on the most recent statistics from last year, almost 70% or 7 out of 10 Americans, are actively using social media in one platform or another. This is a growing and emerging area that keeps growing, but that means that there are still aspects that need to be figured out.

Dr. Green said that when she recently visited Arkansas and Tennessee, she was shocked by the limited WiFi access and huge challenges getting access to the internet throughout that trip. There is not quite yet a cloud of WiFi covering the planet. While there is free WiFi at a number of restaurants, rest stops, et cetera, people's times of need may be different times of day during which they may not be able to drive to places where they can get WiFi access. There are still a lot of economic challenges to pay for and access WiFi. She asked whether there has been exploration of text message-based interventions and additional resources that may be a lowest common denominator for reaching people in other places and at more times of day for the kinds of mental health support and resources that exist and are great.

Dr. Wright thought this was an extremely valuable point and one that in their apps they had to ensure that there was a certain amount of information that was not being tied to internet access. While it did take up space on an individual's phone, certain things had to be embedded within it so that if they did not have internet access, they could still access components such as the safety plan and the resource locator so people could have access to a map that would show them who was near them in a time of crisis. That being said, SAMHSA is not funded to provide text-based services. However, text-based services are available nationwide through

innovations such as the Crisis Text Line and other state-specific services are available. But those are not federally funded at this time. The ones that SAMHSA has are chat and phone. The apps embedded within that have the phone number, but if someone is in an area with no/limited phone or internet access, it would be dependent specifically upon what someone downloaded into their device. Those are the aspects that SAMHSA tried to prioritize just in case an individual was at that level of access.

Dr. Porucznik requested that the members think about what opportunities exist to conduct enhanced public health monitoring, research, or programmatic work beyond those mentioned in the presentation. For example, she wondered whether anyone had tried data mining on Match.com to look for evidence of mental health challenges there. That seems like a platform that many people may be on that she has never seen mentioned before.

Dr. Compton noted that social media is a growing platform and said he liked Dr. Porucznik's comment about Match.com and wondered if that was the right technology. The National Institute on Drug Abuse (NIDA) is supporting work to look at the use of online dating approaches in terms of sexual risk behavior and the overlap with drug abuse. They see this in terms of sexual minorities frequently using this for mostly sexually explicit connections, but the same thing happens in all groups. There is some research on that topic, but one of the difficulties in studying these areas is that about the time a project is mounted and begins, the platform of interest is no longer popular and the project has to be retooled to use a different social media platform. NIDA has been trying to figure out how to use social media to track the ongoing drug abuse epidemic. The National Drug Early Warning System (NDEWS) has been making efforts and some headway to take advantage of potentially very rich resources to understand emerging drug threats, which might be something NCIPC is interested in because it certainly overlaps with overdose and injuries to a degree.

Dr. Schwebel inquired as to whether it would be possible to extend beyond suicide to homicide and unintentional injuries with some of the social media surveillance.

Dr. McClellan said he thought there was certainly room to extend these methods, especially with the drug and substance abuse issues. There are some sticky issues to think about, such as whether people talk about their drug use in a useful way on social media. It seems that most people would be smart enough not to discuss the risk factors online, but there is some possibility to capture some information about drug use online. There is also the matter of whether the conversation online aligns with real-world outcomes.

Dr. Porucznik pointed out that the typical grant lifecycle timing issue is real. A new app may or may not become updated or the item to be measured may go away.

Dr. Hedlund asked whether there are examples of positive norm messages via social media with some evaluation of their effects?

Dr. Sumner responded that the two studies that he presented in his overview is the leading research available. The first study used a propensity score matching technique to pair up cohorts of individuals so that they could actually make causal inference about the effects of the messages that users were receiving directed at them in the mental health forums they were visiting. That was one of the first and only studies looking at positive messaging online that used a rigorous design. The recent study he highlighted in the proceedings of the NAS was remarkable for the research community because it linked online data from Facebook with the real-world outcomes of interest, in this case mortality data as directly measured from California

death certificates. While the investigators did not analyze the exact types of messages individuals were receiving, they used proxies for social connectedness such as number of friends and connectedness as measured through various other ways of social media. They found that the more connected people were, the lower their mortality was from suicide and drug overdose. There remains a tremendous need for more similar studies.

Dr. Porucznik suggested giving thought to other novel data sources that could be important for consideration by health agencies and what is being missed. Last year, there was a student in her graduate program who stopped showing up for class. As part of trying to figure out whether they needed to do anything, they went on all kinds of platforms trying to find him. The missing data was even more interesting. He was active on a fitness tracking site, but that activity suddenly stopped.

Dr. McClellan emphasized that with the proliferation of big data, the “world is their oyster.” One easily accessible data source is from Google with the Google Trends tool. Google offers a high-level interface to determine how many searches have been conducted for specific search terms, geography, time period, et cetera. Google searches in and of themselves offer a population-wide measure of a topic for additional study to see how that plays out. Another potential data source is Amazon, which sells browser and purchase histories, which would allow for assessment of purchase patterns in certain areas. There are interesting purchasing patterns associated with the outcomes of interest.

Dr. Porucznik invited input on what partnerships might be critical to success in these areas and how they, as health researchers and public health professionals, might try to develop those relationships. She asked whether any of the BSC members had thoughts or experiences with novel prevention strategies with new technology.

Dr. Wright said he found it interesting when NCIPC was developing the Standards for Online Care with Facebook, they met at Facebook with many social media partners who said they could project a couple of weeks ahead of time whether a couple is going to get together or break up. NCIPC asked whether they could predict ahead of time who potentially would be suicidal. The social media partners recently disseminated information regarding assessing, identifying, and reaching out to individuals who are suicidal because they were able to build some of that into their platform. They had to have a system that had such a large database they could actually learn from it, and then implement it into action. In terms of partnerships, this means determining who has the information of interest and how to partner with them. The goal is to establish public-private partnerships.

Dr. Comstock noted that for a study on obesity and injury prevention through adherence to a weight loss program using fitness trackers, it was quite a challenge working with their Institutional Review Board (IRB). Most university IRBs have not caught up to trying to understand what privacy issues should be addressed with respect to research in the social media arena. It is important to do a better job of educating IRBs in order to more easily access novel data sources.

In terms of predicting suicidal behavior or using algorithms for predictive models, **Dr. Greenspan** asked what some of the ethical implications might be in addition to IRBs.

Dr. McClellan acknowledged that the concerns are likely magnified due to the nature of the topics and will take a lot of consideration. SAMHSA’s research is all at an aggregate level, and they are producing nationwide forecasts. These data are publicly available, so they do not have

these issues at this point. With more granular levels down to the individual, ethical issues must be considered.

Dr. Frye is working on a 15-arm randomized controlled trial (RCT) designed to increase repeat blood donation among donors. There are 4 conditions with 15 different combinations. One is a Facebook condition designed to increase relatedness and connectedness. The entire study is framed within Self-Determination Theory (SDT). Interestingly, one struggle in designing the condition was implementing it in real life and the resources that would be involved. The thing about social media as it occurs naturally it is that it is dynamic and fluid. When conducting research to try to capture that, everything about an RCT and experiment is standardized conditions. She is particularly interested in the sophisticated designs presented in terms of how to test some of these as interventions that can be harnessed and implemented. Do they want the evidence from what is considered the gold standard, or is that no longer possible to be the gold standard with this type of research.

Dr. McClellan said his background is in economics where there are a lot of the same issues. While RCTs are considered the gold standard for evidence, in economics there are too many “moving parts” to capture what is being studied. Thus, they rely on observational studies and quasi-experimental designs for causal interpretation of results. If it is possible to capture RCT evidence for suicide prevention related to social media great, but in the absence of that, they will have to fall back on some of the less conclusive methods in terms of causal inference. These are still useful methods from which some fairly valid conclusions can be made.

Dr. Porucznik noted that in some communities, it seems like youth suicides are at such a high level, they should not wait for an RCT. Trying out some of these techniques as an intervention might seem acceptable to the community as attempts to do *something*. It would be neat if something could set up so that if a child is searching terms that might be associated with suicide, the parent would receive notification. Thinking about ways where there can be a response may be a next step.

Dr. Wright indicated that this is already going on. SAMHSA specifically worked with a lot of organizations to make sure that when certain terms are searched, certain things popped up. For example, a couple of years ago in the Google search bar there was not a direct link to the chat network. Now there is and this increased demand by 50% overnight. It is very important to make sure that there is a response for increased demand. The way people are searching, it does link up now more than it ever has. SAMHSA's goal from a programmatic standpoint in suicide prevention has been to try to identify individuals and link them with appropriate care to start. When chat and text first came out, they did not have any outcome evaluations or long trials. They just knew that there was demand and people wanted it, so they tried to align it as best they could with phone-based services. They quickly discovered that these are very different services. Chat or text takes twice as long as phone and takes a different response. If someone says they are going to kill themselves and then does not say anything for 5 minutes, should 911 be called immediately? It would be very awkward on the phone if that happened. But with a chat or text, they could just be going to the bathroom or doing many different things. Therefore, they had to make changes. Certain efforts are worth the risk, but at the same time it is important to be very careful to make sure those are being evaluated. SAMHSA has a full-fledged evaluation underway with partners that started at CDC and now are international on the evidence of chat-based interventions for example that they hope to publish soon. This work is in its infancy, but they are trying to get the information to the social media giants to be able to look at and make their determination on what to do and try to guide them as best they can, unless there is an intervention that SAMSHA owns and operates.

Dr. Porucznik asked the BSC members to discuss how public health agencies and practitioners could best keep up with emerging tools and technologies.

Dr. Frye wondered if at NCIPC or at CDC more generally if there is a cadre of anthropologists who are charged with keeping up. It seems like cultural anthropologists would be some of the best people to be tracking this and would embed themselves within the communities or have users of various platforms.

Dr. Sumner replied that there are not, but as they begin to think about this new area it is an important consideration to understand how to stay on top of new opportunities.

Dr. Compton thought this presented an interesting challenge for CDC and all of the public health agencies within HHS. There are certainly pockets of people interested in these topics across NIH and other parts of HHS. He thought it would be terrific if NCIPC could convene a small group to discuss how to efficiently stay on top of emerging technologies and how they play a key role in the expression of injuries, drug abuse, alcoholism, mental health issues, et cetera.

Dr. Gioia indicated that about 2 to 3 years ago, Children's National Health System was contacted by representatives from Google who were interested in health trends and various health-related issues, such as concussion. He wondered whether some of the giants of Google proportion still have these. They changed personnel, so that project ended after only about 6 months, but they were interested in what their technology could do to further health-related issues. Google has an interesting way of tracking different media types. Perhaps consideration should be given to engaging some of these private groups in this conversation.

Dr. Austin indicated that the National Highway Traffic Safety Administration (NHTSA) is also very interested in social media and its use as a data collection tool, and would be interested in participating in a working group.

Dr. Miller indicated that the Health Resources and Services Administration (HRSA) would be interested in that type of group as well. She was curious as to whether there was any awareness of looking into the use of smartphone technology to put individuals into immediate contact with a response for suicide or other imminent issues similar to what has been implemented in terms of pushing the power button 5 times to signify being in immediate danger or notify 911 that might bypass the app-related and connectivity issues.

Dr. Greenspan indicated that they would include this in their list for follow-up.

Dr. Schwebel commented that poison control centers provide a model for emergency help from any form, which he thinks could be easily applied elsewhere.

Dr. Comstock suggested that an existing model to think about is the National Center for Catastrophic Sport Injury Research (NCCSIR) at Chapel Hill. They started by trying to find sports-related fatalities and developed over time to use Google searches and augmentation with an online reporting tool.

BSC Nomination Process

Gwendolyn Cattledge, PhD, MSEH
Deputy Associate Director for Science
BSC Designated Federal Official
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Cattledge spent a few minutes giving a high-level view of the nomination process for the BSC, which is a federal advisory committee. The nomination process is currently taking about 6 to 12 months to complete. Nominees must have expertise in the areas of injury and violence prevention and are solicited from various sources, such as the following:

- Intramural scientists in NCIPC's divisions
- Previous scientific peer reviewers
- Current and former BSC members
- Professional associations and organizations
- Federal Register* notices inviting others in the general public who meet the criteria to submit their interest in participating
- CDC Management Analysis and Services Office's (MASO) database, which houses all of the names of persons who have reviewed for CDC
- Information for Management, Planning, Analysis, and Coordination (IMPAC II) system housed at NIH
- Research publications in major journals to determine leading scientists in the areas of interest

It is important to keep in mind that because the BSC is a FACA committee, it must be kept as fairly balanced in its composition as possible. To that end, there are various committee management requirements to ensure that geographic and other considerations of public service private organizations are met. Other qualifications must be met, all of which are outlined in the NCIPC BSC charter.

Once the pool of potential candidates is determined, Drs. Houry, Greenspan, and Cattledge assess the vacancies to determine NCIPC's current and future research focus areas for which they wish to include BSC representation. Once they develop a short list of people whom they wish to invite, they reach out to them to find out whether they would like to be considered and request their curriculum vitae (CV). Once the CVs are received, nomination packages are assembled that include the CVs and other information required by HHS. NCIPC has control over the first three steps. Once the package leaves NCIPC, it goes through several offices for approval before submission to HHS. HHS will review the package and if it is approved for the first level, they will send it back to NCIPC to complete the final package. It is important to remember that the HHS Secretary still has the authority to change someone from the draft, which did occur once in the early 2000s. Once the final package is approved and appointments are confirmed, NCIPC reaches out to those persons to determine whether they are still willing to serve on the BSC. Once selected, there are several paperwork submission new members have to make to NCIPC for onboarding.

Discussion Points

Dr. Porucznik noted that all of the members participated in this process, but they wanted to include this presentation to underscore what a major effort it is to bring members on board and why it is important to maintain good participation from members once they are identified. It is like retaining people in a follow-up study. A lot has been invested in them and it is important to keep them. She requested that as the members were participating, they keep in mind the idea of succession and building a pipeline to replace members when their terms are up.

Follow-Up on Action Items from Previous Meeting

Arlene Greenspan, DrPH, MPH
Associate Director for Science
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Greenspan said that based on the last BSC meeting, NCIPC had a lengthy discussion regarding how they could better communicate with the BSC, what could be done to improve the BSC meetings, and how concerns could be addressed about the fact that there seems to be a disjoint in that NCIPC does not necessarily go back in a systematic way to work through action items and report back to the BSC. Some of the efforts NCIPC is engaged in are because of the BSC members' feedback during the last meeting. As a result, action item follow-up will now be added to each agenda and an agenda-setting process will be utilized. Rather than presenting lengthy updates during meetings, NCIPC also decided to link members into the updates already being done. BSC members should be on the regular update listservs for DVP and DUIP and should be receiving bi-monthly or quarterly updates. Those who are not should let Ms. Lindley know when they submit their email confirming their presence on this call.

The presentations on social media and the FACA process were included on the agenda, given that they were discussed during the last BSC meeting. Another area discussed last time was giving more recognition to or including the BSC *Ex Officios* more systematically in the agenda. Dr. Greenspan was surprised at the number of the BSC members were not aware of who all of the full breath of agencies our *Ex Officios* represent and how NCIPC interacts with them. By including them on relevant agenda topics, she is hoping the members will get a better sense of the different lanes each has, how NCIPC collaborates with them, and how they try to align their respective work. Also discussed during the last meeting was to convene an ICRC listening session, which NCIPC did through the Society for Advancement of Violence and Injury Research (SAVIR). A lot of good feedback was received, which NCIPC used to refine the currently published Notice of Funding Opportunities (NOFO).

Discussion Points

Dr. Porucznik noted that one action item which arose during this meeting pertained to social media and how the various partner agencies can try to work together and learn from each other. Related to that, there was discussion during a previous meeting about how even the centers at CDC do not communicate as much as they could and that perhaps there could be some type of BSC crossover or council of councils. She recognized that all of the centers may not be organized the same way as NCIPC, but both of those items fall into the category of how they can all interact together to do this work better. She requested that the members on the call specify any other items that arose during the meeting that should be included in the follow-up action item category.

Dr. Greenspan added that they discussed having a BSC member possibly sit in on other BSC meetings. She will keep this item on the “to do” list with the hope of having a solution by the next meeting.

Dr. Frye recalled that during a previous meeting, there was discussion that those on the BSC who are not CDC employees might work together to advocate for funding for NCIPC. She recognized that the members must do this independently of this forum, given that the agency is not permitted to engage in advocacy.

Agenda-Setting for Next Meeting

Arlene Greenspan, DrPH, MPH
Associate Director for Science
National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

Dr. Greenspan briefly described the National Center for Injury Prevention and Control Board of Scientific Counselors Agenda Template she developed, which was included in the members’ meeting materials. She thought it would be helpful to have a standard template to work from as they discussed agenda-setting ideas. Some items will be recurring, such as the Director’s Update and Extramural Research Updates. NCIPC would like to have at least one *Ex Officio* presentation during each meeting that highlights some of the *Ex Officio*’s work in topic areas that align with NCIPC’s topic areas. She thanked SAMHSA for their willingness to be the first to present and offer their input on the use of social media.

To begin the conversation, she noted that one area which is ripe for discussion is NCIPC’s research setting for opioids. NCIPC did some research updating in 2015, but the opioid crisis has continued to evolve. When reviewing the previous research priorities, there was little at that point on illicit drugs. However, some things have changed in terms of the direction NCIPC thinks its research needs to go. It also would be timely to review the research conducted over at least the past 3 years since that research agenda was developed. This is an area that has widespread interest across the government and academia, and NCIPC thought this would be a good place to hear from some of its federal liaisons.

Another topic mentioned previously included the possibility of having a presentation from the CDC Foundation. In addition, there has been discussion about more partner engagements related to suicide. She recognized that a lot of members of the BSC are engaged in research and partnerships, and she thought it would offer a good opportunity to have some discussion about other partnerships in addition to the CDC Foundation and what it contributes. In the past, there has been a lot of discussion about the ICRCs but less about the Youth Violence Prevention Centers (YVPC), which is an evolving program. This was brought to her by DVP as an area the BSC can help them think through.

Discussion Points

Dr. Haegerich emphasized that the opioid epidemic is a changing epidemic and NCIPC wants to make sure that the research priorities are in keeping with what is being observed in the field. Most of NCIPC’s research priorities have been focused on understanding supply, formulary management, effects of prescription drug monitoring, et cetera. In the programmatic space, they are doing more work with law enforcement and understanding the supply issue. This is an opportunity to get some ideas from the BSC about where NCIPC could focus its work.

Dr. Hedlund reported that NHTSA can add to the opioid discussion. To kick off a new initiative to combat drug-impaired driving, NHTSA is hosting a summit on March 15, 2018 to lead a national dialogue and call-to-action.

Dr. Maholmes indicated that the National Institute of Child Health and Human Development (NICHD) is working on the issue of pregnant and lactating women and the impact of opioids on neonates and across the developmental trajectory. She underscored the report mentioned earlier about foster care. She expects that some of the work NICHD will find in its child maltreatment and child welfare research will support that and add some clarity to it, with a focus on assessing the long-term impact of opioid abuse on children, children's development, and newborns and their development is important.

Dr. Frye inquired as to whether anyone has published a paper or performed an analysis intended to quantify the negative ripple effects of the opioid epidemic across the life course and social ecology on outcomes such as traffic fatalities, negative child development impact, suicide, mental health, sexually transmitted infections (STIs), et cetera.

Dr. Haegerich said she was not aware of such a paper that holistically examines all of those components. During the last BSC meeting, there was a presentation on the Opioid Coordinating Unit NCIPC was standing up and how they are collaborating across CDC to address each of these outcomes. A plan and gap analysis were developed to identify research priorities in areas across CDC in terms of opioid related harms. Workgroups are now being stood up across CDC to address some of these issues. Thus, they are working internally to better understand the downstream effects, how they intersect, and how prevention strategies can overlap.

Dr. Compton pointed out that this is of great interest to many groups across HHS and other sectors. A pretty good job has been done of explaining the mortality related to the opioid crisis, and a reasonable job has been done in terms of morbidity. However, a lot less has been addressed in terms of the social consequences. There is a lot of discussion with regard to the interaction with economic factors, which demographers are paying attention to. However, he has not been able to find anyone who has done anything more than mention all of these ideas versus quantifying and outlining that. There is a similar level of coordination across HHS as there is within CDC. There is an HHS Behavioral Health Coordinating Council (BHCC) that has a subcommittee on opioids to try to help each department maintain some knowledge of what each is working on. There is a new group meeting through the Office of Science and Technology Policy (OSTP) in the White House (WH) to develop some cross-cutting research and development priorities for the opioid crisis and to help coordinate across all federal departments. It is impossible to always keep track of all of these things, but many groups are working to improve coordination, learn from one another, and avoid duplication.

Dr. Greenspan said that if this is of interest, NCIPC can try to pull some of the different areas together for discussion during the next BSC meeting, reach out to various *Ex Officios* in this group so they can provide information on their perspectives, and talk to some of the other CDC centers such as National Center on Birth Defects and Developmental Disabilities (NCBDDD) that is working on some of the issues Dr. Frye mentioned earlier. This could provide a broader perspective that could then be narrowed down to what falls within NCIPC's purview.

Dr. Frye noted that various lawsuits are being brought against some of the pharmaceutical companies that kicked off some of this. As those proceed, it will be interesting to see evidence that they bring in order to make their case and in terms of what the ultimate awards will be. States and municipalities are basing their claims around needing to recoup their investments. It seems that there is probably evidence regarding the proximal and distal outcomes, but she was curious as to whether anyone had ever put it into one place.

Along those lines, **Dr. Porucznik** would be very interested in hearing from the Indian Health Service (IHS). In terms of a grand paper to rule them all, it sounded like this could be a new Surgeon General's Report on drug abuse in America similar to the smoking and health report in the 1960s. She thought the topic of the CDC Foundation and other partnerships were good topics for the BSC to be aware of and comment on.

CAPT Taylor said that the IHS would love to be able to contribute what they are doing with opioids. They have a lot of activities underway and work with a lot of other programs and agencies. She also noted that one of the Surgeon General's priorities is opioids, so it is likely that he will come out with something about that.

Dr. Frye would be very interested in hearing more about the YVPC program and its accomplishments.

Dr. Comstock would like to hear more about NCIPC's approach to the ICRCs (how many, what they fund, when they apply, where they apply, et cetera). That has changed dramatically over time, and it would be beneficial to hear a historical overview regarding what prompted some of those changes in order for people to understand what might bring about further changes in the future.

Dr. Greenspan agreed that it might be timely to look at both the YVPCs and ICRCs.

Responding to an inquiry posed about whether transportation injuries were of continued interest at CDC, particularly given the uptick in young people overdosing while driving, **Dr. Greenspan** indicated that NCIPC has continuing work on transportation injuries. That has been a focus because it was one of Dr. Frieden's Winnable Battles. There have been a number of accomplishments made in the motor vehicle (MV) area and it is still very much a part of NCIPC's portfolio. The priorities have evolved in terms of transportation injuries as the risk factors have changed in that area, and after years of decline there is an uptick again.

Dr. Hedlund noted that in dealing with opioids, there may be a connection with motor vehicles in the same way that there has been with alcohol. Some people can be discovered who have alcohol problems because they get arrested for drunk driving. Similarly, some people with opioid problems can be discovered in the same way. There may be connections as well as some joint messages. He has reviewed NHTSA's data in depth on the role of drugs in fatal crashes and would be glad to present that information during the next meeting.

Dr. Comstock inquired what the members could do as external advisors to try to encourage NCIPC to put more firearm prevention research on the agenda and actually receive a line item budget for that work.

Dr. Frye would be interested in hearing about sexual violence (SV) prevention work. Since last the BSC met, the "#MeToo" movement and all of its ramifications have emerged. She is curious to know whether this has had any impact, and is an area in which big data is ripe to understand

the effects of it on all sorts of outcomes for people who are disclosing and those who are being identified as perpetrators. Some NOFOs have been published with a focus on community-level interventions. It will be interesting to see what people will do with the virtual communities in terms of methodologies.

Dr. Greenspan indicated that CDC is going through a strategic planning process for big data and surveillance. This was mentioned during the last meeting and they are now further along in that process, though still in the formative stage. She acknowledged all of the great ideas generated. While they cannot cover everything in the next meeting, they should be able to tackle two or three topics. She will reach out to those who offered suggestions and indicated an interest in presenting for further discussion.

Dr. Porucznik emphasized that the BSC members are involved in the agenda-setting process. This is not intended to be a process in which they show up and have people talk at them. It is preferable that people are presenting information that the BSC wishes to hear about. Between now and when the next agenda is completed, she invited members to reach out to her, Dr. Greenspan, or Dr. Houry with other topics they would like discussed.

Public Comments

No public comments were offered during this session.

Announcements / Adjournment

Christina A. Porucznik, PhD, MSPH
Chair, NCIPC BSC
Associate Professor, Department of Family and Preventive Medicine
University of Utah

Dr. Porucznik requested that members put a placeholder on their calendars for the next in-person meeting, which is proposed to be convened on June 19-20, 2018 in Atlanta, Georgia. In addition, teleconferences are planned for July 12, 2018 and August 1, 2018 for the purpose of secondary reviews. She reminded everyone who joined the meeting via teleconference or Adobe Connect to send an email Ms. Lindley confirming their attendance, and to complete their Office of Government Ethics (OGE) Form 450: Confidential Financial Disclosure Report and submit it to Ms. Lindley as well.

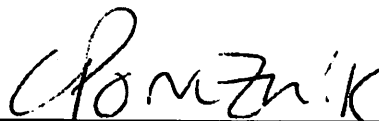
With no further business posed or questions/comments raised, Dr. Porucznik thanked everyone for their attendance and participation and officially adjourned the twenty-third meeting of the NCIPC BSC at 3:33 PM.

Certification

I hereby certify that to the best of my knowledge, the foregoing minutes of the February 26, 2018 NCIPC BSC meeting are accurate and complete:

Apr 27, 2018

Date



Christina A. Porucznik, PhD, MSPH
Chair, NCIPC BSC

Attachment A: Meeting Attendance

Attachment A: Meeting Attendees

BSC Members

John Allegrante, Ph.D.
Deputy Provost
Columbia University

R. Dawn Comstock, Ph.D.
Associate Professor, Dept. of Epidemiology
Colorado School of Public Health

Kermit Crawford, Ph.D.
Associate Professor in Psychiatry
Boston University School of Medicine

Joan Marie Duwve, Ph.D.
Associate Dean for Practice
Indian University

Elizabeth Eckstrom, M.D., M.P.H.
Associate Professor of Medicine
Oregon Health & Science University

Victoria Frye, Ph.D.
Associate Medical Professor
City University of New York School of Medicine

Gerard Gioia, Ph.D.
Chief, Division of Pediatric Neuropsychology
Children's National Medical Center

Traci Green, Ph.D.
Deputy Director
Boston School of Medicine

James Hedlund, Ph.D.
Principal
Highway Safety North

Christina A. Porucznik, Ph.D., M.S.P.H.
Assistant Professor
Department of Family and Preventive Medicine
University of Utah

David Schwebel, Ph.D.
Associate Dean for Research in the Sciences
University of Alabama Birmingham

Deborah Daro Tuggle
Senior Research Fellow
Chapin Hall at the University of Chicago

Daniel J. Whitaker, Ph.D.
School of Public Health
Georgia State University

Federico Vaca, M.D., M.P.H.
Professor of Emergency Medicine
Yale University

Ex-Officio

Rory Austin, Ph.D.
Chief, Injury Prevention Research Division
Department of Transportation

Melissa Brodowski, Ph.D., M.S.W., M.P.H.
Senior Policy Analyst
Administration for Children and Families

Dawn Castillo, M.P.H.
Director
Division of Safety Research
National Institute for Occupational Safety and Health

Wilson Compton, M.D., M.P.H.
Deputy Director
National Institutes on Health
National Institute on Drug Abuse

Calvin Johnson
Deputy Assistant Secretary
Department of Housing and Urban Development

Lyndon Joseph, Ph.D.
Health Scientist Administrator
National Institutes on Health
National Institute on Aging

Valerie Maholmes, Ph.D.
Chief, Pediatric Trauma and Critical Illness Branch
National Institutes on Health
Eunice Kennedy Shriver National Institute of
Child Health and Human Development

Jane L. Pearson, Ph.D.
Associate Director for Preventive Interventions
Division of Services and Intervention Research
National Institute of Mental Health

Thomas Schroeder, M.S.
Director
Consumer Product Safety Commission

CAPT Kelly Taylor, M.P.H.
Director, Environmental Health and Injury Prevention
Indian Health Service

CDC Attendees

Debra Houry, M.D., M.P.H.
Kathleen Basile
Corinne Ferdon,
Arlene Greenspan, Dr.P.H, M.P.H.
Gwendolyn H. Cattledge, Ph.D.
Tamera Haegerich, Ph.D.
Tonia Lindley
Steven Sumner, M.D., MSc
Elizabeth Solhtalab, M.P.A.
Kenny Roberts, B.S.
Natalie Wilkins,

Non- CDC Attendees

Donna Polite,
ATL Contractors

Stephanie Wallace
Cambridge Communications

Chandler McClellan, Ph.D.
Health Economist
Substance Abuse and Mental Health Services Administration (SAMHSA)

James Wright, LCPC
Public Health Advisor
Substance Abuse and Mental Health Services Administration (SAMHSA)

Attachment B: Acronyms Used in this Document

Acronym	Expansion
ACEs	Adverse Childhood Experiences
ACF	Administration for Children and Families
ASPR	Office of the Assistant Secretary for Preparedness and Response
BHCC	HHS Behavioral Health Coordinating Council
BRFSS	Behavioral Risk Factor Surveillance System
BSC	Board of Scientific Counselors
CBJ	Congressional Budget Justification
CDC	Centers for Disease Control and Prevention
CIOs	Centers, Institutes, and Offices
CM	Child Maltreatment
CR	Continuing Resolution
CV	Curriculum Vitae
DARPI	Division of Analysis, Research and Practice Integration
DEA	Drug Enforcement Administration
DFO	Designated Federal Official
DUIP	Division of Unintentional Violence Prevention
DVP	Division of Violence Prevention
ED	Emergency Department
EHR	Electronic Health Record
FACA	Federal Advisory Committee Act
FY	Fiscal Year
GHSA	Global Health Security Agenda
HHS	(United States Department of) Health and Human Services
HIDTA	High Intensity Drug Trafficking Areas
HRSA	Health Resources and Services Administration
ICRC	Injury Control Research Center
ICWSM	International Conference on Web and Social Media
ID	Identification
IHS	Indian Health Service
IRB	Institutional Review Board
<i>JAMA</i>	<i>Journal of the American Medical Association</i>
<i>JAMIA</i>	<i>Journal of the American Medical Informatics Association</i>
MASO	Management Analysis and Services Office
mTBI	Mild Traumatic Brain Injury
MV	Motor Vehicle
NAS	National Academy of Sciences
NCBDDD	National Center on Birth Defects and Developmental Disabilities
NCCSIR	National Center for Catastrophic Sport Injury Research
NCIPC	National Center for Injury Prevention and Control
NDSD	National Depression Screening Day
<i>NEJM</i>	<i>New England Journal of Medicine</i>
NHTSA	National Highway Traffic Safety Administration
NICHD	National Institute of Child Health and Human Development
NIDA	National Institute on Drug Abuse
NIH	National Institutes for Health
NIOSH	National Institute for Occupational Safety and Health

Acronym	Expansion
NLP	Natural Language Processing
NOFO	Notice of Funding Opportunities
NPR	National Public Radio
OGE	Office of Government Ethics
OSTP	Office of Science and Technology Policy
OD	Opioid Use Disorder
RCT	Randomized Controlled Trial
SAMHSA	Substance Abuse and Mental Health Services Administration
SDT	Self-Determination Theory
SNS	Strategic National Stockpile
SV	Sexual Violence
TBI	Traumatic Brain Injury
TTHY	Talk They Year You
US	United States
WG	Working Group
WISQARS™	Web-based Injury Statistics Query and Reporting System
WH	White House
WSPD	World Suicide Prevention Day
YV	Youth Violence
YVPCs	Youth Violence Prevention Centers