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Department of Health and Human Services

**Board of Scientific Counselors
National Center for Health Statistics
Centers for Disease Control and Prevention
September 17-18, 2020**

Meeting Summary

The Board of Scientific Counselors (BSC) convened via Zoom on September 17-18, 2020. The virtual meeting was open to the public (via Zoom).

Board Members Present

Linette T. Scott, M.D., M.P.H., Chair, BSC
Kennon R. Copeland, Ph.D.
Prashila Dullabh, M.D.
Darrell J. Gaskin, Ph.D.
Robert M. Hauser, Ph.D.
Mark D. Hayward, Ph.D.
Scott H. Holan, Ph.D.
Helen G. Levy, Ph.D.
John R. Lumpkin, M.D., M.P.H.
Sally C. Morton, Ph.D.
Kristen M. Olson, Ph.D.
Andy Peytchev, Ph.D.
Ninez A. Ponce, M.P.P., Ph.D.
Gretchen Van Wye, Ph.D., M.A.

CDC/NCHS Participants

Brian Moyer, Ph.D., Director, National Center for Health Statistics (NCHS)
Jennifer Madans, Ph.D., Acting Deputy Director, NCHS
Sayeedha Uddin, M.D., M.P.H., Designated Federal Officer, NCHS
Paul Sutton, Ph.D., Deputy Director, Division of Vital Statistics
David Huang, Ph.D., M.P.H., C.P.H., Chief, Health Promotion Statistics Branch, Office of
Analysis and Epidemiology, NCHS
Jennifer Parker, Ph.D., Director, Division of Research and Methodology, NCHS
Stephen Blumberg, Ph.D., Director, Division of Health Interview Statistics, NCHS
Tina Norris, Ph.D., Health Statistician, Division of Health Interview Statistics, NCHS
Ryne Paulose, Ph.D., Acting Director, Division of Health and Nutrition Examination Surveys, NCHS

Other Attendees

Joyce Abma	Johanna Alfier	Yutaka Aoki
Viviana Aguila	Josephine Alford	Rihem Badwe
Naman Ahluwalia	Mercy Alvarenga	Brenda Baker
Akintunde Akinseye	Robert Anderson	Bryan Bassig
Jessica Alexander	Nick Ansai	Joseph Baweja

Kristian Billings
Greg Binzer
Jonaki Bose
John Bowers
Debra Brody
Lisa Broitman
Sherry Brown-Scoggins
Verita Buie
Virginia Cain
Margaret Carroll
Anjani Chandra
Te-Ching Chen
Donald Cherry
Chanda Chhay
Kristen Cibelli
Jodi Cisewski
Jay Clark
Christine Cox
James Craver
Lauren Creamer
Nicole Cummings
Lucinda Dalzell
Barnali Das
Orlando Davy
Rebecca Devlin
Hua Di
Natalie Dupree
Morgan Earp
Nazik Elgaddal
Tala Fakhouri
Robert Fay
Tammy Feenstra Banks
Steven Fink
Allan Fisher
Heila Franco
Alicia Frasier
Chris Freedman
Chery Fryar
Matthew Garnett
Connie Gentry
Debra Gilliam
Renee Gindi
Maleeka Glover
Jessica Graber
Eve Granatosky
Rachel Gruner

Qiuping Gu
Craig Hales
Nancy Han
Honorata Hansen
Yulei He
Holly Hedegaard
Elizabeth Heitz
Kevin Heslin
Jacquie Hogan
Julia Holmes
Robert Hood-Cree
Isabelle Horon
Rebecca Hu
Katherine Irimata
Jessly Joy
Sibeso Joyner
David Justice
Diba Khan
Richard Klein
Karen Knight
Ellen Kramarow
Melissa Kresin
Deanna Kruszon-Moran
David Lee
Florence Lee
Kristian Lee
Sarah Lessem
Xianfen Li
Yan Li
Zhaohui Lu
Susan Lukacs
Ann MacFadyen
Donald Malec
Gladys Martinez
Meredith Massey
Vickie Mays
Juliana McAllister
Susan McBroom
Taylor McEwen
Jody McLean
Justin Mezetin
Jasmine Mickens
Kristen Miller
Lisa Mirel
Suruchi Mishra
Leyla Mohadjer

Jennifer Moore
Dieudonne Nahigombeye
Saswathi Natta
Carolyn Neal
Zakia Nelson
Amanda Ng
Duong Nguyen
Jim Nowicki
Colleen Nugent
Tatiana Nwankwo
Damon Ogburn
Cynthia Ogden
Rho Olaisen
Vera Osidach
Sue Pedrazzani
Zachary Peters
Michelle Poulos
Paul Pulliam
Jennifer Rammon
Cynthia Reuben
Minsun Riddles
Vincent Rome
Dorothy Roper
Lauren Rossen
Neil Russell
Asel Ryskulova
Neda Sarafrazi
Jennifer Sayers
Paul Scanlon
Susan Schappert
Jeannine Schiller
Steven Schwartz
Natasha Seam
Bobbie Iris Shimizu
Phillip Shiu
Leigh Smith
Merianne Spencer
Suresh Srinivasan
Pamela Stephenson
Tammy Stewart-Prather
Bryan Stierman
Renee Storandt
Yu Sun
Rashmi Tandon
Chally Tate
Betzaida Tejada-Vera

Amanda Titus
Anjel Vahratian
Lisa Wagner
Meagan Walters
Edwina Wambogo
Cha-Yih Wang
Valerie Watzlaf

Julie Weeks
Scott Weigel
Karen Whitaker
Bryan Williams
Jean Williams
Sonja Williams
Stephanie Willson

Amanda Wilmot
David Woodwell
Jing Xu
Wu Xu
Alana Yick
Carla Zelaya

List of Abbreviations

AMA	American Medical Association
AOA	American Osteopathic Association
APHA	American Public Health Association
API	application programming interface
BSC	Board of Scientific Counselors
CCQDER	Collaborating Center for Question Design and Evaluation Research
CDC	Centers for Disease Control and Prevention
CHC	community health center
CMS	Centers for Medicare & Medicaid Services
COD	cause of death
COVID-19	Coronavirus Disease 2019
DRM	Division of Research Methodology
DVS	Division of Vital Statistics
HER	electronic health record
ER	Early Release Program of the NHIS
FY	fiscal year
HHS	U.S. Department of Health and Human Services
HIS	Division of Health Interview Statistics
ICD-10-CM	International Classification of Diseases-10 Clinical Modification

Action Steps

- Dr. Moyer encouraged attendees to review the new National Academies of Sciences, Engineering, and Medicine's (NASEM's) report entitled *Best Practices in Assessing Mortality and Significant Morbidity Following Large-Scale Disasters* and suggested that it be discussed during a future NCHS meeting.
- Dr. Moyer and NCHS will schedule a follow-up meeting to further involve BSC members in the efforts to develop case studies on sharing, linking, and preserving privacy of data.
- A motion was made and approved for the BSC to draft a letter to HHS, CDC, and NCHS leadership containing recommendations for communicating to the public about data and data quality (i.e., about NCHS' methodology for predicting data that are not yet available), especially in the context of the pandemic. Dr. Scott will share the letter with all BSC members for signature.

- A motion was made and approved to accept the report of the NAMCS Workgroup and deliver the recommendations to NCHS along with comments made during the BSC discussion.
- A motion was made and approved for the NAMCS Workgroup to continue to meet in order to support the NAMCS redesign.
- A motion was made and approved to accept the Population Health Survey Planning, Methodology and Data Presentation Workgroup (PHSPMDP) report and convey the recommendations to NCHS.
- A motion was made and approved for the PHSPMDP to provide recommendations to the BSC in order to develop challenge mitigation strategies and provide advice to the HIS regarding COVID-19-specific challenges.

Thursday, September 17, 2020

Presenters

Brian Moyer, Ph.D., Director, NCHS
Jennifer H. Madans, Ph.D., Acting Deputy Director, NCHS
Paul Sutton, Ph.D., Deputy Director, Division of Vital Statistics (DVS), NCHS
Andy Peytchev, Ph.D., Chair, PHSPMDP Workgroup, BSC and RTI, International
Jennifer Parker, Ph.D., Director, Division of Research and Methodology, NCHS
David Huang, Ph.D., Chief, Health Promotion Statistics Branch, Division of Analysis and Epidemiology, NCHS

Welcome, Introductions, and Call to Order

Linette T. Scott, M.D., M.P.H., Chair, BSC
Sayeedha Uddin, M.D., M.P.H., Designated Federal Officer, NCHS, BSC

Dr. Scott called the meeting to order. She asked BSC members to introduce themselves and state any conflicts of interest. No one reported a conflict of interest.

Dr. Uddin introduced the NCHS team.

NCHS Update

Brian Moyer, Ph.D., Director, NCHS
Jennifer H. Madans, Ph.D., Acting Deputy Director, NCHS

Dr. Moyer described a recently established strategic planning process to modernize NCHS. Plans include efforts to harness new data sources and techniques (e.g., leveraging electronic health records [EHRs]), expand both the capacity and scope of NCHS statistical analyses (e.g., combining sociology and economics data with more traditional health data), connect data from sources across U.S. statistical systems, and build the NCHS “Workforce for the Future” to align with the Evidence-Based Policymaking Act of 2018. These modernization plans focus on both programmatic and operational improvements to NCHS and are being pursued with input from various external stakeholders in consultation with NCHS leadership.

Given its recent challenges in communicating COVID-19 mortality data to the American public, NCHS is also considering streamlined communications mechanisms (e.g., FAQ documents and one-pagers, as well as targeted outreach to specific subpopulations) to disseminate important health data more effectively.

NCHS Publications, September 2020

NCHS published the following reports during September 2020: (1) Non-Alcoholic Beverage Consumption Among Adults, (2) Antidepressant Use Among Adults, (3) Early Release of Estimates from the 2019 National Health Interview Survey (NHIS), (4) Trends and Patterns in Menarche, and (5) State Suicide Rates Among Adolescents and Young Adults. Before October 2020, NCHS will also publish four reports on mental health symptoms and treatment from the 2019 NHIS, as well as quarterly provisional estimates for selected birth indicators.

Recent and Upcoming NCHS Webinars

NCHS recently held webinars publicizing the latest data and reports from the National Health and Nutrition Examination Survey (NHANES), describing COVID-19 plans for the Research and Development Survey (RANDS), and providing updates on the Healthy People 2030 release. NCHS will

also hold webinars on the 2019 NHIS data release, with a special focus on mental health (September 23), as well as on the 2019 NHIS redesign and intended use of the resulting new data (October, specific date to be determined).

Household Pulse Survey

Dr. Moyer described the Household Pulse Survey, a cross-agency effort to collect real-time data on the COVID-19 pandemic, as one of the most significant accomplishments in the history of the U.S. statistical system. Seven federal agencies jointly developed and fielded the Household Pulse Survey, a web panel survey, to capture key economic, social, and health indicators relevant to the current pandemic (e.g., mental health, access to health care, and insurance coverage). The Household Pulse Survey, in addition to typifying a productive collaboration across federal agencies in the U.S. statistical system, provides an example of how NCHS might supplement its core surveys (e.g., NHIS) with additional data as part of its efforts to modernize public health data capture and analysis. NCHS has now begun to consider, as part of its broader effort to integrate disparate data sources to help meet policy objectives, how the Household Pulse Survey might be benchmarked into and made consistent with NHIS.

Evidence-Based Policymaking Act

Based on the requirements of the 2018 Evidence-Based Policymaking Act, the U.S. Department of Health and Human Services (HHS) has established several committees and workgroups to develop case studies on sharing, linking, and preserving the privacy of data that have relevance to the work of NCHS. NCHS has been invited to participate in many of these case studies to provide expertise on topics such as expanding use of EHRs, addressing cross-government interoperability around opioid use data, and using differential privacy and other privacy-protecting algorithms to preserve or protect respondent confidentiality. Dr. Moyer aims to involve NCHS in as many of these Evidence-Based Policymaking Act case studies as possible and will contact NCHS members with relevant expertise as more are developed.

The Interagency Council on Statistical Policy is focused on developing a portal to improve researcher access to data across the U.S. statistical system, which is required by the Evidence-Based Policymaking Act. Such a portal would, for example, remove the need for researchers to apply to multiple agencies for access to desired microdata, both easing access and reducing cost. Dr. Moyer encouraged attendees to offer their feedback or assistance in developing this new portal, which will benefit a wide range of researchers.

NCHS Budget Update

In FY 2020, NCHS received \$160 million in direct budget authority and an additional \$14 million from the more general Public Health and Scientific Services appropriation. Additional funding was obtained from reimbursable and special projects. These additional resources fluctuate from year-to-year. For the FY 2021 budget, the President's Budget request reflects a \$5.4 million decrease compared to FY 2020.

Public Health Data Modernization Initiative

NCHS has received approximately \$3.5 million in FY 2020 data modernization funding, which it has used to promote in-home examinations as well as to improve mortality data. CDC is currently allocating, to various Centers, \$500 million in modernization funds provided by the CARES Act.

NCHS Staff Deployments

Dr. Madans described the effects of COVID-19 on NCHS staff, highlighting that 102 NCHS staff have served on formal COVID-19 response deployments. She reported that on August 31, 18 NCHS staff left their typical responsibilities to deploy for an average length of 45 days to help manage the pandemic (e.g., providing technical assistance, contact tracing, airport screening, and questionnaire translations).

ICD-10-Clinical Modification Meeting

NCHS, jointly with the Centers for Medicare & Medicaid Services (CMS), is responsible for updating ICD-10-CM (Clinical Modification). On September 8 and 9, 2020, NCHS and CMS hosted an ICD-10 Coordination and Maintenance Committee Meeting to discuss various requests for diagnosis and procedures coding changes, including those related to COVID-19. There were 265 attendees at the meeting. Coincidentally, a similar meeting was held at the World Health Organization on these days. During the meeting, 36 out of 60 submitted proposals to modify the ICD-10-CM diagnostic codes were scheduled for discussion, and 31 were discussed; the remaining five will be discussed during a follow-up meeting. Dr. Madans suggested that the process adjusting changes to ICD-CM may require modification as the number of proposals received has steadily increased since 2015.

Regarding COVID-19 codes specifically, Dr. Madans noted that the public comment period on the proposed modifications will last for only 30 days to accelerate implementation; comments are due on October 9, and changes to COVID-19 codes will be implemented on January 1, 2021. All other modification proposals will be open for public comment for two months (comments are due on November 9), and changes to them will be implemented on April 1, 2021.

Virtual Data Detectives Camp

Dr. Madans reported that NCHS conducted its annual August Data Detectives Camp virtually this year because of the COVID-19 pandemic. The Camp invites rising sixth and seventh graders to apply for a limited number of spots (this year there were 16 openings). Despite this year's virtual format, the camp was a success and participants were happy with the experience.

Closing Remarks

Dr. Madans thanked the BSC for its valuable contributions to the work of NCHS, and especially thanked the following BSC members, who are departing the board and who were gracious enough to join us for one last meeting: Ninez Ponce, M.P.P., Ph.D.; Mark Hayward, Ph.D.; Prashila Dullabh, M.D.; and Darrell Gaskin, Ph.D.

Dr. Moyer also thanked Dr. Richards, CDC's Deputy Director for Public Health Science and Surveillance, who is retiring at the end of October 2020, for his leadership in support of the BSC.

Discussion/Reaction by the Board

A BSC member asked Dr. Moyer whether NCHS resources are spread too thinly among all of its various initiatives (e.g., augmented modeling and analysis capabilities, enhanced race and ethnicity data), particularly considering the strain imposed by COVID-19. Dr. Moyer expressed optimism that forthcoming data modernization funds would help ease financial burdens but acknowledged the challenge of adequately funding all of NCHS' initiatives with a limited budget. Members stressed the need, particularly in the context of COVID-19, to ensure that the desire to obtain data quickly does not undermine the even more important need to obtain data that are of high quality.

A member congratulated NCHS on the success of its Virtual Data Detectives Camp and suggested that this program be expanded in the future, and that it might target groups underrepresented in statistics, as well as those that have been most affected by COVID-19. In another effort to account for race and ethnicity, Dr. Madans explained that NCHS aims to create links across the U.S. statistical system (e.g., with the U.S. Census Bureau) to achieve greater breadth and quality of race and ethnicity data. However, she also noted that such linkages will not address issues in the core NCHS data that result from shortcomings such as limited sample sizes, adding that these issues must still be addressed separately. The BSC strongly endorsed further investment in these areas.

Drs. Madans and Moyer were asked to clarify NCHS' relationship with other parts of "CDC proper" that are involved in COVID-19 case reporting. Dr. Madans clarified that COVID-19 case report data come mostly from state health departments reporting to CDC-Atlanta and not to NCHS; this same process also generates CDC's COVID-19 mortality data. NCHS relies on death certificates that must be filed in state vital statistics offices and then transmitted to NCHS where cause of death is coded and the data processed before mortality statistics can be released. HHS also receives COVID-19 related data directly from hospitals using the HHS TeleTracking Portal or via direct submission from states into the HHS TeleTracking portal or into a platform called HHS Protect. However, the process for reporting COVID-19 data through these mechanisms (and the quality of those data) varies by state, resulting in inconsistencies. CDC also receives data from nursing homes through the National Healthcare Safety Network (NHSN).

It was noted that NCHS' data collection, storage, and reporting systems are well-honed and that it may be worth increasing their use in the reporting of COVID-19 data. Dr. Madans explained that the main obstacle to using NCHS' systems is the overwhelming desire to report data quickly (i.e., within one day). CDC's COVID-19 case and mortality data may be up to two weeks ahead of NCHS data. However, CDC has increasingly relied on NCHS' National Vital Statistics System (NVSS) to report on COVID-19 related mortality. Since NCHS' COVID-19 mortality data results from a highly formalized collection and coding process may be capturing COVID-19 deaths that were not originally reported as such. Dr. Scott noted that augmenting NCHS' formalized data capture/reporting processes with further automation may help combine high data quality and rapid speed of reporting.

Actions

Dr. Moyer encouraged attendees to review the new National Academies of Sciences, Engineering, and Medicine's (NAEM's) report entitled *Best Practices in Assessing Mortality and Significant Morbidity Following Large-Scale Disasters* and suggested that it be discussed during a future NCHS meeting.

Dr. Moyer and NCHS will schedule a follow-up meeting to further involve BSC members in the efforts to develop case studies on sharing, linking, and preserving privacy of data.

COVID-19 Mortality Data Release

Paul Sutton, Ph.D., Deputy Director, Division of Vital Statistics

COVID-19 Response Timeline

Dr. Sutton reviewed the timeline for the NCHS response to COVID-19, which was also presented during the BSC's May 5, 2020 meeting:

- February 26: DVS decided to develop certification guidance for physicians reporting COVID-19 deaths.
- March 4: DVS released preliminary guidance for certifying COVID-19 deaths.
- March 17-20: NCHS updated the cause of death (COD) coding system and created a new ICD-10 code for COVID-19.
- March 25: NCHS launched a webpage (<https://www.cdc.gov/nchs/nvss/covid-19.htm>) for resources related to COVID-19 death data.
- March 27: DVS prioritized manual COD coding for jurisdictions with a high volume of COVID-19 deaths.
- April 2: NCHS released final guidance for certifying COVID-19 deaths.
- April 3: NCHS released the first provisional COVID-19 death counts, which are updated every weekday.

- April 16: Several DVS staff (i.e., Robert Anderson, Lee Anne Flagg, Farida Ahmad) made presentations during the Clinician Outreach and Communication Activity webinar, which reached nearly 17,000 participants.
- April 29: DVS released a visualization for excess deaths associated with COVID-19.
- May 1: NCHS redesigned the webpages that present provisional COVID-19 deaths.

Dr. Sutton also presented provisional COVID-19 death counts by week, beginning with the first week of February and extending through September 8, 2020, which totaled approximately 174,000 deaths. He noted that updated NVSS totals raise the death count to approximately 183,500 as of September 17. Dr. Sutton also showed a comparison of NVSS' and the *New York Times*' COVID-19 death count data, which are nearly identical, with slight differences that are partially explained by case reporting discrepancies during April and May. Dr. Sutton stressed that while the *New York Times* data are slightly more up to date (because of the time lag in death reporting through NVSS), NVSS data are collected in a more standardized way (*New York Times* data are aggregates of death counts scraped from state and local health department websites) and provide detailed information about each individual death (e.g., in terms of demographics such as sex, age, and race; geographic area such as state, county, and HHS region; as well as comorbidities and potential non-COVID-19 causes of death, such as pneumonia and influenza). Dr. Sutton highlighted the challenge of protecting individuals' confidentiality and privacy while also providing detailed tabulations of these multivariate death data.

COVID-19 Mortality Homepage

Dr. Sutton described NCHS' various COVID-19 Death Data and Resources available through the [NCHS COVID-19 Mortality Homepage](#). NCHS provides various tables, some of which are updated on a daily or weekly basis, to researchers interested in these data. Tables include [Daily Updates of Totals by Week and State](#); [Weekly Updates by Select Demographic and Geographic Characteristics](#); [Health Disparities: Race and Hispanic Origin](#); and [Excess Deaths Associated with COVID-19](#); as well as various ad hoc tables, such as [Provisional Death Counts for COVID-19: Index of COVID-19 Surveillance and Ad-hoc Data Files](#).

Dr. Sutton presented page view statistics from the Daily Updates of Totals by Week and State table, noting that views have been in the millions—which is very high for an NCHS page—and peaked in May at more than seven million views. He also noted that social media has driven traffic to NCHS' COVID-19 pages, including widely circulated but erroneous posts suggesting that NCHS was underreporting COVID-19 deaths (consumers of the data had not read the technical notes indicating that data were reported after a lag time).

Dr. Sutton also presented the page view statistics for the Weekly Updates by Select Demographic and Geographic Characteristics page, noting that they peaked in August with approximately four and a half million views, which was again driven in part by inflammatory misinterpretations of the data that were spread via social media. Although these interpretations have abated, this page continues to receive an average of more than one million views per month.

CDC Data Platform

NCHS also releases COVID-19 mortality data through [CDC's Data Platform](#), which houses more detailed versions of all data tables included on NCHS' webpages. From this platform, researchers can access data via an application programming interface (API) that allows them to filter, query, and aggregate data. They can also visualize data and export them in various formats.

Health Disparities: Race and Hispanic Origin

Dr. Sutton highlighted NCHS' work in mapping the disparate burdens of COVID-19 mortality according to race and ethnicity. NCHS counts the number of COVID-19 deaths reported for each race and Hispanic origin group and maps the distribution of COVID-19 deaths for each of these groups as a percent of the total number of COVID-19 deaths reported. It has also established reference points for interpreting these data by calculating the unweighted distribution of each race and origin group as a percent of the total population as well as the weighted distribution of each group that adjusts for geographic areas impacted by COVID-19.

Dr. Sutton presented these statistics (called "indicators") as of September 9, 2020 for all Non-Hispanic White, Non-Hispanic Black or African American, Non-Hispanic American Indian or Alaska Native, Non-Hispanic Asian, Hispanic or Latino, and Other populations in the United States. He also stressed the need to adjust these data for age, which in some cases has been a confounding variable. NCHS has attempted to provide researchers and other consumers with detailed context to help interpret these data, because their inherent complexity can easily lead to misinterpretations.

Excess Mortality Associated with COVID-19

Excess mortality is a measure of the difference between the number of deaths (from all causes) expected during a given time and the number of deaths actually observed during that same period. Dr. Sutton presented a graph showing the excess mortality spike that coincided with the peak of COVID-19 deaths in the United States during May 2020, highlighting that debates over whether CDC has over or undercounted COVID-19 deaths should recognize that excess mortality rates are significantly higher than those observed in any other recent year, and that this excess appears to be almost entirely attributable to COVID-19.

Dr. Sutton explained that 2020 excess mortality statistics have been weighted to account for incomplete data. Weekly "snapshots" of provisional data from 2018-2019 were used to model underreporting relative to final data, allowing completeness of provisional 2020 data to be predicted for various time intervals (within one week of death, two weeks, three weeks, etc.). Weights are then set as 1/completeness for each jurisdiction (e.g., if provisional data in a particular jurisdiction was historically 50% complete within 1 week of death, then the weight for that jurisdiction would be two).

The total predicted number of excess deaths across the United States can be compared to either an upper bound set by a 95% confidence interval or to an average expected number of excess deaths, for a range of 192,767 and 252,307 from February 1, 2020 through the week of September 7, 2020.

NCHS now presents excess mortality data in various new forms, including weekly counts of death by age group, by race and ethnicity, and by underlying cause of death. Dr. Sutton presented detailed data showing excess mortality statistics across several racial and ethnic categories: Non-Hispanic White, Non-Hispanic Black, Hispanic, Non-Hispanic Asian, Non-Hispanic American Indian or Alaska Native, and Other.

Challenges and Opportunities

Dr. Sutton emphasized that provisional data have become "the new normal" as users cannot wait a year for final data, noted that NCHS must continue to improve access to provisional COVID-19 death data and should begin thinking about how release of provisional data will be handled after COVID-19.

He also stressed that current approaches for adjusting incomplete provisional data based on reporting patterns in previous years are inadequate, and asked attendees to consider whether data science might

offer solutions to provide a more dynamic approach based on real-time events that would enable more timely and accurate provisional estimates of key data and statistics.

Discussion/Reaction by the Board

One member asked how the Division of Vital Statistics might improve its presentations of data to the public to avoid the kinds of misrepresentations that Dr. Sutton described, which can damage the credibility of the division and of NCHS as a whole. Members agreed that it is of vital importance to stem the influence of misinformation as proactively and thoughtfully as possible, but also emphasized the difficulty for scientific institutions of countering intentionally politicized misinformation.

Dr. Sutton was asked whether he had observed any trends in the quality of the adjustments made to provisional estimates of various health statistics. Dr. Sutton explained that adjustment quality increases with distance from any given week of data. He also noted that adjustment quality varies substantially by state, and some states have changed their reporting practices—in some cases accelerating reporting—since the onset of the pandemic. It has been difficult for the Division of Vital Statistics to account for the state-by-state variations in reporting practices.

Dr. Sutton also clarified that case-based surveillance data are generated through two separate streams: (1) aggregate case counts and (2) the National Notifiable Disease System (which reports record-level counts). He noted that the second of these streams contains many gaps and unknown variables, and that its data are therefore incomplete. This incompleteness contributes to CDC's reliance on NVSS as its gold standard for case data.

Motion and Vote

In relation to earlier comments, participants discussed the possibility of drafting an official letter to HHS, CDC, and NCHS leadership. This letter will contain recommendations for communicating to the public about data and data quality (i.e., about NCHS' methodology for predicting data that are not yet available), especially in the context of the pandemic.

A member moved to draft a letter addressing these topics and potentially proposing a framework for standardized governance of CDC data. The vote was unanimous in approval (Dr. Lumpkin was not present for the vote). During the coming weeks, the BSC will craft this letter, circulate it for review by members, and then vote to approve or reject it. Participants will review the transcript of this meeting to ensure that all BSC members' comments are reflected in the contents of the draft letter.

Population Health Survey Planning, Methodology and Data Presentation Workgroup Report

Andy Peytchev, Ph.D., Chair, PHSPMDP Workgroup

Dr. Peytchev thanked the team of Westat, NCHS, and NHANES researchers that have contributed to the PHSPMDP Workgroup, which was charged with providing external input on several NHANES restart scenarios that may pose unique statistical and operational constraints (Workgroup summary in Appendix 1). Specifically, the Workgroup aimed to explore several proposed scenarios for restarting the survey to complete the 2019-2020 NHANES cycle at different timepoints in 2021, discuss the implications of these options for the quality and utility of the 2019-2020 NHANES data, discuss the impact of the various restart scenarios on the upcoming 2021-2022 cycle, and submit an opinion to the BSC during its September 2020 meeting on the questions posed by the program team. This charge was developed as all NHANES operations were suspended by March 16 due to the COVID-19 pandemic; data collection is still suspended until at least April 1, 2021, and NCHS and Westat are studying the implications of this suspension for the 2019-2020 and 2021-2022 data collection.

NHANES has a 4-year survey sample design, but data are released in 2-year cycles to reduce disclosure risks, with 15 primary sampling units completed each year. In prior NHANES cycles, each year's units formed a nationally representative sample; however, beginning with the 2019-2020 survey cycle, the annual samples were combined and reordered to address various operational challenges (e.g., to streamline travel). This change, combined with the disruption of COVID-19, has resulted in an unrepresentative partial sample: at the time that COVID-19 suspended NHANES' 2019-2020 operations, only nine of 15 PSUs had been completed for each year, for 18 total completed PSUs, and completed PSUs underrepresent healthy people and completely exclude the West Census region of the United States (i.e., exclusions are nonrandom).

The issue is further complicated by the fact that the 2019-2020 survey contained a variety of new data elements (e.g., laboratory and questionnaire additions) as well as exam component modifications.

The PHSPMDP Workgroup has considered several options for completing the NHANES 2019-2020 cycle; these options are listed below, with implications briefly described below each option:

Option 1: Complete the 2019-2020 cycle to achieve a nationally representative sample (rejected).

- Restart data collection for 2019-2020 sample (e.g., in April 2021)
- Pro: Would obtain a 2019-2020 nationally representative sample
- Con: Would mix pre-COVID-19 and post-COVID-19 data
- Con: Would realistically preclude conducting the 2021-2022 survey, given lack of remaining time in 2022

Option 2: Complete a single year (e.g., 2019) to achieve a nationally representative sample (rejected).

- Six 2019 stands would be completed during 2021
- A new 2021-2022 sample would be drawn and collected
- Could potentially retain 2020 PSUs for an "enhanced" sample with 24 PSUs (i.e., "Option 2b")
- Pro: Would obtain 2019 and 2021-2022 nationally representative samples
- Pro: All 2021-2022 collection (24 PSUs) would be of post-COVID-19 data
- Pro: New components could be added to the 2021-2022 data related to COVID-19
- Con: Limited analytic utility of 2019 dataset (a single year, small sample size)
- Con: Would mix pre- and post-COVID-19 data for 2019
- Con: 2019 data collection and release would span 3 years (from 2019 to 2021) and would include an approximately 10-month gap in data collection
- Con: 2020-2021 sample would include fewer than the targeted 30 PSUs

Option 3a: Do not complete the 2019-2020 cycle, nor even a single year; begin fresh sample in 2021 (under consideration).

- Use weight adjustment or model-based approach to achieve nationally representative sample based on 18 completed PSUs
- Draw and collect data from a new 2021-2022 sample (with 30 PSUs)
- Pro: Would obtain a 2021-2022 nationally representative sample
- Pro: Would obtain all post-COVID-19 data for 2021-2022
- Pro: New components could be added to the 2021-2022 data related to COVID-19
- Pro: 2019-2020 data would all be pre-COVID-19
- Pro: 2019-2020 data could be released during the first half of 2021
- Con: Limited analytic utility of 2019-2020 data with 18 PSUs and a smaller sample size
- Con: Significant challenges with weight adjustment (e.g., 18 PSUs underrepresent the healthy and exclude the West Census region)

Option 3b: The same as Option 3a, *plus* combine 18 PSUs with 2017-2018 data to achieve nationally representative 2017-2020 sample (favored).

- Pro: 2017-2020 collection would be pre-COVID-19
- Pro: Larger 2017-2020 sample size for analysis
- Pro: 2017-2020 data could be released during the first half of 2021
- Pro: Would include data from 2017-2018 that are excluded from the 2019-2020 PSUs (e.g., West Census region data)
- Con: Estimates for new 2019-2020 measures could not be produced
- Con: Complexity of combining across different sample designs
- Con: Would release data only into the Research Data Center (RDC) (i.e., confidentiality restrictions would preclude public release)
 - One Workgroup member has suggested either producing synthetic data to fill in gaps or generating synthetic respondents within PSUs that have not been completed; however, doing so for the entire NHANES would be laborious and error-prone, and data would still need to be held in the RDC; therefore, this option has not been recommended.
 - Collected data would likely be released as a convenience sample in the RDC; adjusted and weighted data would still be desirable to enable better accessibility and utilization of the data for users with limited statistical expertise.

Dr. Peytchev noted that Options 1 and 2 are highly undesirable because of their cons (e.g., their mixing of pre- and post-COVID-19 data), and that Option 3b is favored because Option 3a would require untenable statistical assumptions about the PSUs that were not completed—Option 3b leverages 2017-2018 data to avoid these assumptions. However, the utility of combined 2017-2020 data remains unclear and depends on the method used to combine these data. This option may provide an opportunity to test different methods of data combination (an approach using the 2017-2018 strata is being considered and seems reasonable).

PHSPMDP Workgroup's (Tentative) Recommendations to the BSC

- NHANES should not complete additional sample for the 2019-2020 data cycle.
- The 2017-2018 and 2019-2020 NHANES datasets should be combined to generate a larger dataset supporting better estimates.
- The combined 2017-2018 and 2019-2020 data should be weighted using the 2017-2018 strata and evaluated against historically based expectations.

Discussion/Reaction by the Board

Dr. Paulose noted that the PHSPMDP Workgroup envisions beginning NHANES 2021-2022 data collection sometime around mid-2021 but added that much uncertainty remains because of COVID-19.

In response to a question from a BSC member, Dr. Peytchev confirmed that the PHSPMDP Workgroup did not discuss public release of NHANES estimates.

Motion and Vote

A motion was made and approved to accept the PHSPMDP report and convey the recommendations to NCHS. All votes were in support of the motion (Dr. Gaskin abstained as he was absent for Dr. Peytchev's presentation, and Dr. Levy was not present for the vote).

Research and Development Survey (RANDS) Overview

Jennifer Parker, Ph.D., Director, Division of Research and Methodology

RANDS is a commercial survey platform that the NCHS Division of Research and Methodology (DRM) has used since 2015 to support its research methodology and evaluation studies. This year, RANDS has been used for a survey fielded during the summer of 2020 in response to the COVID-19 pandemic called “RANDS during COVID-19,” which was used to release estimates in three health areas: (1) telemedicine, (2) access to care, and (3) work loss due to illness from SARS-CoV-2. Dr. Parker provided an overview of RANDS and its current research areas, elaborated on RANDS during COVID-19, and posed several questions for potential discussion by the BSC.

Overview of DRM’s Use of RANDS

DRM includes three large programs: (1) the Collaborating Center for Question Design and Evaluation Research (CCQDER); (2) the Collaborating Center for Statistical Research and Survey Design (known as “the math stats group”), and (3) the Research Data Center (RDC). Both CCQDER and the math stats group use RANDS data, which are collected using recruited commercial probability sampled panels. Currently, RANDS includes six large commercial panels, which are often called “web panels” because they were developed to leverage the efficiencies of the Internet.

RANDS is used primarily by CCQDER as part of its mixed mode approach for question evaluation (i.e., how embedded experiments and probes can be added into large surveys to complement CCQDER’s cognitive interviewing program), and by the math stats group for estimation research (e.g., comparing data from panels with data from core surveys and evaluating methods for combining panel data with core surveys to improve estimates from the panel). DRM also releases RANDS data (as public-use files and RDC files, as well as through its web page that was launched in April 2020) as a resource for methodological research by external investigators.

One area of interest to CCQDER is whether open- or closed-ended probes work better for evaluating questions. In general, an open-ended probe asks respondents why they responded to a prior question in a particular way, whereas a closed-ended probe presents respondents with a list of constructs related to the prior question and asks which of the listed constructs were relevant to the respondents’ prior answers. For instance, a closed-ended probe might be used to determine whether different groups considered particular divergent factors when responding to the same question. DRM also uses RANDS for estimation research (e.g., using propensity score adjustment to combine/align RANDS data with NHIS, choosing reference surveys, selecting variables for adjustment and calibration models, leveraging variance estimators for combined estimates), as well as to explore the effects of question framings (e.g., using split sample experimental designs to compare the difference between responses to a question that either does or does not name specific health care providers when asking about experiences with opioid use).

Current RANDS Research Areas

To date, four rounds of RANDS data collection have been completed, two are in the field, and another is planned, as summarized below (RANDS 1 and 2 were collected by Gallup; all later rounds were collected by NORC):

- Completed:
 - RANDS 1 (NHIS), 2 (NHIS), and 3 (opioids and disability)
 - RANDS during COVID-19, Round 1
 - RANDS during COVID-19, Round 2
 - RANDS 4 (opioids and disability)

- Planned:
 - RANDES 5 (NSFG)
 - RANDES during COVID-19, Round 3

RANDES 2, conducted during 2016, added embedded probes to some of the NHIS questions to enable CCQDER researchers to evaluate those questions' performance. RANDES 3 was funded specifically to examine survey questions on measuring opioids and disability; however, NHIS questions were also included to support DRM's estimation program. RANDES 4 was the first round to include the telephone option, which helped DRM evaluate whether the additional sample improved RANDES coverage as well as the correspondence between RANDES data and NHIS. The envisioned RANDES 5 will focus on questions from the National Survey of Family Growth (NSFG), and although it was originally planned to activate during Fall 2020, it will now likely activate during 2021.

RANDES during COVID-19

In response to the COVID-19 pandemic, RANDES was adapted for estimation not only of COVID-19 data but also for general health topics. Traditional NCHS surveys cannot always adapt quickly to collect data on major events in real time. However, RANDES, as a largely web-based survey, was able to provide information on COVID-19 in a rapid and timely way. NCHS worked with the Office of Management and Budget (OMB) to adapt RANDES from a strictly methodological survey to one that could produce a limited set of experimental estimates. The new survey was named RANDES during COVID-19 to distinguish it from previous versions of RANDES.

RANDES during COVID-19 was designed as a two-round longitudinal survey using both web and phone modes and with a minimum sample size of 6,000 in the first round and 5,000 in the second round; these sample sizes were based on calculations of relative standard errors for expected prevalence of some subgroups for which NCHS intends to produce estimates. The questionnaire includes constructs—some of which will be used to generate experimental estimates—such as health status (i.e., chronic conditions or depression and anxiety), loss of work due to illness with COVID-19, health insurance/health care access, telemedicine access/use, and COVID-19-related health care and behaviors.

Data for Round 1 of RANDES during COVID-19 were collected from June 9 to July 6, whereas Round 2 data were collected from August 3 to August 20, 2020. Both rounds included data from the probability sampled panel NORC Amerispeak and from the opt-in platform NORC Dynata:

- **Round 1:** probability-sampled: 6,800 interviews (78.5% completion; 94% web);
 - 6,220 Dynata
- **Round 2:** probability-sampled: 5,981 interviews (69.1% completion; 93% web);
 - 5,502 Dynata

Dr. Parker emphasized that RANDES during COVID-19 is a research survey, and that DRM continues to evaluate the performance of COVID-19 questions (e.g., comparing and calibrating opt-in and probability samples, examining mode effects across telephone and web surveys, calculating differences between rounds). The questionnaire also included probes to evaluate the questions. For example, an open-ended probe aimed at evaluating a question about telemedicine access asked respondents to explain how they knew whether their providers offered telemedicine; answers revealed that some respondents construed and answered the question as if it instead regarded their *use* of that service.

DRM released RANDES during COVID-19 Round 1 Experimental Estimates on August 5, 2020 using the probability-sampled (i.e., Amerispeak) RANDES data. OMB approved release of estimates for the impact of COVID-19 on three variables: (1) work loss due to illness, (2) telemedicine access/use, and (3) missed

health care. All the estimates were shown by age group, race and Hispanic origin, sex, education, metropolitan status, and reported/selected chronic conditions (i.e., current asthma, diabetes, or hypertension). The estimates were calibrated to the 2018 NHIS on demographic and chronic health conditions (because 2019 data are not available). This data release marked NCHS' first-ever release of estimates labeled "experimental."

Results of RANDES during COVID-19 were presented during a DRM webinar in late August 2020 <https://www.cdc.gov/nchs/rands/presentations.htm>

Suggested RANDES Discussion Questions for the Board

Dr. Parker posed the following suggested questions for discussion by the BSC:

- How can data from commercial panels best be used to support core data collections?
- Are there other statistical, survey methodology, or data science questions that could be answered using the RANDES platform?
- If NCHS uses RANDES for experimental estimates in other situations (i.e., besides COVID-19), what other estimation, measurement, or communications issues should be considered?

Discussion/Reaction by the Board

One BSC member noted that some of the estimates released by DRM from RANDES depart from those released by DHIS from NHIS, and asked Dr. Parker what other variables DRM has considered including in its released estimates and using for its statistical adjustments. Dr. Parker replied that DRM is interested in selecting variables that work consistently across a variety of outcomes and including those variables in both RANDES and NHIS. The member recommended that the estimation process incorporate a broader range of statistical adjustments, including not only demographics but also substantive variables that are highly correlated with the effects under investigation, and suggested that a replication-based variance estimation method would suit this purpose better than a linearized weighting approach.

Dr. Parker was asked whether DRM's RANDES work has any relation to the Household Pulse Survey, which seems to cover similar topics in an overlapping timeframe. Dr. Parker noted that some RANDES questions were included specifically to determine the effectiveness of similar questions being fielded by other surveys, including the Household Pulse Survey. She also was asked whether there was any relation between DRM's RANDES work and the National Science Foundation's "TESS project"; Dr. Parker was not aware of this project, but will follow up with CCQDER staff who may be aware of it.

Dr. Scott asked whether Dr. Parker knew what factors might have caused RANDES estimates to deviate from NHIS and other benchmarks (e.g., probability versus non-probability components, respondents with or without internet access). Dr. Parker noted that respondents to the first three rounds of RANDES were paid only if they responded via the web, which introduced respondent coverage differences that may be ameliorated beginning with round 4, which introduced the option to respond by phone. She added that sampling variability and non-response issues may account for some of the deviations. One member noted that her research group may be able to help address coverage issues in RANDES, particularly with non-English speaking subpopulations.

Dr. Parker encouraged BSC members to contact her directly with any further questions about RANDES.

Healthy People 2030 Rollout

David Huang, Ph.D., Chief, Health Promotion Statistics Branch, Division of Analysis and Epidemiology

Healthy People was established in 1979 as a 10-year national initiative for improving the health of all Americans based on the latest available scientific evidence. It establishes measurable objectives with targets to be achieved by the end of each decade and is now in its fifth iteration with the recent release of Healthy People 2030. In addition to tracking data-driven outcomes to help stakeholders monitor progress and guide actions, Healthy People provides a model for international, state, and local program planning. The Office of Disease Prevention and Health Promotion (ODPHP) leads and manages the Healthy People initiative in collaboration with a diverse group of stakeholders, and NCHS forms a key component of this network—a Healthy People user study conducted by NORC in 2015 found that 91 percent of respondents use Healthy People as a data source.

NCHS compiles the data for the National Healthy People initiative, drawing from data systems at NCHS as well as from other sources and storing the compiled results in a database called DATA2030. NCHS provides statistical guidance for setting the Healthy People targets, with advice covering a wide range of issues, including the measurement of fundamental concepts such as overall health, health disparities, target setting, and disabilities. NCHS also helps to analyze and present Healthy People data through formal publications, web-based infographics, and social media content.

Healthy People is unique among federal indicator initiatives in setting targets for objectives. NCHS provides statistical guidance in setting NCHS targets and has contributed to Healthy People 2030's efforts to increase transparency and to systematize target-setting. Target-setting methods are summarized below:

- Maintain consistency with national programs, regulations, policies, or laws
- Maintain the baseline
- Percent and percentage point improvement
- Minimal threshold for statistical significance
- Trends projection

New target-setting tools were created to help workgroups select among candidate targets generated using the last three methods described above. An NCHS Statistical Note documenting methods and tools used, called *Target-Setting Methods in Healthy People 2030*, will be released on September 21, 2020.

Healthy People 2030 was originally scheduled to launch on March 31, 2020, but the launch was delayed by COVID-19 until August 18. The virtual launch event included remarks from the HHS Secretary as well as the Assistant Secretary for Health, the Surgeon General, the Director of ODPHP, and Dr. Moyer. A total of 1,720 people watched the live launch event, and more than 2,100 people have viewed a recording of it on YouTube. A Twitter chat on Healthy People 2030, which included participation from NCHS followed the live launch. The launch itself generated approximately 60 million “impressions” across all platforms and the Twitter chat that followed the launch generated approximately 3.5 million. The Healthy People 2030 website also went live alongside the launch event.

Following a multiyear review of Healthy People 2020, Healthy People 2030 establishes 355 measurable core objectives of high national importance that address health equity and disparities, use baseline data no older than 2015, will benefit from at least two additional data points during the decade, and leverage an approved data source (e.g., federal, publicly available, and nationally representative). Criteria for data sources also included having response rates/non-response bias analyses; and comprehensive documentation. Healthy People 2030 is more statistically rigorous and leverages more timely information than previous iterations. Its website, which includes a new “Data Sources and Methods” page, will be

updated more frequently than occurred for previous iterations and will allow users to crosswalk 2020 and 2030 objectives. The website more explicitly recognizes the contributions of NCHS to Healthy People and links to the NCHS website.

In the coming months, ODPHP will publish the Healthy People 2020 Executive Summary. In late October, during the American Public Health Association (APHA) annual meeting, HHS will release leading health indicators and “overall health and well-being measures,” which were previously called “foundation health measures.”

The Healthy People 2020 Final Review will be published by NCHS in 2021, along with a Statistical Note focused on elimination of racial and ethnic health disparities. Throughout the 2020s, Healthy People will provide the public with various interactive tools and infographics as well as reviews of HP2030 data. Finally, data and features from DATA2020 will be archived.

Discussion/Reaction by the Board

One member asked whether, in addition to reporting on race/ethnicity, disability, and sexual orientation, Healthy People 2030 might also report on smaller groups such as American Indians and Alaska Natives, as well as Native Hawaiians and Pacific Islanders. Dr. Huang confirmed that NCHS is open to conducting supplementary analyses that would cover such groups specifically.

Friday, September 18, 2020

Presenters

John Lumpkin, M.D., Chair of the NAMCS Workgroup and President, Blue Cross and Blue Shield of North Carolina Foundation

Stephen Blumberg, Ph.D., Director, Division of Health Interview Statistics, NCHS

Tina Norris, Ph.D., Health Statistician, Division of Health Interview Statistics, NCHS

Ryne Paulose, Ph.D., Acting Director, Division of Health and Nutrition Examination Surveys, NCHS

National Ambulatory Medical Care Survey Workgroup Report

John Lumpkin, M.D., Chair of the NAMCS Workgroup and President, Blue Cross and Blue Shield of North Carolina Foundation

Overview

The National Ambulatory Medical Care Survey (NAMCS) was developed to provide objective, reliable information about the provision and use of ambulatory medical care services in the United States. NAMCS uses national probability samples to survey and collect patient visit data from office-based physicians and community health centers (CHCs). Since its launch in 1973, the NAMCS has expanded its data collection approaches to include different settings (e.g., CHCs) and data sources (e.g., computerized data and EHRs). The NAMCS currently samples 3,000 physicians, who are identified in the American Medical Association (AMA) and American Osteopathic Association (AOA) Masterfile databases, and 104 CHCs (selecting 1 to 3 physicians per CHC), which are identified in the Health Resources and Services Administration (HRSA) CHC database. Information on approximately 30 clinical visits are abstracted per physician sampled.

Strengths of the NAMCS approach include that it is the only nationally-representative survey of both physicians and CHCs and that it directly extracts from medical records various data elements, including patient demographics, rationale for clinical visits, and information on diagnoses, procedures, medications, immunizations, and laboratory testing. The NAMCS also extracts information on providers and sponsored content from other federal agencies, including data related to EHR adoption and interoperability, alcohol screening and interventions, sexually transmitted infection and pre-exposure prophylaxis, and complementary health approaches.

NAMCS Redesign Rationale and Recommendations

Since the launch of NAMCS, clinical settings where patients receive ambulatory care, as well as the physicians providing care, have changed. Physician offices have become more complex (e.g., hospital-owned groups, conglomerates), and ambulatory care is provided in more settings (e.g., telemedicine, off-site care, retail clinics) than only in-office visits. These changes directly impact how NAMCS can collect data, specifically by increasing reporting requirements to prove the value of NAMCS relative to other surveys, improving data security and confidentiality, and expanding the amount of EHR-derived data collected to align with increased EHR adoption. NAMCS methods must also shift to mitigate and address the consistent reduction in physician response rates since 2005.

Based on recommendations from federal and non-federal partners, the NAMCS Workgroup recommended a redesign to the NAMCS that would best fit the current state of ambulatory care (Workgroup report in Appendix 2). The NAMCS Workgroup recommended that the NAMCS sampling process be updated by focusing more on provider groups, sites, and individual patients to better capture the role of non-physician providers and the full care experience; including hospital-owned outpatient settings; and implementing a hybrid approach that leverages both the quick availability of EHR data with

the robustness of manual data extraction. Further, the NAMCS Workgroup recommended longer measurement periods (1 year instead of 1 week) and quarterly estimates be considered to allow NAMCS researchers to better observe the full range of ambulatory care types, settings, and delivery techniques. The ultimate goal of the NAMCS redesign should be to increase the value of the NAMCS and maximize its ability to link external datasets in order to provide the most insightful and robust resource to the research and health care communities.

Discussion

One member asked whether the NAMCS Workgroup discussed methods to increase provider participation in order to improve response rates and alleviate physician burden. Dr. Lumpkin emphasized that, in addition to enhancing physician engagement, the NAMCS Workgroup aims to begin collecting data from vendors themselves and to implement minimal-effort data collection methods.

Another member inquired whether the NAMCS includes (1) EHR information about whether patients follow through on the care (e.g., prescription use or referral) recommended by their physician and (2) information on new methods of ambulatory care delivery, such as telemedicine. Dr. Lumpkin noted that the NAMCS redesign should aim to collect information from all methods of ambulatory care delivery and adapt to incorporate new methods as they emerge; however, the EHR data thus far do not appear to have consistent follow-through information.

Members recommended that the NAMCS Workgroup (1) develop a set of research objectives and questions that the redesign will aim to answer in order to assess the results of the redesign, (2) investigate how shifting from paper to electronic records may impact data collected, (3) assess how different data collection methods impact the data received, and (4) create a prioritization order for its various redesign-related objectives and activities.

It was noted that the proposed redesign changes will likely require a clean break from the previously used approaches and inquired whether that break was intended. Dr. Lumpkin noted that the NAMCS Workgroup's recommendation was to facilitate an immediate change from previous approaches to enact the new method with no ties between the two strategies. The NAMCS Workgroup could compare the data collected before and after the adoption of the redesigned approach to assess the impact of the redesign.

Dr. Ward requested that the NAMCS Workgroup continue to meet in order to support the NAMCS redesign; members agreed with this recommendation.

Motion and Vote

Dr. Scott motioned to adopt the NAMCS report with comments provided from the BSC and to have the NAMCS Workgroup continue to meet in order to support the NAMCS redesign for the next 1 to 2 years. The vote was unanimous in support.

Release of 2019 Estimates from the National Health Interview Survey Early Release Program

Stephen Blumberg, Ph.D., Director, Division of Health Interview Statistics, NCHS
Tina Norris, Ph.D., Health Statistician, Division of Health Interview Statistics, NCHS

During 2019, the Division of Health Interview Statistics (DHIS) released a redesigned National Health Interview Survey (NHIS) questionnaire, which aimed to improve the relevance of included health topics, harmonize content with other federal surveys, reduce respondent burden, improve data quality, and establish a long-term structure of periodic content. During September 2020, the NHIS has released 2019 and Quarter 1 2020 data estimates from the Early Release (ER) Program, 2019 public use data files, and NCHS data briefs on anxiety, depression, mental health treatment, and reasons for being uninsured.

ER Program and 2019 Estimates

The ER Program aims to facilitate surveillance of sentinel health events for the NHIS. This program releases both quarterly and biannual estimates for 18 key health indicators. Before the creation of the NHIS ER program, DHIS required approximately 2 years after the time of collection to release data; now estimates for key health indicators are possible only 6 to 9 months from collection to release. The 18 NHIS key indicators, selected with input from the BSC, include information on health insurance coverage (e.g., public or private), health status (e.g., disabilities, chronic pain, depression), health behaviors (e.g., smoking), care access (e.g., patient did not receive care due to cost), service utilization (e.g., influenza vaccination and blood pressure checks), and telephone ownership. DHIS chose indicators based on their sensitivity to change and ability to provide insightful information on the respondent and will continue to evaluate these indicators for their ability to provide information related to the CDC's priorities. Further, DHIS will soon consider whether to incorporate additional COVID-19 pandemic-specific indicators in order to compare data collected now to those from 2019; thus far, comparisons of 2019 and early 2020 data from other surveys have shown a dramatic increase in mental health symptom severity.

Last week, DHIS released estimates on data collected during 2019 and Q1 of 2020, including from both the interactive quarterly and biannual estimate tools (accessible from the NHIS website's homepage <https://www.cdc.gov/nchs/nhis/index.htm>) that perform queries to provide tabular and graphical visualizations of indicator data over time. Upon accessing either the quarterly or biannual estimate tool, users can select specific indicators to view in graph form (with or without 95 percent confidence intervals) and filter their selection according to demographic characteristics (e.g., size of metropolitan area). Each tool's dashboard includes links to documentation detailing the methods and data sources, to provide email feedback, and to a GitHub webpage (which includes the underlying code for the two tools).

Working Paper

In September, DHIS also released a working paper detailing the differences in respondent data observed between 2018 and 2019 and whether those differences were caused by the NHIS questionnaire redesign, the weighting approach, or real change in order to provide data users with guidelines for use. During the redesign, DHIS updated the language of the questionnaire and added the requirement that individuals self-report (i.e., other relatives cannot report for the entire family), as well as improved the weighting approach, which now includes paradata within the nonresponse adjustment and its calibration includes educational attainment, regional, and urban/rural variable information. DHIS evaluated the 2019 data using a split sample from Q4 of 2018 and identified four indicators impacted by questionnaire design effects, four indicators impacted by weighting effects, and two indicators impacted by both questionnaire design and weighting effects. Further, six indicators showed no impact from the redesigned NHIS, and another three indicators showed large but insignificant effects.

NHIS and COVID-19

Since June, NHIS has not engaged in any in-person interviews but has conducted telephone interviews; these changes have led to significant challenges, largely in finding telephone numbers of target respondents because the NHIS is traditionally address based. Census interviewers were able to obtain 90 to 95 percent of the target household phone numbers. Response rates were lower in April than in January-March, though they increased slightly in May and June. However, the respondent population shifted to include more older adults with high educational attainment and living in the suburbs. Further increases in response rates were observed when Census resumed in-person interviews on July 1 in limited areas.

The NHIS data collection approach will change to respond to the COVID-19 pandemic by requiring that all interviews must be attempted by telephone prior to pursuing in-person visits, halving the production

sample size, and allowing interviewers to re-contact households sampled during 2019 (to collect additional data that can be examined to assess pandemic-specific changes).

Dr. Blumberg posed four questions (shown below) regarding how DHIS should proceed to obtain estimates for its four surveys (i.e., normal operations, telephone only, telephone first with reduced sample size, and sample adult follow-back survey).

- What are the most important things to consider before combining these datasets?
- Should DHIS combine the data collected by re-contacting 2019 households with 2020 production data? If so, how?
- Should DHIS incorporate additional nonresponse and calibration approaches?
- Should DHIS release preliminary ER Program estimates before a defined approach is enacted?

Any changes made to the NHIS approach will be documented and published alongside the results to allow users to best interpret the data. Whereas incorporating additional nonresponse approaches may appear as the obvious choice, other agencies have not used that approach. For example, the U.S. Census Bureau recently released its estimates without changing its traditional weighting procedures.

Discussion

The BSC recommended investigating the rationale for the Census Bureau's decision to not introduce new weighting procedures.

It was noted that combining the 2019 follow-back data with 2020 production data is possible, as long as the combined dataset is useful, interpretable, and accompanied by sufficient documentation of the methods used, and recommended that the DHIS team collaborate more with its communications team in the future to review the released tools for readability and simplicity.

Dr. Scott recommended that all NCHS survey teams actively communicate with each other in order to identify common challenges and to develop solutions.

It was noted that the questions presented by Dr. Blumberg are quite complex and suggested continuation of discussions regarding these questions within the Population Health Survey Planning, Methodology and Data Presentation Workgroup.

Motion and Vote

Dr. Scott motioned for the Population Health Survey Planning, Methodology and Data Presentation Workgroup to provide recommendations to the BSC in order to develop mitigation strategies and provide advice to HIS regarding COVID-19-specific challenges. The vote was unanimous in support (Dr. Dullabh was not present for the vote).

National Health and Nutrition Examination Survey Data Release

Ryne Paulose, Ph.D., Acting Director, Division of Health and Nutrition Examination Surveys, NCHS

Current Approach for 2017 to 2020 Data

Instead of the traditional stand-alone release, the National Health and Nutrition Examination Survey (NHANES) data for 2019 to 2020 will be released as a composite release with 2017 to 2018 data in order to mitigate challenges of data collection during the COVID-19 pandemic and to create a sufficiently sized sample set. The 2020 data included in the composite dataset will be incomplete because sampling ceased, earlier this year and as recommended by the BSC will not be continued in 2021. This approach allows the NHANES team to focus on processing the composite dataset, as well as to begin planning for the 2021-

2022 NHANES data collection cycle, instead of continuing to attempt to work through COVID-19-related challenges. To date, NHANES has released two-thirds of the components of the 2017 to 2018 dataset, and approximately one-quarter of the components of the 2019-2020 (the 2020 data year only includes 2 months of data collection) dataset has been processed through internal quality control (QC) review. The 2017-2020 dataset is expected to be released during Q1 of 2021.

Draft weights for the 2017-2020 dataset were created by combining the primary sampling units (PSUs; i.e., 18 from the 2019-2020 dataset and 30 from the 2017 to 2018 dataset) from each of the four years in order to account for not obtaining a full 2020 sampling. The combined dataset will be weighted through the same process used for the 2017-2018 dataset, including processing related to nonresponse bias and sampling variability assessments.

One major challenge to the combined dataset is the potential to identify participants from the 2019-2020 survey, since the 2017-2018 data have mostly been publicly released already. To mitigate this challenge, NHANES has decided to only release the combined dataset within its Research Data Center (RDC), which has limited access and can regulate which data can be downloaded by users.

Next steps for NHANES include completing QC of the 2017-2018 and 2019-2020 data individually before combining the data and developing a plan for the combined release through the RDC in 2021.

Considerations for 2021-2022

The BSC has recommended that the 2021-2022 datasets remain separate from the combined 2017-2020 dataset; however, the ability to collect and release the 2021-2022 data depends on when survey field operations can efficiently resume during the COVID-19 pandemic. Traditionally, sample selection and any new additions to the data collection protocol are outlined at least 6 months in advance of data collection, but with the pandemic still under way, there is still much uncertainty.

NHANES data collection for 2021-2022 will likely begin in mid-2021, assuming complete data collection from 30 PSUs. However, because of the delayed start NHANES is also considering a reduced number of PSUs in order to maintain flexibility and to collect a full, but smaller, dataset. If data collection must be delayed even further, the PSUs will likely be reduced to 15. NHANES is currently evaluating multiple scenarios for 2021-2022 data collection (e.g., reducing PSUs and different start dates) to provide flexibility as well as to ensure that a data product will be produced during 2021-2022.

Discussion

A recommendation was made that NHANES retrospectively release the 2017-2020 data using the U.S. Census Bureau's formal privacy mechanisms to re-release the datasets outside of the RDC; he added that the dataset is likely losing utility by being inaccessible. Participants agreed with this recommendation and added that this approach could be applied to only a few variables within the dataset (i.e., those that are not substantially changed by the reduction of personally identifiable information). One member emphasized that the RDC will likely become overwhelmed with requests if the NHANES 2017-2020 data are available only through RDC and thus NHANES should evaluate other options.

One member suggested omitting examinations and focusing only on interviews in order to achieve a full set of PSUs. Dr. Paulose noted that if the approach must be reduced to that extent, the optimal strategy would be to pause all data collection for 2021-2022 and solely focus on the NHANES redesign. Dr. Madans emphasized that reductions can be helpful, as long as the key indicators are not omitted and remain tracked over time to ensure the end product is useful.

APPENDIX 1

Population Health Survey Planning, Methodology and Data Presentation Workgroup

*National Center for Health Statistics (NCHS) Board of
Scientific Counselors (BSC)*

Friday, June 26, 2020, 1:00 - 4:00 pm EST

Zoom Virtual Meeting

Workgroup Members Present

Kennon R. Copeland, Ph.D.
Robert M. Hauser, Ph.D.
Scott H. Holan, Ph.D.
Andy Peytchev, Ph.D.

CDC/NCHS Participants

Brian Moyer, Ph.D., Director, National Center for Health Statistics (NCHS)
Jennifer Madans, Ph.D., Acting Deputy Director, NCHS
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Meeting Summary

On Friday, June 26, 2020, the Population Health Survey Methodology, Planning and Data Presentation (PHSPMDP) Workgroup (WG) of the Board of Scientific Counselors (BSC) National Center for Health Statistics (NCHS) convened a meeting to provide input on several NHANES restart scenarios that may pose unique statistical and operational constraints and impact the utility of the 2019–2020 NHANES data.

Summary of Workgroup Opinions

Preferred Option 3 Approach

WG members confirmed that they preferred the Option 3b approach of combining 2017-2018 and 2019-2020 data and not completing additional sampling for the 2019-2020 data cycle. This approach provides a larger data collection to create better estimates.

Preferred Weighting Approach

WG members agreed that using the 2017-2018 strata to determine 2019-2020 weights is the best way to begin combining the datasets. This approach can be a starting point for other modeling activities and provide a relatively simple way to use the combined data.

Evaluating the Dataset

The WG noted that it had expanded the scope of its work to include recommending criteria to evaluate adjustments to the 2019-2020 dataset. Members agreed that the NHANES and Westat teams should minimally test results against historically based expectations, as was done for the 2017-2018 dataset. They added that WG members can provide guidance as this assessment is performed.

Synthetic Data

WG members agreed that they do not recommend producing synthetic data but believe this approach is worth considering if NCHS wishes to release any data publicly.

Impact of a Delay in Re-entering the Field

Workgroup members noted that because they have restricted their discussion to Option 3, which handles already-completed data collection separately from future data collection, the opinions they formed should not be affected by future delays.

The WG also suggested that it might be best for NHANES to assume that delays will occur. They noted that even surveys reentering the field are unable to do so in all planned locations; such challenges may be magnified by the nature of NHANES' examinations and population.

Friday, June 26, 2020

Presenter

Ryne Paulose, Ph.D., Acting Director, Division of Health and Nutrition Examination Surveys

Welcome, Introductions, and Call to Order

Brian Moyer, Ph.D., Director, NCHS

Andy Peytchev, Ph.D.

Sayedha Uddin, M.D., M.P.H., Designated Federal Officer, NCHS

Dr. Peytchev called the inaugural meeting of the Population Health Survey Planning, Methodology and Data Presentation (PHSPMDP) Workgroup (WG) to order. He asked WG members to introduce themselves and state any conflicts of interest. None of the WG members stated a conflict of interest.

Dr. Uddin explained that findings from this meeting regarding the resumption of NHANES survey operations will be presented at a public NCHS BSC meeting in September.

Dr. Moyer thanked the participants for discussing the challenges facing the NHANES program and potential solutions. He noted that the board looked forward to receiving advice on options for completing the 2019-2020 NHANES data collection, which was suspended in response to the COVID-19 pandemic.

Overview of NHANES Restart Options

Ryne Paulose, Ph.D., Acting Director, Division of Health and Nutrition Examination Surveys

Dr. Paulose introduced herself as the acting director of NHANES. She also introduced Westat colleagues, who she said played a vital role in designing potential approaches to completing NHANES' 2019-2020 data collection. Dr. Paulose noted that these approaches were detailed in an Excel spreadsheet distributed before the meeting. She explained that her presentation would offer a visual overview of the approaches in order to encourage discussion about potential pathways, including hybrids of different options.

Dr. Paulose emphasized that decisions regarding the 2019-2020 data collection will have implications for NHANES' 2021-2022 cycle. She noted that these implications were described in the outline distributed ahead of the meeting and would be addressed in her presentation, as well.

The COVID-19 Response

NHANES suspended field operations in March 2020 in response to the COVID-19 pandemic. Multiple aspects of the pandemic led to this suspension, including the varying risks of exposure throughout the country, the number of NHANES staff and respondents in high-risk groups, and the potential reluctance of NHANES respondents to participate in face-to-face interviews and examination center visits.

During the suspension, the 12 trailers that make up the 3 mobile NHANES centers have been parked at the USDA Agricultural Research Center in Beltsville, MD. Returning these centers to the field will depend on NHANES' ability to ensure the safety of staff and respondents. Assessing risk is complicated, however, given the complexity of NHANES operations and the differences in risk at the state and county levels.

Restarting Data Collection and Field Operations

Dr. Paulose outlined the WG workgroup's goals as follows: (1) examine several scenarios for completing the 2019-2020 NHANES cycle, (2) discuss the implications of these options for the quality and utility of

the 2019-2020 NHANES data, and (3) discuss the impact of the various scenarios on the upcoming 2021-2022 NHANES cycle.

NHANES is designed as a 4-year survey sample with data released on a 2-year cycle. Each 2-year cycle includes 30 primary sampling units (PSUs), 15 for each year. Historically, each year of data collection was designed to create a nationally representative sample. However, beginning with the 2019-2020 cycle, NHANES combined and reordered its PSUs to reduce travel time and increase survey time at each unit.

Before suspending operations, NHANES had completed data collection for 18 out of 30 PSUs for the 2019-2020 survey cycle: nine 2019 PSUs and nine 2020 PSUs. When the sampled PSUs for 2019-2020 were split by *healthy state group* and *census region*, the NHANES team found that the samples skewed toward people in the two lower healthy state tiers and did not capture any states from the West. The results to date are thus not a nationally representative dataset and cannot be released as is.

New and modified survey content introduced in the 2019-2020 cycle introduces another challenge. The recent additions and modifications affect the exam, questionnaire, and laboratory tests; for example, the exam's blood pressure collection was modified from a mercury sphygmomanometer to an automated blood pressure cuff. However, the relatively small amount of somewhat skewed data collected thus far does not allow meaningful interpretation of these measures, and the lack of previous year data would prevent any attempt to produce synthetic data. Thus, no conclusions on these measures can be drawn.

In response to these challenges, Westat and NHANES staff have worked together to ascertain the options for completing the 2019-2020 data collection and the potential effects of those options on 2021-2022 data collection. Dr. Paulose presented three options for returning the NHANES survey to the field.

Option 1: Restart the 2019-2020 Cycle in 2021

The first option is to restart the 2019-2020 cycle in 2021 and to collect data from the remaining 12 PSUs at that time. Given the operational considerations necessary to restart NHANES data collection, January 2021 is the earliest date collection could resume, with a more conservative reopening timeline starting in April 2021. Collection of 2019-2020 PSUs would run through November 2021 and be released in 2022.

Restarting the 2019-2020 cycle in 2021 would allow NHANES to collect a nationally representative sample. However, this cycle would collect both pre- and post-COVID-19 pandemic data in one survey, which may affect results. Additionally, no new COVID-19 measurements could be added to the 2019-2020 cycle, delaying the release of any measures of this significant health issue. Finally, a 2-year cycle would be collected over a 3-year span with a 10-month gap.

In addition to these impacts on the 2019-2020 data, restarting in 2021 would also delay and reduce the size of the 2021-2022 cycle. The new cycle would not start until November 2021, with the possibility of collecting 16-18 PSUs (rather than 30) over the remainder of 2021 and through 2022. If the NHANES team were not ready to re-enter the field in January 2021 and instead chose to restart data collection in April 2021, the gap in 2019-2020 data collection would be lengthened beyond November 2021 and the possibility of completing a 2021-2022 cycle would be eliminated.

Option 2: Complete One Annual Sample in 2021

The second option is to complete the 2019 (but not the 2020) national sample. Under this approach, with data from 9 of the 2019 PSUs already collected, the NHANES team would need to complete data collection for only the remaining 6 2019 PSUs. If NHANES were able to re-enter the field in January 2021, data collection could be completed by July or August 2021.

Compared to restarting the full 2019-2020 data collection, completing only the 2019 sample would also allow NHANES to collect a nationally representative sample for the 2019 and 2021-2022 cycles; would enable the 2021-2022 collection to enter the field sooner; and would thus allow earlier incorporation of new COVID-19 related measures into the 2021-2022 survey. However, this option reduces the analytic utility of the 2019 dataset, while still mixing pre- and post-COVID-19 data and incorporating a 10-month gap in data collection. Moreover, the 2021-2022 cycle would be reduced from 30 to approximately 24 total PSUs.

Within this approach, a sub-option would retain the already-collected 2020 PSU data to create an “enhanced” 2019 sample with 24 total PSUs. This approach would allow both the 2019-2020 and 2021-2022 cycles to be nationally representative, with both cycles limited to 24 PSUs each.

Option 3: Use Data from 18 Completed PSUs to Create a Nationally Representative Sample

Under a third option, NHANES would not complete the 2019-2020 cycle but would instead use the already-collected data from 18 PSUs to generate a nationally representative sample. NHANES and Westat teams have defined 2 ways to achieve this goal.

The first approach, Option 3a, would use the 2019-2020 data as it was collected and apply weighting to adjust for its biases. 2019-2020 data would consist entirely of pre-COVID-19 data and could be released in the first half of 2021. The NHANES team would re-enter the field in January 2021 to begin the 2021-2022 cycle with a full complement of 30 PSUs, yielding a nationally representative 2021-2022 sample. The new cycle would be collected fully post-COVID-19 and would allow for the addition of new COVID-19-related measures.

However, weighting would face significant challenges, given the less healthy population and lack of West census region PSUs in the data collected thus far. Additionally, the reduced sample size in this approach may limit the analytic utility of the resulting data. Finally, due to its small size, the sample would be restricted to an internal release (i.e., in RDC only).

Therefore, the second approach, Option 3b, would weight the existing 2019-2020 data but also combine it with the immediately previous 2017-2018 cycle data in order to achieve a nationally representative sample. This approach would retain 2021-2022 as a complete cycle with 30 PSUs, collected post-COVID-19, with the potential for COVID-19-related measures. This approach would also create a pre-COVID-19 sample large enough to provide analytic utility and to be released in the first half of 2021.

However, Option 3b would render the new measures added to the 2019-2020 cycle unusable. It would also mix two sample designs: the 2017-2018 cycle is part of the 2015-2018 sample design, while the 2019-2020 is part of the 2019-2022 sample design. This mixture would complicate the process of combining the data. Finally, the previous release of the 2017-2018 cycle data creates a disclosure risk, which would require the new 2017-2020 dataset to be released in RDC only.

Although the three options presented are not the only potential approaches, they represent the possibilities that appeared most feasible to the NHANES and Westat teams. Dr. Paulose noted that discussion may lead to a combination of approaches.

Discussion of Presentation

Discussion focused on Option 3, with consideration of its advantages, constraints, and considerations for potential implementation.

Preference for Option 3

A WG member began by expressing interest in Option 3b. When prompted by Dr. Fakhouri to explain why, the member noted that this option's model-based statistical approach is generally useful for leveraging dependencies and increasing precision; moreover, it can be helpful when data must be combined from different platforms or are missing entirely.

Another WG member added that by comparison, Options 1 and 2 undesirably mix pre- and post-COVID-19 data. The member expected that many key measures will be affected by COVID-19 and that mixing pre- and post-pandemic data will make it impossible for researchers to disentangle these effects. Dr. Wagner suggested that because the pandemic intervened in the middle of the potential data collection period, this mixing would be equivalent to measuring 2 different populations.

Dr. Fakhouri suggested that the omission of West region states from the initial 2019-2020 data collection could magnify the problem of mixing pre- and post-pandemic exposure data. For example, Hispanics—who are disproportionately likely to experience a negative COVID-19 outcome—would be sampled primarily in the hypothetical post-COVID-19 round of 2019-2020 data collection envisioned in Options 1 and 2, undermining the ability to see changes in the pre- and post-pandemic data for this subpopulation.

Clarification of the Data Gaps to Be Addressed by Option 3

BSU members discussed the nature of the data gaps in the 2019-2020 dataset. One member clarified that the order of PSU sampling was driven by and thus reflects only operational considerations, not a more problematic health-based skewing. Another WG member confirmed this observation, noting that NHANES' combination and geographical ordering of PSUs over a two-year period was intended largely to streamline travel time and thus increase opportunities for data collection.

Dr. Fay noted that the NHANES and Westat teams considered multiple ways to weight the incomplete data, including weighting by geography (a form of propensity weighting) or weighting by health (a form of stratum-based weighting). They ultimately decided that weighting by geography was not consistent with the complete absence of West census region data and thus de-emphasized geographic weighting in favor of health stratum. Researchers with RDC access may be able to model the data in other ways.

Rationale for Developing Option 3b

A WG member asked why the NHANES and Westat teams developed Option 3b: in other words, why did they suggest not only weighting the 2019-2020 data (Option 3a), but also combining that weighted data with the 2017-2018 dataset. Dr. Paulose suggested that the resulting 4-year sample would allow for more precise national estimates; she mentioned that the combination of distinct 2-year datasets is one of NHANES' recommendations for achieving precision and accuracy and is aligned with the procedures of other existing national estimates. Dr. Mohadjer later added that larger samples are helpful to NHANES users, whose studies of health conditions in small populations often are restricted by small samples sizes.

Dr. Mohadjer also noted that the NHANES and Westat teams found it quite challenging to weight the incomplete 2019-2020 data, given the lack of data from the West. The teams saw the integration of the data with the most recent nationally representative sample as a way to overcome this challenge. Dr. Fay agreed that compared to Option 3a, the combined approach used a less model-reliant method to fill data gaps, which he preferred.

Comparative Advantages of Options 3a and 3b

Dr. Paulose emphasized that Options 3a and 3b are not mutually exclusive: NHANES could release the weighted 2019-2020 data in the RDC as a convenience sample (Option 3a) while also creating a combined 2017-2020 dataset (Option 3b). A WG member expressed interest in this dual approach, but members also debated the relative advantages of Options 3a and 3b.

In response to WG members' questions, Dr. Paulose clarified that both options share some limitations. Both would be restricted to release in the RDC (because the 18 PSUs in the 2019-20 sample fall below the threshold to protect confidentiality). Both would also require significant caveats and explanation with their release—to explain the weighting or modeling required by Option 3a and to explain the combination methodology required by Option 3b.

Dr. Fay noted that Option 3a, unlike Option 3b, would preserve the measures newly introduced in 2019-2020. These measures would otherwise be lost in the merger with an earlier data cycle in which they did not exist. However, he mentioned that despite this fact, he still favored Option 3b.

One WG member argued that Option 3a has the disadvantage of omitting data from the West and from some key subpopulations represented there (e.g., Hispanic communities) and thus suggested that Option 3b is preferable. However, another member suggested that Option 3b also has a disadvantage: by collapsing 2019-2020 data into a combined 2017-2020 dataset, this option may obscure the immediate pre-COVID-19 period and thus may not facilitate the kinds of pre- and post-COVID-19 comparisons that researchers may wish to perform.

WG members discussed the likelihood and significance of this pandemic-related disadvantage. Dr. Mohadjer predicted that the 2017-2018 and 2019-2020 data would not exhibit large differences; instead, she expected divergences to appear between the combined 2017-2020 data and the future 2021-2022 data. A WG member suggested analyzing both datasets to confirm this prediction, and Dr. Mohadjer agreed that analysis would be worthwhile. Another member asked whether analysts could combine the 2019-2020 data with the data from only 2018, in order to shorten the pre-COVID-19 time period included in the sample and thus support a more precise comparison to the 2021-2022 post-COVID-19 data. Dr. Paulose suggested that splitting the 2017-2018 data, which have already been released, could create complications.

One WG member ultimately questioned whether combining the 2017-2018 and 2019-2020 data would truly overcome the health bias observed in the more recent data cycle. The member noted that the 2017-2018 dataset was also biased towards a less healthy population, and that bias persisted on some variables even after adjustment. Combining this somewhat biased dataset with a clearly biased dataset may not entirely resolve the problem in the latter.

Potential Role of Synthetic Data in Option 3

A WG member suggested that for the new measures introduced during 2019-2020, NHANES could generate synthetic data for 2017-2018. NHANES and Westat team members believed it might be possible to perform the statistical matching necessary to pursue this approach, although another WG member noted that the team would have no opportunity to test the covariates of the new measures.

Dr. Wagner asked whether synthetic survey data could also address gaps in the 2019-2020 data, as well as mitigate disclosure risks inherent in the small number of completed PSUs. A WG member expressed concern that in complex datasets with multiple variables, synthetic data can fail to capture the multi-faceted relationships across those variables. Dr. Mohadjer added that while Westat has created synthetic data to preserve confidentiality, it has done so only when an entire underlying dataset was available.

Using Combined Data for Trend Analyses and Moving Averages

WG members debated the feasibility of using combined data to conduct trend analyses. Dr. Paulose stated that combining 2017-2018 and 2019-2020 data (Option 3b) would eliminate the ability to compare trends across these datasets. However, a WG member suggested that with certain assumptions in place, the NHANES team might be able to produce a model-based estimate of trends. Dr. Fakhouri believed that the unrepresentative nature of the 2019-2020 data (particularly given its omission of West census regions) would pose a challenge to this modeling. However, the WG member observed that building such a model would be theoretically possible, depending on the length of the timestamp in the dataset and the correlations between geographical regions. By comparison, the Census creates models when entire states are missing from survey data. Similarly, if the NHANES data were rich enough, observed data could be used to generate estimates for the unobserved data.

Another WG member suggested that to determine the feasibility of this approach, the NHANES and Westat teams would likely need to assess the consistency of data over time in previous NHANES cycles. If data are relatively consistent or change in a linear way, then a representative model could likely be built. Dr. Fay noted that his early examination of trends revealed little consistency over time, even when geographical data were divided into 5 regions (with the South split into the South Atlantic and South).

Dr. Mohadjer confirmed that modeling would require many assumptions and suggested that multiple models would likely be needed for different variables. Dr. Fay suggested that models might be developed by researchers in the RDC if they had access to NHANES' geographical data, but he agreed that a global solution may be inadequate for all characteristics.

A WG member suggested that ultimately the feasibility of modeling depends not only on its theoretical possibility but also on the practicality of conducting the requisite analyses in the available time frame.

Several WG members suggested that if combining data were useful, that practice could be extended beyond the 2017-2020 datasets. They noted that other studies (e.g., ACS) have set a precedent for rolling data releases in multi-year datasets, which effectively creates a "moving average" that researchers can probe in a variety of ways. One WG member asked if NHANES should move toward that model by eventually releasing a combination of 2019-2020 and 2021-2022 data, or more generally by releasing 4-year data-sets every 2 years. Dr. Paulose suggested that some health outcomes not affected by the COVID-19 pandemic might be studied in a combination of 2019-2020 and 2021-2022 data. However, another WG member remained skeptical that combined pre- and post-pandemic data would be useful to researchers. Another WG member noted that the 10-month data gap between cycle collections would be an obstacle to a combination of 2019-2020 and 2021-2022 datasets.

Dr. Madans raised a set of more fundamental questions about the utility of combining data in the past or future. She noted that the 2019-2020 data consist largely of just one year's worth of PSUs and argued that this addition would not support confident trend analyses beyond what could be observed in the already-released 2017-2018 data. She also questioned the value of moving averages in the future: she observed that NHANES is not a large national sample like ACS and thus wondered whether the WG and staff would be confident that changes in moving averages in NHANES datasets stemmed from the data itself or from assumptions applied during the adjustment and weighting process.

Based on Dr. Madans' questions, several WG members agreed that in any pathway forward, the WG must minimally determine how to define confidence in estimates that are produced. One member suggested that for certain characteristics that are expected to remain fairly stable (such as BMI), estimated data could be checked against expectations, particularly to assess divergences for subgroups. Dr. Earp suggested incorporating analytic tools developed by Dr. Danielle Toth that establish linear benchmarks to measure such divergences. Another WG member suggested that complete datasets from the past could be

used to test estimation models; this approach would not compare data to expectations but instead to actual past data points.

Dr. Fay recommended that the same weighting and estimations conducted for the 2017-2018 data (e.g., tract-level estimates of income) be applied to the 2019-2020 data, in order to ensure that changes are not produced by differences in weighting strategy. He noted that completing this step might be necessary to answer the WG's questions about how the estimates would perform.

Workgroup Discussion of Findings and Next Steps

Prior to the call, the seminar attendees received questions to consider in deciding how best to proceed with NHANES' 2019-2020 cycle. Meeting attendees reviewed these questions as part of their discussion of findings.

What are the implications of combining pre- and post-pandemic data?

Attendees affirmed their earlier conclusion that combining pre- and post-pandemic data would amount to combining data from 2 different populations and therefore should be avoided. Based on this conclusion, attendees agreed that the only option for moving forward with the data was to follow some form of Option 3: creating a weighted, nationally representative pre-COVID-19 sample. Therefore, attendees discussed only those questions pertaining to that option.

Dr. Paulose reminded the WG that this decision affects the 10 to 15 new measures implemented for the first time in the 2019-2020 survey: these measures cannot be analyzed in relation to any past dataset, because for the most part they have no counterpart in those datasets; instead, they would require comparison to post-COVID-19 data. A WG member asked if these measures will likely be affected by the pandemic. Dr. Fakhouri explained that some of the measures, such as infant formula use and several neurological assessments, may be affected. A WG member suggested that this issue will need to be revisited pending additional information. Dr. Paulose noted that the NHANES and Westat teams will meet with researchers who requested these measures to determine whether they believe the measures should be accessible in a combination of pre- and post-pandemic data.

Should the collected data (18 PSUs) be combined with the 2017–2018 data to create a larger dataset?

Attendees did not come to a consensus on whether to combine the 2017-2018 and 2019-2020 datasets. Dr. Madans asked whether it was possible to leave this question unanswered pending development of criteria for assessing the combination's analytic utility and releasing data. Based on this suggestion, Dr. Paulose asked the WG members to discuss potential criteria NHANES could use to evaluate survey weights for a combined 2017-2020 dataset or to evaluate the 2019-2020 dataset. WG members did not have suggestions during the call.

However, a WG member noted that combining across survey methods might pose a greater challenge than allowing the 2019-2020 data to stand alone. Thus, the WG members inquired what method Westat would use to combine data (e.g., weighting, small area estimations, synthetic data). WG members suggested that testing different methods, or at least considering the applicability of different methods, would help identify the best path forward.

Dr. Fay explained the model proposed thus far for the 2017-2020 combination. This model begins by reverting to the stratification developed for the 2015-2018 survey. The 2019-2020 PSUs are sorted into these 2015-2018 strata, and then the PSUs within each strata are weighted in comparison to the number of PSUs in the same strata in 2017-2018 (e.g., if 3 PSUs were collected in 2019-2020 and 4 in 2017-2018, each 2019-2020 PSU was weighted at 1.33). This approach does not take geography into account. A WG

member asked Dr. Fay if the team could instead apply the stratification developed for the 2019-2022 dataset retrospectively to the 2017-2018 data. Dr. Fay stated that this approach was not possible, because it would leave certain strata completely unrepresented in the 2017-2018 data.

WG members agreed that Dr. Fay's approach was reasonable, particularly if it made unit-level weighted information available for users to analyze in a variety of ways. Several members noted that it would be possible to build a model-based approach that would extrapolate trends over time, but Dr. Madans shared that NCHS would be very unlikely to use the 2019-2020 data to publish trend analyses; instead, it would use the data for research only. Thus, she suggested that trend analysis should not shape the approach to combining datasets.

One WG member expressed interest in how other nationally representative surveys have handled data collection issues resulting from the COVID-19 pandemic. Another WG member suggested that studying survey responses to other disasters (e.g., Hurricane Katrina) could be informative. For example, the National Survey on Drug Use and Health produced a report on its Hurricane Katrina response. However, Dr. Madans noted that natural disasters have not disrupted data collection in the extensive and long-lasting ways that COVID-19 has. She also confirmed that NHANES has been affected more severely than other surveys.

Should the collected data (18 PSUs) be used as a convenience sample in the RDC?

A WG member stated that this question depends on how much effort NCHS would like to invest in combining, modeling, and weighting data. Dr. Madans noted that NCHS will rely on WG members to identify the benefits of each data release option so it can complete the appropriate cost/benefit analysis for resource allocation. However, she noted that NCHS is quite likely to release the 2019-2020 data as a convenience sample and can certainly release at least the new measures, in particular, in that fashion.

Dr. Wagner suggested that the benefits of a convenience sample ultimately depend on NCHS' users. Releasing a convenience sample in the RDC might benefit sophisticated data analysts, who could apply adjustment strategies that best align with their specific research goals, but an adjusted and weighted sample will be of greatest utility to researchers without that level of statistical skill. A WG member agreed and suggested that given the great deal of effort involved in collecting the extant NHANES data, it would be worthwhile to put in the additional effort to make that data as broadly usable as possible, including for users who would not as easily be able to make their own adjustments.

Is there a way to weight the 2019-2020 data to make it nationally representative?

The WG agreed that the weighting plan Dr. Fay described is plausible but will need to be tested against expectations. One WG member suggested that the likely substantial bias in the unadjusted data makes weighting risky but reiterated that it is worthwhile to improve the data's utility by applying at least the same measures used on the 2017-2018 data.

Additional comments

One WG member asked whether ending the 2019-2020 data collection would free resources for additional work on the data that has already been collected. Dr. Madans explained that leaving the field has not saved NCHS a great deal of money. Dr. Paulose noted that the most important resource is the expertise needed to carry out the approaches discussed during the meeting (i.e., synthetic data development, weighting, and modeling).

Dr. Madans emphasized that the WG members' initial discussion was very helpful and she thanked members for their opinions.

PHSPMDP WG Closed Session

Dr. Uddin began the closed session by explaining that the draft meeting summary will be available approximately one month after the meeting. Another call can then be scheduled for WG members to finalize suggestions. The objective is to have a final draft by September 3 or 4, 2020 to circulate to the full BSC.

Members then reviewed conclusions drawn during the meeting and open questions.

Synthetic Data

WG members discussed several problems with synthetic data. Several WG members suggested that it could be prohibitively difficult to produce synthetic data for the number of variables in NHANES surveys. One WG member expressed skepticism about offering synthetic rather than observed data *within* the RDC. Other WG members agreed that a model-based approach would be preferable, although one WG member reminded the board that a subset of researchers might not be equipped to employ models; for these researchers, a mix of actual and synthetic data that more closely approximates typical survey data might be more helpful. By contrast, WG members agreed that producing synthetic data is the only way to release some 2019-2020 data *outside* the RDC. However, one member argued that even synthetic data may create a risk of unintended disclosure, because that data will be derived from a fairly small sample. Members noted that the NCHS disclosure review board will determine the extent and significance of this risk.

Based on these challenges and uncertainties, WG members ultimately agreed that they do not recommend producing synthetic data but believe this approach is worth considering if NCHS wishes to release any data publicly.

Preferred Option 3 Approach

WG members confirmed that they preferred the Option 3b approach of combining 2017-2018 and 2019-2020 data. This approach provides a larger data collection to create better estimates.

Preferred Weighting Approach

WG members agreed that Dr. Fay's plan to use the 2017-2018 strata to determine 2019-2020 weights is the best way to begin combining the datasets. This approach can be a starting point for other modeling activities and provide a relatively simple way to use the combined data.

Evaluating the Dataset

The WG noted that it had expanded the scope of its work to include recommending criteria to evaluate adjustments to the 2019-2020 dataset. Members agreed that the NHANES and Westat teams should minimally test results against historically-based expectations, as was done for the 2017-2018 dataset. They added that WG members can provide guidance as this assessment is performed.

Impact of a Delay in Re-entering the Field

Dr. Uddin asked whether any of the advice provided by the WG members would change if the NHANES survey were unable to re-enter the field in January 2021. WG members agreed that when they receive the written meeting report, they should review it from the perspective of this question. They acknowledged that in this scenario, NHANES may have another reduced sample for 2021-2022. However, they noted that because they have restricted their discussion to Option 3, which handles already-completed data collection separately from future data collection, the opinions they formed today

should not be affected by future delays. WG members suggested noting explicitly noting that the 3B approach to the current challenge has this key advantage of allowing the WG to separately address questions about the 2021-2022 dataset if the situation changes in any appreciable way. One member also suggested explicitly stating that the WG considers it worthwhile to conduct a 2021-2022 survey if it were delayed until May.

The WG also suggested that it might be best for NHANES to assume that delays will occur. They noted that even surveys reentering the field are unable, given the geography of the pandemic, to do so in all planned locations; such challenges may be magnified by the nature of NHANES' examinations and population. One WG member suggested that the NHANES team might develop a plan to offer tests or assessments that could help offset health risks of participation in the survey when it does reenter the field.

The meeting was adjourned at 4:00 pm.

APPENDIX 2

National Ambulatory Medical Care Survey Workgroup Meeting

*National Center for Health Statistics (NCHS) Board of
Scientific Counselors (BSC)*

Wednesday, May 20, 2020, 9:00am-5:00pm ET

Zoom Virtual Meeting

Meeting Summary

On Wednesday, May 20, 2020, the National Ambulatory Medical Care Survey (NAMCS) Workgroup of the National Center for Health Statistics (NCHS) Board of Scientific Counselors (BSC) convened a virtual meeting of federal and nonfederal stakeholders to discuss the usefulness, relevance, and limitations of NAMCS' design and of its data collection methods.

Since NAMCS began in 1973, U.S. ambulatory health care has changed markedly, with new manners, mechanisms, and locations of health care delivery, as well as new data sources on ambulatory care systems. Given these changes, NCHS must reexamine NAMCS, consider how it might be redesigned/improved, and assess whether and how it should be continued.

Summary of findings:

Based on stakeholder input gathered during this meeting, the NAMCS Workgroup formulated its conclusions for submission to the BSC at its September 2020 meeting. See Appendix A for the meeting agenda, B for the participants list, C for participant poll results regarding how to define “ambulatory health care,” and D for Zoom chat log. The findings that emerged from the discussions follow:

1. Redesign NAMCS to optimize its present-day function and status as a “gold standard” data source on the delivery of ambulatory health care in the United States, as well as to serve as a potential reference for validation of other ambulatory health care datasets.
2. Who gets sampled: Definition of ambulatory care needs to be refined to reflect the current state of health care delivery. Ambulatory care definition should be refined to reflect that care is being provided in more diverse settings by a more diversified workforce.
3. How sampling occurs: Update NAMCS' sampling frame (e.g., transitioning from physician encounters to either provider groups or sites, or individual patients), in part to better capture the role of nonphysician ambulatory health care professionals such as nurse practitioners (NPs) and physician assistants (PAs), and to gather data covering the full patient experience. Re-examine eligibility for selection of providers as in-scope e.g. clinicians practicing in outpatient settings owned by hospitals, but not hospital-based. Institute a hybrid data collection approach to leverage both the speed of electronic data capture (e.g., from EHRs) and the depth derived from manual data abstraction, thus balancing the priorities of deep cross-sectional data capture with the unique benefits of longitudinal data capture
4. Data collection period: Increase the measurement period of data collection to better view real-time changes in dynamic situations (e.g., the Coronavirus Disease 2019 [COVID-19] pandemic). The current methodology (i.e. only 1 week of data collection) results in fluctuations that might be artifact. Consider collection one quarter or 12 months of data. (footnote—while the workgroup considers that real-time reporting may be possible in the near future, we did not believe the technological infrastructure was supportive at this time. However, NCHS should consider this potential development in any system redesign.)
5. Speed of data release: Consider producing quarterly estimates.
6. What information is collected: Tailor NAMCS' original design to better characterize the modern, dynamic “structure and process” of ambulatory health care delivery in the United States to
 - Account for the increased variation of payers, as well as types and sites of care.
 - Broaden NAMCS' data collection strategies to adapt to the emergence of technology-based health care delivery modes such as telehealth, e-visits, and remote monitoring.
 - Expand the induction interview to better describe the system of ambulatory care delivery.
7. Increase the value of NAMCS: Restructure NAMCS data collection to maximize the ability to link NAMCS data to external datasets to other sources of health information including Centers for Medicare & Medicaid [CMS] claims data or proprietary electronic health records [EHRs] data).

Welcome and Introductions

John Lumpkin, BSC Member and Workgroup Chair

Jennifer Madans, Acting Deputy Director, NCHS

Sayedha Uddin, BSC Executive Secretary

NAMCS Workgroup members introduced themselves and declared their conflicts of interest, as well as their special government employee status (wherever relevant). Participant introductions and disclosures are available in the meeting transcript.

Brief Overview of NAMCS

Brian Ward, Division of Health Care Statistics, NCHS

NAMCS was designed to meet the need for objective, reliable information about the provision and use of ambulatory medical care services in the United States. To meet this purpose, NAMCS uses national probability samples to survey and collect patient visit data from office-based physicians and community health centers (CHCs). Since its origins in 1973, NAMCS has become an annual survey that now includes data abstraction and computerized data collection.

All physicians included in the NAMCS sample are classified by the American Medical Association (AMA) or American Osteopathic Association (AOA) as primarily engaged in office-based care. In addition, they are not employed by the U.S. government; are not interns, residents, or fellows; and are not anesthesiologists, radiologists, or pathologists. Captured visits are for medical care.

Community Health Centers Scope

CHC providers include physicians, physician assistants (PAs), nurse practitioners (NPs), and certified nurse midwives (CNMs). To be included in the NAMCS sample, CHCs must meet one of the following criteria:

- Receive grant funds from the federal government through Section 330 of the Public Health Service Act
- Be a look-alike CHC that meets all the requirements to receive Section 330 grant funding, despite not receiving such a grant
- Be an Urban Indian Health Center

NAMCS Sampling

The bullet points below summarize sample parameters for physicians and CHCs.

Physicians

- Eligibility criteria are applied to AMA and AOA Masterfile databases
- Sample of 3,000 physicians
 - 2,750 MDs and 250 DOs
- Approximately 30 visits abstracted from each physician's records

CHCs

- Eligibility criteria are applied to the Health Resources and Services Administration (HRSA) CHC database
- Sample of 104 CHCs
 - 1-3 advanced practice providers within CHC selected
- Approximately 30 visits abstracted from each CHC provider's records

NAMCS Strengths

NAMCS is the only nationally representative survey of physicians and CHCs. It collects visit-level data directly from provider sites, including clinical data elements such as patient demographics, diagnoses, procedures, medications, immunizations, laboratory and diagnostic tests, and reasons for visits. Provider characteristics can be analyzed either independently or with visit-level data. NAMCS can also include sponsored content on timely and relevant health topics (e.g., EHR adoption and interoperability).

NAMCS Limitations

Although NAMCS has remained an important data source on the provision of ambulatory care, the ambulatory health care system itself has changed since the survey was first fielded. Settings and providers of ambulatory care now include more PAs and NPs, and physicians' offices have become more complex with the growth of health care conglomerates and hospital-owned groups. Moreover, much ambulatory care delivery no longer occurs in person. As these changes have proliferated, ambulatory care data have also changed. Providers face increased reporting requirements, and more physicians and CHCs are adopting EHRs. As electronic data become more prevalent, so do concerns about data security and confidentiality.

In addition to these changes to the ambulatory health care data landscape, NAMCS response rates have declined across recent years. During 2018, unweighted physician participation rates were approximately 41 percent, with unweighted response rates of approximately 37 percent.

As a result of these challenges, the NCHS BSC established the NAMCS Workgroup to help chart the future of NAMCS. The Workgroup convened today's meeting to solicit expert input from a panel of knowledgeable federal, academic, and professional stakeholders.

Panel Presentations on Discussion Themes by Representatives of Non-Federal Stakeholders

Kathy Hempstead, Robert Wood Johnson Foundation (RWJF)

Dr. Hempstead emphasized that ambulatory medical care includes not only traditional visits to physicians' offices, but also visits to retail clinics and urgent care centers, as well as virtual visits. She suggested that NAMCS should define the scope of ambulatory care using clinically relevant criteria, as opposed to, for example, payer-related criteria. She also suggested that meeting participants consider what types of care to classify as ambulatory (Appendix C contains these poll results); for example, many patients now use technology for self-monitoring, yet it remains unclear how this trend has affected traditional ambulatory care services.

Dr. Hempstead also noted the importance of understanding how patients use different forms of ambulatory care across time, including how encounters or visits are distributed across different types of patients, and how payers as well as barriers to access affect different populations. She noted that the main alternatives to NAMCS for obtaining ambulatory care data are claims (e.g., CMS) and EHR vendors. Although claims data are typically more comprehensive than EHR data, they are also slower to become available. Dr. Hempstead expressed a desire for a national-level all-payer claims database (APCD) to provide reliable, high-quality, and nationally representative EHR and claims data.

Lynn Olson, American Academy of Pediatrics (AAP)

Dr. Olson stated that NAMCS provides unique, valuable data on trends in pediatric care, noting that how and where ambulatory pediatric care is delivered continues to evolve. She highlighted the importance of valid, reliable, and generalizable data to capture these trends, and stressed the need to balance tradeoffs between capturing trends and ensuring validity of measures. She also noted the need for NAMCS to capture multiple measures that can be used for triangulation across survey, clinical, claims, and EHR data. One example of a unique dataset provided for AAP by NAMCS is trends in length of pediatric primary care office visits between 2005 and 2015.

Christine Pintz, George Washington University (GWU) School of Nursing

Dr. Pintz noted that NAMCS is medically oriented and that health care has become more expansive. She suggested that modern modes of ambulatory care could be better captured by adopting a patient-centered perspective, at least for a portion of NAMCS. Such a perspective could more holistically account for care components such as patient engagement, prevention practices, health promotion, lifestyle management, social determinants of health, behavioral health, and alternative health practices. Dr. Pintz also highlighted that ambulatory care is increasingly team-based and not tied to one particular provider, reinforcing the argument that the NAMCS sampling frame should be modified to focus on patients rather than physicians.

Dr. Pintz noted that important gaps currently limit the utility of NAMCS: (1) lack of longitudinal data and external linkages to other surveys and (2) failure to distinguish between different nursing roles (e.g., NP versus nurse midwife, and registered nurse [RN] versus licensed practical nurse [LPN]). She also mentioned various tradeoffs between electronic versus manual data abstraction: although electronic abstraction is fast, seamless, and cost-effective, and can offer larger sample sizes, manual abstraction tends to provide higher-quality data.

Ryan White, Rutgers University

Dr. White noted that no nationally representative dataset captures the clinical activities of PAs, even as that profession continues to grow rapidly. Approximately 40 percent of PAs report their primary work setting to be office-based private practices, and approximately 26 percent of PAs work in primary care. Further, CHCs employ 2-3 percent of the PA workforce nationwide, and since 2018 have employed PAs, NPs, and certified midwives at higher rates than physicians. Lacking a nationally representative data set on PAs, researchers find it difficult to characterize this workforce and to analyze outcomes associated with their delivery of ambulatory care services.

The lack of a Masterfile challenges researchers' ability to collect and work with PA data. Although the National Commission on Certification of PAs maintains a database on all certified PAs, it is incomplete, making it difficult for researchers to identify PAs who fall within the sampling frames of NAMCS and other surveys. PAs who do fall within the NAMCS sampling frame may not have the authority to determine whether they participate in the survey. In addition, administrative, billing, or claims data sometimes attribute PA visits to physicians (e.g., if a physician's National Provider Identifier [NPI] number is used to code for billing)—further complicating study of this workforce.

Dr. White suggested that NAMCS capture PA practice specialty to supplement other data sources and to offer a more comprehensive picture of the PA workforce. NAMCS could also develop a partnership with professional organizations such as the American Academy of PAs to identify those PAs who could participate in a redesigned NAMCS.

Dr. White noted that a redesigned NAMCS should aim to characterize the who, what, when, and where of ambulatory medical services; identify access and outcome disparities; and investigate the quality of ambulatory medical care to help inform health policy decisions. The COVID-19 pandemic may well precipitate certain permanent changes to ambulatory care, and NAMCS could provide a valuable window into the nature of those changes.

Workgroup Question and Answer Period

Discussions during the Question and Answer period focused on adjusting the sampling frame and increasing response rates.

Sampling Frame

Panelists revisited Dr. Pintz' suggestion to organize the NAMCS sampling frame around *patients* rather than providers. This reframing would help NAMCS capture all modes of patient interaction with ambulatory health care services, including with nonphysician providers, as well as virtual health care delivery mechanisms such as telehealth and self-monitoring apps. Dr. Copeland recommended combining the provider and patient perspectives, such as how the Medicare Current Beneficiary Survey both interviews Medicare beneficiaries and acquires claims data.

Dr. Hempstead suggested that the sampling frame limitations could also be addressed by modernizing the definition of providers to include both nonphysicians (e.g., NPs and PAs) and physicians who have traditionally been considered out of scope for nonclinical reasons (e.g., affiliated with an academic institution or technically employed by a hospital). Other panelists noted that NAMCS could move toward the framework increasingly adopted by payers, in which ambulatory care is conceptualized in terms of episodes rather than visits—that is, one episode corresponds to all encounters a patient has with health systems in order to address a particular concern or condition.

To inform strategies to better capture the roles of nonphysician providers to outpatient care, Dr. Lumpkin suggested consulting licensing board records. However, Drs. Pintz and White noted that such records may not provide equal value across professional categories (e.g., they provide clinical specialty information on NPs but not on PAs).

Dr. Alexander suggested that modifications to the NAMCS physician induction interview could improve identification of NPs and PAs in ambulatory health care practices, which could then inform adjustments to NAMCS' sampling frame.

Response Rates

Participants also discussed potential strategies to increase NAMCS response rates, such as changing which providers are asked to participate or providing incentives to participate. Dr. Olson proposed that NCHS test various strategies on NAMCS subsamples before broadly implementing any one strategy. Dr. Hempstead noted that Medical Expenditure Panel Survey (MEPS) researchers modified the MEPS sampling frame to solicit practice-level information from practice managers, which led to increased response rates.

Discussion of Presentations with Professional Organization and University Panel NAMCS Workgroup and Non-Federal Panel Members

Following nonfederal panelist presentations and NAMCS Workgroup questions, participants addressed five questions about a NAMCS redesign, under the theme “understanding the gap between the ambulatory health care data that are needed versus what data are available.”

Question 1: What is the scope of ambulatory medical care in the United States (i.e., should telemedicine, retail clinics, visits to nonphysicians be included in the scope)? What scope should be included in NAMCS?

Participants raised telemedicine, home visits, and out-of-scope practices (i.e., those in which a physician is employed by a hospital, an urgent care facility, or a retail clinic, mobile clinic, work-based clinic,

specialty clinic, or perhaps an ambulatory surgical clinic) as potential directions for expanding the scope of NAMCS. They reiterated the need to capture contributions of nonphysician providers, especially PAs, NPs, and certified nurse midwives.

Question 2: What information is needed on the ambulatory health care system in the United States? What is the biggest contribution that NAMCS could make?

Participants reemphasized earlier sentiments that NAMCS “cannot be everything to everybody” and therefore must be designed to fulfill a specific function (i.e., to fill a specific data gap in the health data landscape). Dr. O’Malley noted that NAMCS’ role in capturing the contents of ambulatory health care encounters (i.e., patients’ diagnoses, conditions, complaints) continues to be vitally important, adding that a NAMCS redesign could also focus on capturing continuity of care (e.g., from primary care physicians to specialists). Dr. Phillips reinforced Dr. O’Malley’s desire for continuity-of-care, and they both agreed that this could be done in a cross-sectional way (e.g., by asking providers or patients how long they have been in contact). However, Dr. Phillips also noted that NAMCS’ survey data could be supplemented with longitudinal EHR data. Dr. Phillips noted that NAMCS should capture relationships between trends in the provision of ambulatory care and patient outcomes, and Dr. Copeland stated that the complications of longitudinal data capture could be mitigated by following a NAMCS subsample longitudinally. Dr. Olson recommended that NAMCS strive for maximum generalizability—capturing a limited set of high-validity markers that can be linked to external data sources and used to triangulate answers to a wide range of research questions that no single survey can answer. Dr. Alexander, however, echoed an earlier comment that NAMCS’ most important contribution is its capture of the structure and process (from the Donabedian model of measuring quality of care in terms of structure, process, and outcome) of ambulatory care in the United States. Dr. Aparasu noted that physician induction interviews could be redesigned to capture key elements of the structure of ambulatory health care. He also stressed that NAMCS already excels at capturing the process of care and that its depth as a cross-sectional survey is a vital asset; he cautioned that an attempt to transform NAMCS into a longitudinal survey could thus undermine its key strength.

Dr. Lumpkin suggested that NAMCS capture more granular payment information so that researchers and policymakers can explore, for example, the impacts of high-deductible plans on provision of ambulatory care services, and the differences in health care usage among patients with different payment sources (e.g., Medicare Fee-for-Service versus Medicare Advantage). He also proposed the use of NAMCS data to compare various payment arrangements (i.e., value-based purchasing) to help view the structure of ambulatory care delivery. However, Dr. Alexander commented that MEPS and other data sources (both public and proprietary) are better suited to that aim.

Dr. White proposed that NAMCS capture practice-level information regarding Accountable Care Organization (ACO) participation to help inform users of organizational and structural models of payment, as well as practice-level information regarding timeliness or accessibility of care (e.g., time to next appointment).

Question 3: What sources of ambulatory health care data exist outside of NAMCS?

Participants acknowledged the following non-NAMCS sources of ambulatory health care data: EHRs, CMS/claims data (public and proprietary), other federally sponsored surveys (e.g., MEPS).

Question 4: What are the strengths and limitations of those sources compared to NAMCS?

MEPS excels at providing granular financial and payer information, whereas CMS claims data are best for viewing information on procedures and procedure-specific costs. EHRs enable fast and easy data extraction—including longitudinal data—but lack the depth of cross-sectional surveys such as NAMCS. NAMCS captures provider-level encounter information, which provides better data richness, but misses longitudinal patterns and neglects ambulatory health care encounters that do not involve a physician. Dr. Kurtzman noted that NAMCS also enables sub-sampling of CHCs, which researchers have used to study differences in quality of care among provider types. Dr. Copeland noted that NAMCS could benefit from directly linking diagnosis and medication information, as MEPS and IQVIA already do. Dr. Stafford identified slow data releases as a major weakness of NAMCS, and participants highlighted NAMCS' inability to show local-level information.

Question 5: What gaps exist between the information needed and information available on the ambulatory medical care system?

Dr. Radhakrishnan highlighted that NAMCS lacks information on mental and behavioral health issues (e.g., depression, abuse, comorbidities, substance misuse/dependence) and the requisite services provided (e.g., screening, treatment, and counseling).

Participants reiterated earlier comments about NAMCS' inability to adequately capture patient encounters with NPs, PAs, and other nonphysician providers. Dr. Phillips suggested modification of NAMCS' starting sampling strategy (i.e., going beyond the AMA and AOA Masterfile) to address this issue and the previously mentioned issue of physicians being designated out of scope. He also hypothesized that such adjustments to NAMCS' sampling strategy may improve response rates; Dr. Chai suggested that response rates could also be improved by offering a nonmonetary incentive to participate, such as a certification. Participants noted that revising NAMCS' sampling strategy may enable capture of telehealth visits, which have become much more common during the COVID-19 pandemic (this change in the process of ambulatory health care delivery may have permanent effects following the pandemic). Moreover, as the pandemic spreads and vertical integrations continue to occur across the health care industry, NAMCS could help to track the composition of the ambulatory health care provider workforce.

Dr. Chai suggested that NAMCS include anesthesiologists who serve in ambulatory pain clinics.

Panel Presentations on Discussion Themes by Representatives from Federal Agency Stakeholders

Joel Cohen, Agency for Healthcare Research and Quality (AHRQ)

Dr. Cohen highlighted the comparative lack of available data on the supply (i.e., provider) side of ambulatory health care delivery relative to the demand (i.e., patient) side. The relative lack of supply-side data stymies efforts to generate and validate predictive models of provider-side ambulatory care. This lack of models, in turn, challenges the health care system in the context of emerging crises, such as the COVID-19 pandemic (e.g., public health experts/policymakers cannot determine whether provider capacity can meet the demand for care, whether prices will rise, or how changing demand may jeopardize the financial security of provider groups).

Dr. Cohen also noted that laboratories providing services associated with ambulatory care are frequently omitted from surveys and other data collection efforts, despite playing a major role in the delivery of such care. He acknowledged the difficulty of capturing the many elements of ambulatory health care in a single survey and stated that the NAMCS team should select which elements of the system to target for data collection—or split its efforts across several surveys. The structure of ambulatory health care is quickly changing as hospitals purchase small physicians' practices, while others merge. Current data collection efforts neglect these changes.

Dr. Cohen also highlighted the tradeoff between attaining rich data and achieving high response rates. Providers often lack time to complete a dense survey, and although previous efforts to streamline surveys have effectively raised response rates, the resulting data are limited. However, in some cases it may be feasible to ask different types of questions of different respondents, thereby maintaining data richness without increasing respondent burden (e.g., asking providers to provide clinical information while asking practice managers or office managers to provide financial data). In general, NAMCS may benefit from adopting mixed methods for data collection (e.g., electronic EHR data extraction combined with provider surveys).

Finally, Dr. Cohen advocated for increased linkages between NAMCS and other federal surveys, using the example of the National Health Interview Survey's (NHIS) linkage to MEPS (i.e., MEPS' sample is selected from NHIS respondents, which facilitates easy and efficient linkage).

Sharon Arnold, Office of the Assistant Secretary for Planning and Evaluation (ASPE)

Dr. Arnold highlighted NAMCS' role as a gold standard reference to validate other supply-side ambulatory health care datasets. She reinforced Dr. Cohen's point that many sources exist for demand-side ambulatory care data (e.g., EHRs, surveys, registries, and claims databases). Thus, NAMCS can serve a vital role by providing detailed data on the organizational structure of the ambulatory health care system. Dr. Arnold also echoed earlier comments about increasing the scope of NAMCS to include more types of providers.

Dr. Arnold cautioned the Workgroup against undervaluing NAMCS, because most of the existing data sources on ambulatory health lack representative samples. NAMCS' representative dataset can serve as a benchmark against which policymakers can gauge the validity of other datasets, which they must consult to inform more urgent policy choices (i.e., because these other sources can release data on a faster timeframe than NAMCS).

Dr. Arnold also emphasized that NAMCS could be redesigned to help capture local variations in ambulatory health care delivery. Although granular local-level data are challenging to generate, they can provide crucial context for policymakers.

Alek Sripipatana, HRSA

Dr. Sripipatana praised NAMCS for providing data that HRSA can use to compare care delivery practices across CHCs and other ambulatory care providers (e.g., primary care clinics). NAMCS also allows HRSA to develop strategies for improving CHCs (e.g., by evaluating variability in EHR adoption across sites).

Talisha Searcy, Office of the National Coordinator for Health Information Technology (ONC)

Dr. Searcy echoed earlier comments on the potential for NAMCS to capture the many changes occurring within the organizational structure of ambulatory health care delivery, as well as on the need for greater linkages between NAMCS and other surveys and data sources. She also highlighted efforts such as the Trusted Exchange Framework and Common Agreement, which was spurred by the 21st Century Cures Act, to help foster health information exchange among health information networks. Such efforts could potentially provide a window into site-specific EHR data that have previously been unobtainable.

Lucie Dalzell, Census Bureau

Dr. Dalzell reinforced an earlier comment that it is often the office manager, rather than the physician, who decides whether to participate in NAMCS. The office manager of a physician practice may determine that the time required to complete NAMCS imposes an unnecessary business burden with no measurable benefit in terms of care, and therefore decide not to participate. If NAMCS were marketed as

a resource to improve care, in addition to a scientific resource, it could attain higher response rates, a larger user base, and improved data quality. Response rates and data quality may also be improved by increasing job satisfaction of NAMCS' field representatives.

Dr. Dalzell also addressed the comparative advantages/drawbacks of manual versus automatic data abstraction. The Census Bureau has used both methods, and Dr. Dalzell was surprised that some Census Bureau regional offices were unhappy when abstraction was conducted remotely, whereas others were pleased at the simplified process as long as field representatives remained available to answer questions or provide support. Dr. Dalzell used this example to highlight the fact that different respondents will have different preferences, and that tradeoffs between data collection modes and their effects on response rates should be carefully considered. Finally, she noted that large organizations tend to prefer that data collectors approach them once at the organization level with a list of desired respondents.

Workgroup Question and Answer Period

Dr. Cohen suggested potential strategies for establishing greater NAMCS linkages, for example by surveying physicians and practices that participate in NHIS or MEPS, or by selecting a NAMCS sample based on the sample of another survey to inform next-year nonresponse adjustments. He also suggested linking NAMCS to administrative data (e.g., from CMS or private claims).

Dr. Phillips suggested that HRSA's sampling of Federally Qualified Health Centers (FQHCs) link to the Uniform Data System (UDS) or to one of the Community Health Applied Research Networks (CHARNs) in order to incorporate more data about the site encountered by the respondent. An EHR linkage could also fulfill this function.

Participants discussed linkage of clinical NAMCS data with financial MEPS data. If one survey attempts to gather both types of data, data richness will likely decrease. Participants stressed the importance of establishing linkages during survey design rather than post hoc.

Dr. Searcy noted that ONC has worked to develop regulatory guidance around protected health information (PHI) to ensure that the Trusted Exchange Framework and Common Agreement is aligned with the Health Insurance Portability and Accountability Act (HIPAA). This guidance provides regulations on patient privacy and consent, and on other health information governed by HIPAA, effectively standardizing the rules of health information exchange. ONC is also developing data standards to facilitate more efficient bulk data abstraction from multiple providers and practices.

Discussion of Presentations with Federal Agency Panel NAMCS Workgroup and Federal Panel Members

Following federal panelist presentations and NAMCS Workgroup questions, participants discussed five questions about a potential NAMCS redesign, under the theme "aligning NAMCS to meet existing and future needs for data on the U.S. ambulatory health care system."

Question 1: What is the purpose of NAMCS (e.g., reference versus repository)?

Dr. Alexander and others shared their view of NAMCS as an authoritative source of information about the provision of ambulatory care in the United States (i.e., as a benchmark). Dr. Alexander noted that validation of other datasets does not seem to be its primary utility for users. Dr. Chai reiterated NAMCS' primary value as a reference standard and cautioned participants against compromising that value by collecting too many types of data simultaneously or by transforming NAMCS into a longitudinal dataset. She also noted that NAMCS could potentially expand its focus on softer data types that are unavailable through claims databases (i.e., smoking status, family history).

Question 2: What are the goals, objectives, and added value of a redesigned NAMCS?

Dr. Aparasu framed the goal of a redesigned NAMCS as better capture of the breadth as well as the depth of ambulatory health care delivery in the United States by collecting data that other sources do not (e.g., in terms of breadth, what proportion of visits were to urgent care versus CHCs, office-based practices, and hospital outpatient departments?)—and in such a way that they can then be linked to those other sources. Dr. Cohen expressed a similar desire to distinguish among types of ambulatory care sites but cautioned that these distinctions can be ambiguous (e.g., a patient may classify the site as a community clinic, although it may be billed as an emergency department because of its affiliation with a hospital). Dr. Copeland reemphasized earlier comments on capturing ambulatory care encounters with nonphysician providers such as NPs and PAs—possibly by sampling at the site level—as well as telecare and other virtual ambulatory health encounters (e.g., via self-monitoring apps). He also proposed an increased focus on the collection of ancillary information, such as which providers become involved in caring for a patient after a primary physician’s initial diagnosis.

Dr. Kurtzman stressed that NCHS must determine which features of NAMCS should remain unchanged to maintain its ability to track health care trends from past decades to the future. Dr. O’Malley advocated for maintaining most of NAMCS’ current content as well as its design.

Question 3: What changes are needed for NAMCS to address the gaps in the information needed on the U.S. ambulatory medical care system (possibilities for linkage to other data sets or longitudinal data collection)?

Dr. Dalzell explained that the NAMCS out-of-scope rate is approximately 40 percent, which impacts the data generated in unknown ways. Contributing to that high rate are the 2 percent of physicians in the NAMCS sample who are deceased and another 15 percent who are retired. Therefore, NAMCS should update the sampling frame and validate that each individual targeted for the sample is still practicing.

Question 4: How can validity and reliability of a redesigned NAMCS be assessed (i.e., what data sources can be used to validate the sampling frame or a subset of the frame, can EHR data be used to verify or supplement responses to clinical questions)?

Dr. Phillips reiterated earlier comments about the potential to use EHR and MEPS data, as well as data from specialist certification boards and from the American Board of Family Medicine’s (ABFM) annual cross-sectional census of family physicians, to help validate a redesigned NAMCS. Dr. Alexander noted the common practice of assessing data quality/validity by using proprietary visit-based audits but questioned the value of using claims data given the many differences in what information is captured. Several Workgroup members noted that despite the potential value of validating NAMCS data with EHRs, the level of EHR implementation and the corresponding richness of data collection varies widely by ambulatory care site.

Question 5: Which data collection methods (e.g., electronic vs. manual abstraction) should be used for NAMCS?

Participants generally favored a mixed method that leverages both the richness of data from manual abstraction and the speed of electronic abstraction of data such as the number and types of prescriptions written by particular physicians or practices. In addition, electronic abstraction can help to reduce NAMCS’ respondent burden and thus improve response rates. Dr. White agreed that a hybrid approach presents clear benefits but cautioned against heavy reliance on EHR data, which often masks the

contributions of nonphysician providers to patient care. Dr. Stafford agreed, adding that data integrity within various EHR systems may not be well-validated.

Dr. Copeland proposed a two-stage collection model, wherein NAMCS first collects EHR data via rapid electronic abstraction, then collects more in-depth data via manual abstraction to fill in key gaps. Dr. Aparasu endorsed this hybrid model, noting that it may not only increase the NAMCS sample size, but also accelerate the timeline for release of EHR-derived data—addressing concerns about slow periodicity of data release.

Dr. Dalzell stressed that NCHS’ deliberations about increased electronic data abstraction in NAMCS should consider the importance of maintaining relationships between field representatives and survey respondents.

Workgroup Next Steps
NAMCS Workgroup

Following receipt of this meeting summary, members of the NAMCS Workgroup will use input from nonfederal and federal panelists to help develop a set of recommendations to the BSC for a potential NAMCS redesign.

Adjournment
John Lumpkin, BSC Member and Workgroup Chair

Dr. Lumpkin adjourned the meeting.

Appendix A: Meeting Agenda

National Ambulatory Medical Care Survey (NAMCS) Workgroup
Board of Scientific Counselors (BSC) National Center for Health Statistics (NCHS)
Meeting Agenda
May 20, 2020, 09:00-17:00

In recent years, the U.S. health care delivery system has changed markedly, with new manners, mechanisms, and locations of health care delivery as well as new data sources available on ambulatory medical care systems. These changes have resulted in the need for NCHS to re-examine the utility and relevance of NAMCS and its design and data collection methods.

Purpose:

To provide external input from a broad range of stakeholders to the BSC NCHS on the nationally representative data needed on ambulatory health care provision in the United States (US) and how to align NAMCS to meet those information needs.

Goals:

During this session, we will 1) explore the scope of ambulatory health care in the US 2) explore the nationally representative data needed on the ambulatory medical care system and 3) explore the available sources of ambulatory medical care data 4) discuss the implications of these needs and existing data sources on the future of NAMCS.

09:00	Welcome and Introductions	John Lumpkin, Chair BSC NCHS NAMCS Workgroup Jennifer Madans, Acting Deputy Director, NCHS Sayeedha Uddin, Executive Secretary of BSC NCHS	-Ask attendees to edit their names in participant box if needed -Brian Moyer will join call sometime between 9:30 and 10:30—please introduce him when appropriate
09:15	Brief overview of NAMCS	Brian Ward, Division of Health Care Statistics, NCHS	Greg Richards or Kimberly Williamson (RLA) will advance slides
09:30	Panel presentations on discussion themes by representatives of non-Federal stakeholders	Kathy Hempstead, RWJF Lynn Olson, AAP Christine Pintz, GWU SON Ryan White, Rutgers University	Only WG members to ask questions of presenters in this session
10:30	Break		Please remind everyone to mute audio and turn off video/webcam.
10:45	Discussion of presentations with professional organization and university panel	NAMCS Workgroup (John Lumpkin, Ken Copeland, Caleb Alexander, Rajender Aparasu, Bob Phillips) and non-Federal panel members	-Attendees will use “raise hand” feature to ask to speak, Greg Richards (RLA) will monitor the raise hand function and send private message to John.

			<ul style="list-style-type: none"> -John to monitor the chat screen. -Share Sayeedha's screen so she can take notes that will display on the shared screen
12:00	Summary of key messages from discussion with non-Federal panel	John Lumpkin	John will likely be the only one speaking
12:15	Lunch break		Please remind everyone to mute audio and turn off video/webcam
13:15	Panel presentations on discussion themes by representatives from Federal agency stakeholders	Joel Cohen, AHRQ Sharon Arnold, ASPE Alekh Sripathana, HRSA Talisha Searcy, ONC	Only WG members to ask questions of presenters in this session
14:15	Break		Please remind everyone to mute audio and turn off video/webcam
14:30	Discussion of presentations with Federal agency panel	NAMCS Workgroup and Federal panel members	<ul style="list-style-type: none"> -Attendees will use "raise hand" feature to ask to speak, Greg Richards (RLA) will monitor the raise hand function and send private message to John. -John to monitor the chat screen. -Share Sayeedha's screen so she can take notes that will display on the shared screen
15:45	Summary of key messages from discussion with Federal agency panel	John Lumpkin	John will likely be the only one speaking
16:00	Workgroup Discussion of Findings	NAMCS Workgroup	Only 5 WG members and Sayeedha for this session—other participants should be taken off the call
17:00	Adjournment	John Lumpkin	

Appendix B: Participants List

NAMCS WORKGROUP MEETING MAY 20, 2020 PARTICIPANT LIST

BSC NCHS NAMCS Workgroup Members

John Lumpkin, Workgroup Chair, BSC Member, Blue Cross Blue Shield of North Carolina
Caleb Alexander, Johns Hopkins Bloomberg School of Public Health
Rajender Aparasu, University of Houston, College of Pharmacy
Ken Copeland, BSC Member, NORC
Bob Phillips, American Academy of Family Medicine

Non-federal Participants

Sarah Baizer, National Association of Community Health Centers*
Jean Fuglesten Biniek, Health Care Cost Institute
Elizabeth Hausman, American College of Preventive Medicine
Kathy Hempstead, Robert Wood Johnson Foundation*
Ellen Kurtzman, George Washington University School of Nursing
Lynn Olson, American Academy of Pediatrics*
Ann O'Malley, Mathematica
Darrell Philpot, IQVIA
Christine Pintz, George Washington University School of Nursing*
Randy Stafford, Stanford University
Ryan White, Rutgers University*

Federal Participants

Sharon Arnold, ASPE*
Grace Chai, FDA
Joel Cohen, AHRQ*
Lucinda Dalzell, Census
Eloise Parker, Census
Eric Miller, NIH
Alek Sripipatana, HRSA*
Talisha Searcy, ONC*

NCHS Attendees

Brian Moyer, Director, NCHS
Jennifer Madans, Acting Deputy Director, NCHS
Denys Lau, Director, Division of Health Care Statistics
Carol DeFrances, Deputy Director, Division of Health Care Statistics
Brian Ward, Chief, Ambulatory and Hospital Care Branch, Division of Health Care Statistics
Sayeedha Uddin, Designated Federal Officer, Board of Scientific Counselors, NCHS

*Panelists

Appendix C: Participant Poll Results

Participants were asked to complete an informal poll indicating whether they consider various aspects of health care as falling within the ‘ambulatory care’ category. Results of this poll are summarized below. Note that the poll was *not* asking whether NAMCS should capture all care modes categorized as ‘ambulatory care’.

	#	#	%	%
	Yes	No	Yes	No
Nurse managed health centers	22	2	92%	8%
Urgicare centers	21	3	88%	13%
Ambulatory surgery treatment centers	15	9	63%	38%
Indian Health Centers	24	0	100%	0%
Health Departments	15	9	63%	38%
CHCs	24	0	100%	0%
Workplace clinics	12	12	50%	50%
University Clinics	20	4	83%	17%
FQHCs	23	1	96%	4%
Home	12	12	50%	50%
Telemedicine telephone based	19	3	86%	14%
Mobile Care	16	6	73%	27%
Telemedicine e mail	15	7	68%	32%
Urgent care	20	2	91%	9%
Primary care practice site	22	0	100%	0%
Specialty care practice site	21	1	95%	5%
Telemedicine office based	22	0	100%	0%
Specialty clinic	21	1	95%	5%
Retail clinic	19	3	86%	14%
Telemedicine and non-office based	18	4	82%	18%
Physical Therapy Centers	11	12	48%	52%
Pharmacy	11	12	48%	52%
Hospital owned clinics	23	0	100%	0%
Managed care centers	22	1	96%	4%
Student Health Centers	20	3	87%	13%
Hospital outpatient clinics	22	1	96%	4%
Other clinical sites (Optometry, audiology, spirometry)	11	12	48%	52%
Dental Offices	11	12	48%	52%
Dental Clinics	10	13	43%	57%
Chiropractic Care Sites	10	13	43%	57%
App-provided care	14	13	52%	48%
Home based monitoring	11	16	41%	59%
Complementary and Alternative Care Clinics	17	10	63%	37%
Community based clinics	27	0	100%	0%
Behavioral health clinics	24	3	89%	11%

Appendix D: Zoom Chat Log

00:41:35 Rajender Aparasu - University of Houston: Good Morning All

00:42:21 Sayeedha Uddin--NCHS: Good morning!

00:44:41 John Lumpkin BCBSNC Foundation: Good morning to all, thank you for participating

01:22:42 Sayeedha Uddin--NCHS: Reminder--Please add your name affiliation to your name or phone number in the Zoom participants list. Thanks!

01:24:31 Bob Phillips, ABFM CPV: Small Independent practices remain 36% of practices where family physicians work, and where more than half of family physicians practices. I agree with Dr. Olson that this has been changing, and the pandemic may speed that up

01:28:20 Bob Phillips, ABFM CPV: Given the reliance on NAMCS by researchers like Dr. Olson, I am interested in her reaction to Dr. Dalzell's revelation that In 2018, the physician response rate was 46.2% and the physician out-of-scope rate was 42%. In 2019, the physician response rate was 29.6% and the out-of-scope rate was 41.4%.

01:31:17 Sayeedha Uddin--NCHS: Reminder--Please add your name affiliation to your name or phone number in the Zoom participants list. Thanks!

01:37:18 Bob Phillips, ABFM CPV: Ryan White also raised the issue of sampling and correctly identifying NPs and PAs with the added goals of better understanding of ambulatory care, professional differentiation, better understanding of teams in care, and more correctly identifying their practice specialties. For example the RN Sample Survey NP data from 2018 are not generally available yet, but GWU researchers recently said that it suggests NPs in primary care are less than 30% of the NP workforce. We really can't afford to be so blind to work of health professionals in ambulatory care.

01:44:16 Amy Blum NCHS: Can the PA participation in an encounter be determined by the provider ID #?

01:45:08 Ann O'Malley, Mathematica: If the PA bills under their own NPI yes. But if they work "incident to" a physician, then I don't think so.

01:46:49 Jeannie Fuglesten Biniek, Health Care Cost Institute: This is a limitation of claims data when examining the role and activities of PAs and NPs

01:47:16 Caleb Alexander - Johns Hopkins: Perhaps for Christine: 10. Is there an NP or CNM "Masterfile", or are the challenges very similar to those of capturing PAs?

01:48:01 Caleb Alexander - Johns Hopkins: General query for panelists: Could induction interview be expanded so as to yield more comprehensive information about important dimensions of care that are currently not well captured (e.g., provision of telehealth, models of team-based care)?

01:49:35 Caleb Alexander - Johns Hopkins: I think we'll be hearing from colleagues from the Census later about some considerations regarding sampling groups rather than providers - which is quite relevant to issue of capturing advanced practice providers

01:54:26 Ryan White - Rutgers University: To support what's been said by others, PAs can bill under their own NPI for many payers, but not all. In addition, if incident-to billing is used, the PA would be "hidden" in the claims data. I think this emphasizes the

importance of seeking methods to capture outcomes associated with teams rather than individual providers.

- 01:55:18 Ellen Kurtzman: Greetings! A quick note regarding a NP/midwife masterfile -- the state Boards of Nursing maintain license information. So, collectively, they would have a census of all licensed APRNs including NPs and midwives.
- 01:56:21 Christine Pintz - George Washington University: Nurse practitioners are being encouraged by national NP organizations to bill under their own NPI and not incident to. However, this is often the decision by the practice and not the individual NP.
- 01:57:54 Christine Pintz - George Washington University: The American Association of Nurse Practitioners (AANP) has approximately 180,000 members which is about half of all NPs in this country. A combination of state boards of nursing and AANP may help identify those NPs.
- 01:58:47 Caleb Alexander - Johns Hopkins: Is it fair to say that three strategies to increase capture of care delivered by non-physician providers (while preserving general NAMCS design) are to sample them; expand their capture on induction form; and/or expand their capture on visit form?
- 01:59:27 Bob Phillips, ABFM CPV: Christine, since NPPES now captures more than 90% of NPs, could it be a viable sampling mechanism if NCHS doesn't move to practice sampling. I know NPPES has challenges, but it could get around incident-to limitations of using claims data. Your experience would be valuable in understanding the limitations
- 02:01:53 Christine Pintz - George Washington University: It could be - there are some issues with individual questions but it could be helpful. At NONPF, we are trying to look into creating a minimum data set for NPs.
- 02:02:06 Ryan White - Rutgers University: Caleb, I agree with these strategies. Even beyond PAs and NPs, I think about visits that may have involved a mental health professional who is co-located in the same practice. Perhaps the induction form could be amended to capture other members of the team who participated in the encounter or the proximate care of that patient.
- 02:02:13 Amy Blum NCHS: A modifier to the CPT code indicating a NP or PA was the provider could be an option.
- 02:07:05 Randall Stafford: I think that attempts to capture different professional groups misses the point. We need to capture the whole patient experience, not the individual slices provided by different types of providers.
- 02:08:20 Christine Pintz - George Washington University: Caleb - I also agree and agree with Ryan about other types of providers. With the movement to Patient Centered Medical Homes, there are other providers that are important to patient care - PTs, pharmacists, social workers, nurse care coordinators.
- 02:37:56 Caleb Alexander - Johns Hopkins: If not [a modified] NAMCS, what ARE the currently available federally supported surveys/studies that are most optimal to assess team-based care?
- 03:06:04 Bob Phillips, ABFM CPV: UDS Data have been helpful for understanding team constructs and outcomes for FQHCs, but NAMCS should be the source for broader settings. The American Board of Family Medicine has modelled a lot of its cross-sectional annual census of family physicians (~12,000/year) to model NAMCS questions

about teams, practice ownership, EHR functionality and have been using that as a lens on the settings and systems where they work.

- 03:21:10 Randall Stafford, MD, PhD, Stanford University: There is a great need to capture the nuances of "telehealth." No one has fully delved into the different types of communications that are implied by this broad term. Different types of video, telephone, messaging, email, app contact.
- 03:24:20 Bob Phillips, ABFM CPV: EHR and claims data would potentially capture telehealth since it is typically captured in the course of care in the EHR for billing purposes and submitted with that E&M code or modifier
- 03:27:59 Caleb Alexander - Johns Hopkins: Here are notes on potential changes for NAMCS to address gaps:
- 03:28:03 Caleb Alexander - Johns Hopkins: (1) Could induction interview be expanded so as to yield more comprehensive information about important dimensions of care that are currently not well captured (e.g., provision of telehealth, models of team-based care)? (2) Could sample frame be expanded so as to separately sample PAs and NPs? (3) Could definition of visits be broadened so as to allow for capture of telehealth visits that occur for sampled providers during sampled weeks? (4) Could additional modules be planned and anticipated – now – that would occur periodically during the coming decade or two to address some of the shortcomings of the current NAMCS? (5) Can visit form be modified so as to better capture team-based care? (6) Recommendations from our group may be channeled laterally to other federal surveys (MCBS, NCHS, MEPS) (7) Link NAMCS visits to longitudinal patient-level information derived from claims or EMR or both for all or at least a subset of NAMCS participants
- 03:31:25 Bob Phillips, ABFM CPV: This is the area where I have a conflict in that I run a national primary care registry, but there are multiple Qualified Clinical Data Registries that are typically specialty-specific that pull, clean, and structure data from EHRs for more than 100 million people. They can be an effective bridge to structured EHR data and have additional information about practice size, location, patient demographics, payer mix that would help sampling and data quality.
- 03:31:33 Caleb Alexander - Johns Hopkins: Great point Ellen re: longevity of NAMCS!
- 03:35:12 Caleb Alexander - Johns Hopkins: Bob - this could be a great resource - and is one of many sources of real world evidence (RWE) that could potentially be used to enhance the NAMCS - i think the key question is whether the primary sampling approach remains the same, or is modified based on these types of registries
- 03:41:20 Randall Stafford, MD, PhD, Stanford University: Change the dictionary!
- 03:42:24 Bob Phillips, ABFM CPV: Caleb, good point, thanks. the sampling could change. I also agree with your notion that cross-validation should be fit for purpose. We may be able to identify a handful of NAMCS items that can be checked in other data that give a sense of NAMCS representativeness vs. drift
- 03:47:10 Lynn Olson: EHR data has many promises, but overall has proved often challenging to turn into research data. What specific lessons were learned with the use of EHR data for the NAMCS in the 2016-17?
- 03:50:29 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: urgent care, retail clinics, specialty clinics (e.g., dialysis), telehealth, mobile care, freestanding EDs, and work-based clinics

03:50:32 John Lumpkin BCBSNC Foundation: telemedicine

03:51:25 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: And of course (my earlier pitch) health centers (FQHCs, CHCs, Indian Health)

03:51:35 Brian Ward - NCHS: CHCs or FQHCs have also been mentioned in the comments

03:51:41 Caleb Alexander - Johns Hopkins: Homes!!!

03:51:56 Ann O'Malley, Mathematica: regular old primary care and specialty care offices

03:51:59 Caleb Alexander - Johns Hopkins: Might relabel “Freestanding emergency departments” to “Urgicare Centers” or something like that

03:52:07 Christine Pintz - George Washington University: Health Departments

03:52:29 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: nurse managed health centers

03:52:53 Rajender Aparasu - University of Houston: University Clinics

03:53:02 Christine Pintz - George Washington University: Managed Care Centers

03:53:03 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: student health centers?

03:53:15 Caleb Alexander - Johns Hopkins: I thought the mention at one point of synchronous vs. asynchronous might be helpful to revisit or note - it is not a site, but rather, an important feature regarding mode

03:53:20 Rajender Aparasu - University of Houston: yes

03:53:22 Kennon Copeland: NORC at the University of Chicago: Pharmacy

03:54:13 Christine Pintz - George Washington University: Telephone based Tele-health (for patients who don't have the ability to use computer or phone-based - seniors, those with no internet)

03:55:12 Ryan White - Rutgers University: community-based clinics (i.e. free clinics located in community centers, places of worship, schools)

03:56:13 Randall Stafford, MD, PhD, Stanford University: app-provided care (real person messaging and AI driven care)

03:56:51 Randall Stafford, MD, PhD, Stanford University: home-based monitoring (BP, INR, ECG)

04:01:42 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Chiropractic care???

04:02:17 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: behavioral health?

04:03:40 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: breast feeding centers??

05:28:43 Caleb Alexander - Johns Hopkins: What was the precise change in MEPS that the RWJF funding enabled?

05:36:27 Caleb Alexander - Johns Hopkins: Joel, you mentioned, analogous to MEPS building upon NCHS, “maybe NAMCS could link to other data” [to increase efficiency or value] -

can you please elaborate a bit on what specific data resources you are thinking of, and how such linkage might take place?

- 05:39:07 Caleb Alexander - Johns Hopkins: Sharon - thank you for your comments. You suggested possibly moving to more locally informative data - do you have thoughts as to how this might be done?
- 05:52:59 Caleb Alexander - Johns Hopkins: We should discuss bartering to increase participation
- 06:02:55 Bob Phillips, ABFM CPV: Joel, AHRQ has been brilliant about capturing more and better data for MEPS than its charge would otherwise produce. Very clever about helping make it so useful.
- 06:05:31 Alek Sripipatana (HRSA): Great idea Bob. Thanks!
- 06:07:15 Bob Phillips, ABFM CPV: Alek HRSA's data (or CHARN/PCORNet) could also help on the front end with sampling frame so that NAMCS is more nationally representative.
- 06:09:48 Alek Sripipatana (HRSA): Great point Bob. I think partnering with the HCCNs is also another opportunity to engage a broad spectrum of health centers that are nationally representative of health centers
- 06:09:52 Caleb Alexander - Johns Hopkins: Telehealth and care by non-physician providers seem to be two of the largest and most manageable pivots for a retooled NAMCS to make
- 06:10:46 Caleb Alexander - Johns Hopkins: Can someone define what “trust networks” are?
- 06:15:10 Talisha Searcy, ONC: Trusted Exchange Framework and Common Agreement (TEFCA), outlines a common set of principles, terms, and conditions to support the development of a Common Agreement that would help enable nationwide exchange of electronic health information (EHI) across disparate health information networks (HINs).
- 06:16:37 Bob Phillips, ABFM CPV: I appreciate Talisha's point and the interoperability goals of ONC, but that is anticipated to be 3-4 years out at best. The American College of Emergency Medicine CEDR registry routinely draws EHR data from more than 1000 emergency rooms, ~28 million visits annually. They have a standardized data model that could feed to NAMCS, produce analyses to guide sample selection, be a supplementary source, offer a check on representativeness. That capacity is available now.
- 06:16:46 Talisha Searcy, ONC: Currently, about 57% of hospitals share information on a HiN.
- 06:19:20 Bob Phillips, ABFM CPV: but ERs are often separate from hospital EHR systems. and I don't think CEDR feeds HINs. Other outpatient QCDRs can be a source now of outpatient standardized data, in fact that is why CMS created them.
- 06:32:22 Ann O'Malley, Mathematica: seems like the survey results that we did at 1:20PM answers the first question
- 06:33:30 Lucie Dalzell--Census Bureau: Just to note from something said earlier--NHAMCS stopped collecting outpatient departments and ambulatory surgical locations in 2018; it now only includes emergency departments
- 06:35:38 Bob Phillips, ABFM CPV: Lucy where do hospital outpatient department and amb surg center data get captured? NAMCS?
- 06:37:25 Lucie Dalzell--Census Bureau: They are not included in NAMCS. OPDs are included in the Hospital Care Survey that NCHS conducts (Census is not involved with that). Not sure about amb surgery
- 06:37:36 Lucie Dalzell--Census Bureau: and thanks :)

06:43:28 Ann O'Malley, Mathematica: Seems to me that some of the "softer data" is already available from NHIS, CAHPS and BRFSS

06:44:55 Brian Ward - NCHS: There is a CE course related to NAMCS that participants (and anyone interested) can take to get an hour credit towards their certification.

06:44:58 Lucie Dalzell--Census Bureau: Grace--thanks for the great suggestions! We do have certificates of appreciation and they are popular!

06:45:12 Lucie Dalzell--Census Bureau: yes and the CE course is extremely popular!

06:50:37 Carol DeFrances - NCHS: NCHS has developed an HL7 CDA Implementation Guide for the National Health Care Surveys which includes NAMCS. Epic, Cerner, Allscripts and a number of other EHR vendors have developed interfaces in their system to extract NAMCS data. We also working on a FHIR IG.

06:54:52 Eric Miller, NIH: There may be some work the cancer registries (SEER specifically) are doing with abstracting data from EHRs, pharmacy records, and natural language processing from path reports that could be useful/informative for NAMCS

06:55:12 Caleb Alexander - Johns Hopkins: Thanks Eric - that looks like a great lead

07:07:31 Caleb Alexander - Johns Hopkins: Here is a great example of work by Randy Stafford and a colleague examining off-label use through a direct linkage of drugs and diagnoses: <https://pubmed.ncbi.nlm.nih.gov/16682577/>

07:09:23 Caleb Alexander - Johns Hopkins: Strengths: Comprehensive and clear documentation, ability to look year over year

07:09:55 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing:

- Number of years and regularity of NAMCS data collection
- Inclusion of patient and provider variables
- Comprehensiveness of the data/variables collected per visit

07:11:36 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Did the ability to produce state-level estimates get on the short list?

07:13:30 Ryan White - Rutgers University: To echo Ellen's question, state-level estimates are important for policy and workforce analyses.

07:27:38 John Lumpkin BCBSNC Foundation: account for changes in office based care

07:27:50 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Would hope the redesigned NAMCS could address issues related to the cost, quality, population health, utilization of ambulatory care and its workforce

07:28:32 John Lumpkin BCBSNC Foundation: more operational efficiency-understand reasons for visits - understand characteristics of team base care - s

07:28:53 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Wondering about social determinants of health ?

07:34:04 Bob Phillips, ABFM CPV: You could use neighborhood social determinants, like ADI, SDI or Massachusetts's NSS (being used to adjust Medicaid Payments)--all are shown to be associated with poorer outcomes when high. They could be assigned to the practice service area

07:34:34 Bob Phillips, ABFM CPV: as an estimate of practice patient panel risk

- 07:35:55 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Do we care about the capacity and/or composition of the practices/settings surveyed -- for example, # or type of administrative staff or range of services?
- 07:40:31 Eric Miller, NIH: A little late but just to add to Randy's comments on measuring effective care and chronic disease management. It's very difficult to know the "why" someone isn't receiving effective care. It seems like this could at least be an opportunity to find what care/treatment is recommended or offered from the practice side and the compliance of it from the patient side. There aren't many datasets that have that opportunity
- 07:42:28 Ann O'Malley, Mathematica: Thank you!
- 07:42:34 Christine Pintz - George Washington University: Thank you!
- 07:42:40 Ellen Kurtzman, former NCHS/AH HP Fellow & GW School of Nursing: Thank you very much for the opportunity to participate. Health and safety to everyone!
- 07:42:52 Sayeedha Uddin--NCHS: Thank you everyone for your participation and engagement!!
- 07:42:54 Ryan White - Rutgers University: Thank you all very much
- 07:43:30 Kathy Hempstead: Thank you for including me. It was a very interesting conversation and I look forward to seeing the report.
- 07:45:32 Brian Ward - NCHS: Thank you everyone - have a good evening!