ATTACHMENT 3

Program Review Self-Assessment

Office of Analysis and Epidemiology
National Center for Health Statistics

Prepared for the
2013 NCHS Board of Scientific Counselors
Program Review

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OVERVIEW

The National Center for Health Statistics' (NCHS) Office of Analysis and Epidemiology (OAE) conducts cross-cutting research and dissemination activities. It provides in-house research capacity to assist NCHS in improving its surveys and making data and research findings accessible to a wide range of stakeholders. OAE also provides statistical and methodological expertise to national and international endeavors, supporting and collaborating with the Department of Health and Human Services (HHS) and other Executive Branch agencies, intergovernmental agencies, the research community, and others on data development and analysis.

NCHS serves a broad range of data users, and OAE's research activities reflect that diversity. The research portfolio encompasses analytic products targeted toward users that range from public health professionals to policymakers, and from new to seasoned researchers. Its research spans epidemiology and public health, health services and health policy research, as well as statistics and methodology. In addition to conducting in-house and collaborative research, OAE develops and disseminates data files, as well as analytic and dissemination tools to make data more accessible and useful for research and decision making.

This overview outlines OAE's mission and the context with which it operates. Subsequent sections describe OAE's major program activities and products, collaborations, organization and management. The final section describes opportunities and challenges. Appendices provide more comprehensive information on OAE management, collaborations, and research.

Program Mission

OAE's mission derives directly from the NCHS mission to provide accurate, relevant, and timely information to guide actions and policies to improve the health of the Nation.

"The Office of Analysis and Epidemiology (OAE) serves NCHS, CDC, HHS, and the broader national and international health and health care communities by using data from NCHS and other sources to inform policies and programs designed to improve the Nation's health. We perform this mission by producing the Congressionally-mandated report, *Health, United States*; performing accurate, relevant, and timely cross-cutting analyses; conducting an extensive linkage program merging data from multiple federal agencies; and providing data production and analysis in support of Healthy People 2020 and other innovative national health indicators initiatives."

Context

OAE was established in 1975 by then-NCHS director, Dorothy Rice, as the Center's in-house analysis and epidemiology research component. OAE operated under the direction of Jack Feldman for its first 23 years, from 1975-1998, and during that time initiated many of the programs for which NCHS is known today, such as *Health, United States*, and other programs described in this document. Important projects of the 1980s and 1990s include the National Health and Nutrition Examination Survey I Epidemiologic Follow-up Study (NHEFS) and the

Longitudinal Studies of Aging (LSOA and LSOA II). These collaborative endeavors represent important contributions to public health and statistical methodology, and provide the foundation for NCHS' work in data linkage and other programs, work that continues to evolve today. Much of this work was conceptualized and led by NCHS' Associate Director for Science, Jennifer Madans, who served as both Deputy and Director of OAE, and who continues to provide statistical leadership and guidance to OAE staff at all levels, including to OAE's new director, who joined NCHS at the end of 2012.

PRINCIPAL PROGRAM ACTIVITIES

By the nature of its mission, OAE's activities are broad and diverse. OAE's work supports and depends upon the work of the NCHS data divisions, through substantive and analytic interchange. At the same time, OAE occupies a unique role within the organization in its knowledge of data systems – those within NCHS as well as other Federal and non-Federal data systems.

OAE is distinguished by its focus on analyzing multiple data systems to address topics of national public health interest. Its work encompasses research to develop population health measures including health disparities; integrate data, including linkage of surveys and administrative data (such as Medicaid and the National Death Index, NDI); develop tools to facilitate access to, and dissemination of, statistical data; examine methodological questions, such as survey reliability and validity; and address health, health policy and health care delivery issues.

In addition to research, a strong orientation toward dissemination exists across all OAE's programs and activities. OAE initiates, develops, maintains, and disseminates cross-cutting analysis and analytic tools for NCHS, CDC, the Department and other executive branch agencies, policymakers, and the research community. OAE's principal programs are outlined and described below.

OAE's Principal Program Activities

- **Monitoring the health of the nation through the annual report, *Health, United States***
- **Providing data and analytic support to HHS and the public health community through the Healthy People Initiative**
- **Expanding the analytic utility of NCHS data systems through the NCHS Data Linkage Program**
- **Developing data systems and analytic tools for health and health care research**
- **Disseminating data electronically through interactive and informational websites**
- **Participating in interagency and international data development collaborations**
- **Conducting, and building capacity in, cross-cutting research on public health issues and statistical methods**

Monitoring the health of the Nation through the annual report, *Health, United States*

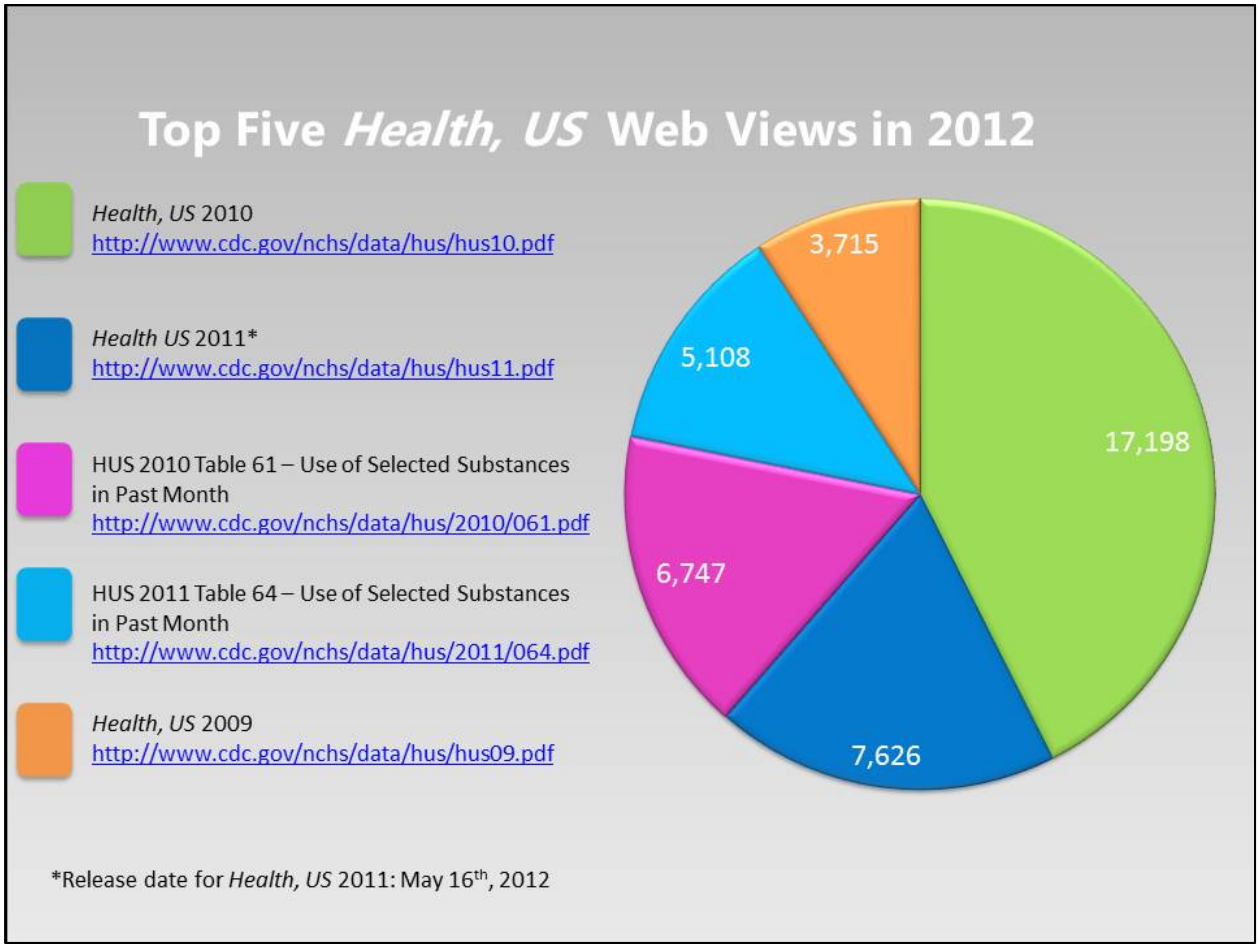
Since 1975, *Health, United States* has been a key resource for policy makers and the research community in understanding trends in the nation's health. Submitted by the Secretary of HHS to the President and the Congress, in compliance with Section 308 of the Public Health Service Act, the report is organized around four major subject areas: health status and determinants, health care utilization, health care resources, and health care expenditures.

Each report contains a Chartbook with core measures of health status, utilization, risk factors, and access to health care services. Each edition includes a special feature highlighting an important public health topic; the 2012 edition focuses on emergency care in the United States. An additional dissemination product, *Health, United States: In Brief*, is a companion report with an At a Glance table, highlights and graphs from key indicators and a list of all the trend tables available in *Health, United States*. The complete report, *In Brief*, and related data products—including the charts in PowerPoint presentation format, all trend tables in downloadable PDFs and EXCEL, many with standard errors and additional years of data—are available on the website http://www.cdc.gov/nchs/hus.htm.

A defining feature of *Health, United States* is its focus on national trend data on the health of the nation. Data included in *Health, United States* are compiled, programmed or obtained from more than 50 data sources. Many NCHS data systems are featured; however, each year OAE staff compiles data from across the Federal statistical system, as well as selected data from other Federal and non-Federal sources (for example, CDC surveillance systems, data from the American Hospital Association, and international data from the Organization for Economic Cooperation and Development).

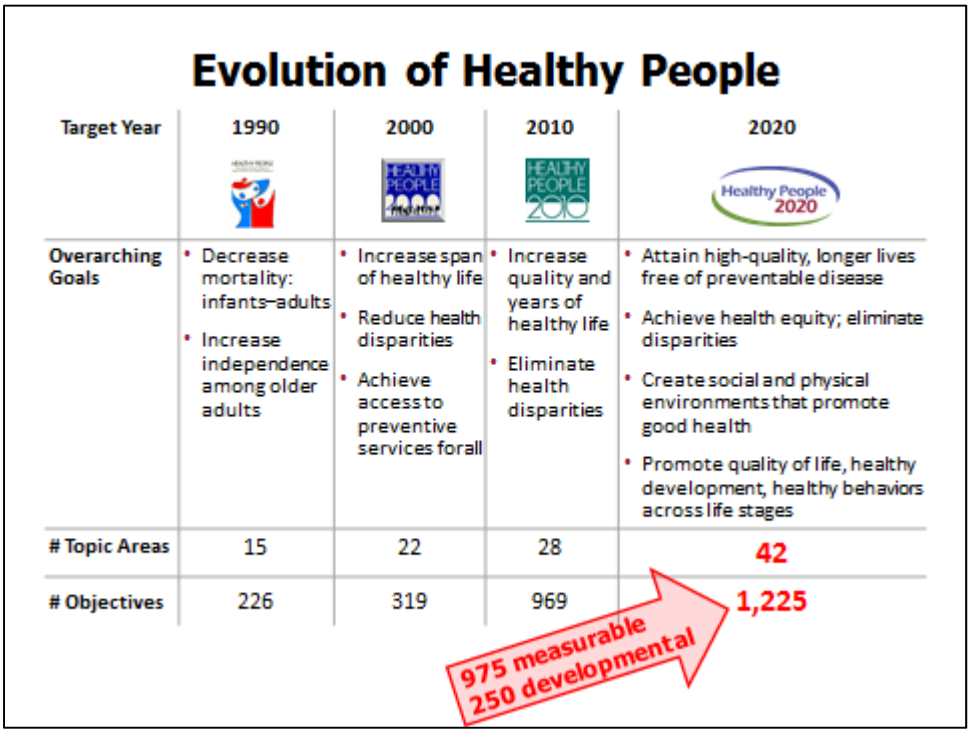
In the 2012 edition, OAE built on its successful collaboration with the National Library of Medicine (NLM) that introduced a new web based product: Interactive *Health, United States 2011 In-Brief* which lets users create custom charts and include additional data from the full report.

OAE staff is currently working with NLM to complete the development and dissemination of the Interactive *Health, United States 2012 In-Brief*. At the same time, work is underway for *Health, United States 2013*, including its special feature on prescription drugs. *Health, United States* continues to be an important resource for researchers, federal and state policymakers and the wider public health community, both in print and on the web. Current and prior years of *Health, United States* tables, graphs and text continue to be accessed on the NCHS website. In 2012 alone there were 73,411 views or downloads through the CDC website. The top five *Health, United States* destinations are presented below:


Top Five *Health, US* Web Views in 2012
Health, US 2010
http://www.cdc.gov/nchs/data/hus/hus10.pdf
Health US 2011*
http://www.cdc.gov/nchs/data/hus/hus11.pdf
HUS 2010 Table 61 – Use of Selected Substances in Past Month
http://www.cdc.gov/nchs/data/hus/2010/061.pdf
HUS 2011 Table 64 – Use of Selected Substances in Past Month
http://www.cdc.gov/nchs/data/hus/2011/064.pdf
Health, US 2009
http://www.cdc.gov/nchs/data/hus/hus09.pdf
3,715
5,108
17,198
6,747
7,626
*Release date for *Health, US* 2011: May 16th, 2012

Providing data and analytic support to HHS and the public health community through the Healthy People initiative

From inception of the HHS Healthy People initiative in 1979, NCHS, through OAE, has played a major role in supplying data and analysis, and serving as statistical advisor to the Office of the Assistant Secretary for Health (OASH) in its role as overall coordinator for the initiative.



Healthy People 2020 (HP2020) was launched in December 2010 encompassing 1,200 objectives across 42 topic areas. OAE staff provides data and statistical expertise and leadership to each of the topic area Federal interagency workgroups and their subject matter experts. The branch chief serves as a representative to the overall Federal Interagency Workgroup (FIW), charged with guiding the initiative over the course of the decade. OAE staff chairs one HP2020 working group (Health Related Quality of Life); other OAE and NCHS staff serve as subject matter experts on selected topic areas.

OAE produces the analysis for most of the NCHS data used in Healthy People objectives, and coordinates the monitoring of all HP2020 objectives, including those that are measured using non-NCHS Federal and non-Federal data systems. Through OAE's role as statistical advisor, as well as the involvement of subject matter experts from within OAE and across NCHS, Healthy People activities involve data development so that objectives can be moved from developmental to measurable. For example, during the last decade, 60% of HP2010 developmental objectives were moved to measureable. [1]

[1] Eighty-six percent of measureable objectives had 2 data points, and 46% of objectives with 2 data points had updates had no more than a 3 year gap between the last data point and prior data point.

Related analytic research activities include developing measures to assess changes in health disparities over the course of the decade and identifying additional approaches to measuring health disparities. In association with the Healthy People initiative, OAE has primary responsibility for supporting the development of measures to track the four overarching HP2020 goals and is a key participant in the development of summary measures of population health. OAE provides extensive support for the development of objectives in three new HP2020 topic areas: Social Determinants of Health, LGBT Health, and Health-Related Quality of Life and Well-being.

Key dissemination activities include the development of all data and text to support the monthly HHS HP2020 Leading Health Indicator releases and ongoing Progress Reviews for each of the HP2020 topic areas led by the Assistant Secretary for Health. Progress Reviews for HP2020 commenced in February 2013 and include a presentation of the data by the OAE Director.[2] OAE is preparing to produce the HP2020 Midcourse Review, to assess the status of the national objectives for the first half of the decade.

New for the HP2020 decade, OAE exports data files to OASH/ODPHP on a regular basis to make all HP2020 data publicly available on www.HealthyPeople.gov. The data also are exported to the NCHS Health Indicators Warehouse (discussed later in this report).

As a result of OAE's expertise in production of essential public health indicators, staff who produce data for HP objectives also produce data for annual reporting for the National Prevention Strategy and two Congressionally-mandated reports produced by the Agency for Healthcare Quality and Research, AHRQ National Healthcare Quality and Disparities Reports, discussed further below.

Expanding the analytic utility of NCHS data systems through the NCHS Data Linkage Program

The NCHS Data Linkage Program is designed to maximize the scientific value of the Center's population-based surveys. NCHS surveys are a rich source of national health data, and linkage to administrative records expands their analytic utility, adding longitudinal information (such as survival or time to event), enrollment or claims data, or other information. The linked files enable researchers to examine the factors that influence disability, chronic disease, health care utilization, morbidity, and mortality.

Prior releases of the Linked Mortality Files (LMF) have been used in over 200 scientific publications authored by NCHS staff and the research community. Currently, administrative records linked to NCHS surveys include: death certificate records from the National Death Index (NDI); Old Age, Survivor, and Disability Insurance (OASDI) and Supplemental Security Income

[2] Reviews for HP2010 can be found at http://www.cdc.gov/nchs/healthy_people/hp2010/hp2010_progress_reviews.htm and for HP2020 at http://www.cdc.gov/nchs/healthy_people/hp2020/hp2020_progress_reviews.htm.

(SSI) benefit data from the Social Security Administration (SSA). In the past 12 months, there have been 22 proposals from external researchers approved to access the linked data in NCHS' Research Data Center (RDC). Of these proposals, 17 included requests for the linked mortality file, 12 for CMS data[3], and one for the NHIS-Florida Cancer Data System linkage.

Updated LMFs, with NDI information through 2011, were released this summer. Data from the second linkage of Medicare enrollment and claims data from the Centers for Medicare and Medicaid Services (CMS) was updated in Fall of 2010, with additional linked Medicare data files, including Part D claims and data from the Chronic Condition Summary File, released in 2011.

Linked Medicaid enrollment and claims data from CMS were released in 2011, with additional years of Medicaid data planned for release later in 2013. Initiation of the third linkage of CMS and SSA data to NCHS surveys is planned for Fall of 2013 with initial data release in 2014. Pilot projects have included linking cancer registry data with NHIS and Supplemental Nutrition Assistance Program (SNAP) data with NHANES. Linkage of NHIS and NHANES with data from Housing and Urban Development is under development.

OAE has also linked NCHS surveys geographically to environmental exposure indicators for research projects. Using household locations and, in the case of NHANES, examination date, spatial and temporal criteria have been developed to assign publically available measured air quality values from U.S. Environmental Protection Agency (EPA) air monitors to survey records. Traffic indices using data from the National Highway Planning Network were linked to NHANES data in 2012. The linkage of climate indices using data from the National Climatic Data Center is under development.

[3] Nine proposals focused on Medicare data, 2 on Medicaid, and one on Medicare End Stage Renal Disease data.

OAE Record Linkage Program

NCHS surveys* linked to administrative data* – Sept 2013

				State* pilot Projects		NEW for 2014
	Mortality (NDI)	CMS (Medicare/ Medicaid)	SSA	Florida Cancer Data System	Supp Nutrition Assist Program	Housing and Urban Develop
National Health Interview Survey	X	X	X	X		X
National Health and Nutrition Examination Survey						
NHEFS	X	X	X			
NHANES II	X	x				
NHANES III	X	X	X			
Continuous	X	X	X		X	X
Second Longitudinal Study of Aging	X	X	X			
Supplement on Aging	X					
National Nursing Home Survey	X	X	X			
National Home and Hospice Care Survey	X					

*Survey years, administrative data years, and state vary

National Center for Health Statistics
Data Linkage

OAE staff conducts research on linkage methodology as well as epidemiologic research using the data from the linked files. For example, enhancements to the recently released 2011 LMF were directed toward better linkages of records with Hispanic names and handling the change from collection of 9-digit to 4-digit SSNs in the NHIS. In 2013, updated guidance on re-weighting linked data was published online. OAE staff also collaborates with, or provide technical consultation to, researchers using public use Linked Mortality Files or restricted use files (which must be accessed through the NCHS Research Data Center.) The CMS and SSA linked data files are particularly complex, requiring knowledge of statistical methodology and substantive knowledge of Federal programs and how they operate. OAE collaborates with researchers throughout NCHS, as well as those in other Federal agencies and the research community, to develop and disseminate these linked files.

Developing data systems and analytic tools for health and health care research

In addition to the NCHS Record Linkage Program, OAE develops other data systems and analytic tools. These products are disseminated to researchers whose work involves manipulation of data files to produce estimates of, or address questions related to, geographic variation or health disparities.

Analytic tools

Compressed Mortality File 1968-2010 (CMF). The CMF is composed of a county-level mortality file and a county-level population file for the Nation. The 1968-88 portion is public-use; the 1989-2010 portion is non-public use. The CMF facilitates basic mortality analyses at sub-national levels and trend analyses. The CMF is easier to analyze than the record level mortality file because it contains only key analysis variables from the mortality files and the corresponding population data, and because it includes data for multiple years with consistent variable categories and formats and consistent county geography across the years. Compressed mortality files produced by OAE include state and county of residence, year of death (rather than the full date of death), race (for 1968-98: white, black, and other races; for 1999-2010: white, black, American Indian or Alaska Native, and Asian or Pacific Islander), sex, Hispanic origin (for 1999-2010 only), age group at death, underlying cause-of-death (4-digit ICD code), and a cause-of-death recode. Researchers can download the 1968-88 CMF files. They can access the 1989-2010 CMF files after approval by NAPHSIS and NCHS of a brief research proposal and their signature of a Data Use Agreement to protect confidentiality. The CMF also is available on CDC WONDER in query page format; though sub-national statistics based on fewer than 10 deaths are suppressed on CDC WONDER.

Bridged-Race Population Estimates. Many data systems, including vital statistics, continue to use the four race categories specified under the 1977 Office of Management and Budget (OMB) standards (white, black, American Indian or Alaska Native, Asian or Pacific Islander). The Bridged-Race Population Estimates, which are produced annually in collaboration with the Census Bureau, crosswalk, or “bridge”, the 31 race categories used in Census 2000 and Census 2010 (resulting from use of the 1997 OMB standards which specify five single-race categories and permit selection of more than one category) to the four categories specified under the 1977 standards. (See: http://www.cdc.gov/nchs/nvss/bridged_race.htm.)

Urban Rural Classification Scheme: NCHS data systems are often used to study the associations between urbanization level of residence and health and to monitor the health of urban and rural residents. This six-level urban-rural classification scheme for U.S. counties and county-equivalents is particularly well-suited for health analyses, in that it separates counties within large metropolitan areas (1 million or more population) into two categories: large "central" metro (akin to inner cities) and large "fringe" metro (akin to suburbs). This is an important feature of the NCHS urban-rural scheme because for a number of health measures, residents of large fringe metro areas fare substantially better than residents of other urbanization levels. For these measures, residents of the inner cities and suburbs of large metropolitan areas must be differentiated to obtain an accurate characterization of health disparities across the full

urban-rural continuum. The 1990-based scheme was based on the 1990 census and 1990 definitions of metropolitan statistical areas (MSAs). The 2006 NCHS scheme was based on the 2000 census and 2005 definitions of metropolitan and micropolitan statistical areas. The scheme is being updated to reflect the 2010 census and 2013 definition of metropolitan and micropolitan statistical areas.

Disseminating data electronically through interactive and informational websites

OAE develops and supports several important web sites that facilitate data access and data use by a wide range of audiences. Interactive *Health, United States* and the export of HP2020 data to HealthyPeople.gov are two examples. Other examples are provided below.

Health Indicators Warehouse (HIW). The HIW is a user-friendly web-accessible database of pre-tabulated national, state, and local health indicators, reflecting multiple dimensions of population health, health care, and health determinants. (See: www.healthindicators.gov.) It also contains supporting descriptive data to facilitate understanding and appropriate use of the indicators, as well as links to evidence-based interventions. The HIW is designed to meet the needs of multiple population health initiatives, and facilitate harmonization of indicators across initiatives. It serves as a key data hub for the HHS Health Data Initiative, a flagship HHS Open Government initiative to increase accessibility and use of federal data resources. The HIW seeks to encourage innovative application development by federal and nongovernmental partners and to catalyze change that will improve community health.

Web services are an important functionality of the HIW. Specifically the HIW has developed an Application Programing Interface (API) allowing peer-to-peer/business application capabilities. Currently there are several third party projects connecting to the HIW and retrieving the data through the API to merge with external data sets for innovative use and display on their web applications and projects. For instance, Healthy Sonoma (www.healthysonoma.org) includes a dashboard with several health indicators pointing to the current status of the county's health.

The HIW project is one example of the role NCHS plays to directly respond to and meet the Department's mission. Past and continuing partners include representatives from ASA, ASPE, ASFR, HHS/OS, HRSA, NIH/OBSSR, OAH, OMH and SAMHSA. These collaborators contributed to the project with initial direction setting and direct funding support.

The Health Indicators Warehouse Application Programming Interface (HIW API)

The Health Indicators Warehouse (HIW) allows third party developers to access and use the entire database with other data sets for innovative applications on the web in the mobile computing world. It provides a robust and well-documented API, allowing machine-to-machine interaction with the HIW database. The team is developing basic lesson plans for novice web programmers and API users to encourage use of the HIW as a resource. Soon to be available through the HIW site and on the Codeacademy site, these lessons will introduce the basic database structure and foundational commands and build the users' knowledge so they can write code for broad or target retrievals and secondary posting on their own web resources.

The project is informed by ongoing consultation with key members of HHS during regular conference calls and through the HIW governance structure. Participants represent AHRQ, ASPE, CMS, HRSA, NIH/OBSSR, OASH and HHS/OS. Staff have presented at numerous conferences and participated in several webinars to promote the site and encourage its use, including webinars hosted by the department, NACCHO and others.

Health Data Interactive (HDI). This website presents a broad range of pre-tabulated population health indicators through an interactive web-based application. (See: http://www.cdc.gov/nchs/hdi.htm.) Users can explore trends in major health indicators by such characteristics as age, sex, race and ethnicity. The primary objective is to provide national estimates of population health and health care measures, cross-tabulated by a common set of socio-demographic variables. A secondary objective is to educate users about the data and data systems available from NCHS.

NCHS Survey Measures Catalog. This meta-database provides an overview of questions in various NCHS surveys about child and adolescent mental health, and child functioning and disability. (See: http://www.cdc.gov/nchs/measures_catalog.htm.) The Catalog includes metadata about survey measures, as well as links to sites with the survey questionnaire, data file, data file documentation, and other relevant information. Links to interactive websites allow users to tabulate data for some measures.

Participating in interagency and international data development collaborations

OAE staff provides leadership in multiple collaborations that focus on the improvement of data collection and measures development, of which the following are some key examples.

Measures and survey development

Asthma Survey Initiative. OAE is coordinating a public/private partnership to assess implementation of the National Asthma Education and Prevention Program Guidelines for Diagnosis and Management of Asthma, developed by the National Heart, Lung and Blood Institute (NHLBI). This initiative, undertaken by NCHS and 10 collaborators (including NCHS' Division of Health Care Statistics), takes the form of a 2012-2013 supplement to the National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS), and is in the field in 2012-2013.

Asthma Disparities Workgroup. In May 2012, the President's Task Force on Environmental Health Risks and Safety Risks to Children, released the *Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities* (www.epa.gov/childrenstaskforce). OAE contributed to the design and implementation of the framework as well as the research forming the basis of the plan. Ongoing workgroup activities center on refining the framework for coordinated Federal action to target effective public health practice and interventions towards populations disproportionately impacted by childhood asthma; advancing policy initiatives to improve services for underserved populations; and executing a collaborative research agenda to

improve understanding of how to prevent asthma and reduce poor asthma health outcomes in disproportionately at-risk populations.

Injury Statistics. OAE collaborates on issues related to injury data and surveillance with public and private stakeholders both domestically and internationally. (See: http://www.cdc.gov/nchs/injury.htm.) The Injury Statistics Program provides subject matter expertise on topics relevant to injury data and methodological issues in injury surveillance, including tools for standardized categorization of injuries by: (1) nature of injury and body region, (2) mechanism and intent of injury, and (3) injury severity. The injury statistics staff provides expertise in the collection and analysis of injury-related data from several NCHS staff surveys on inter- and intra-agency and other work groups including the CDC/National Center for Injury Prevention and Control (NCIPC) Surveillance Quality Improvement workgroup, the Data and Surveillance Task Force of the National Action Alliance for Suicide Prevention, the Drug Poisoning surveillance workgroup of the Council of State and Territorial Epidemiologists and The Transportation Research Board. For over a decade OAE has coordinated the International Collaborative Effort (ICE) on Injury Statistics, which provides a forum for international exchange and collaboration among injury researchers who develop and promote international standards in injury data collection and analysis.

Disability Measures. The Disability Statistics Program is housed within OAE and plays a major role in the research, development, implementation, and analysis of valid and reliable sets of questions that can be added to NCHS and other Federal surveys. OAE staff led the Federal agency subgroup to develop disability questions for the American Community Survey (ACS). The resulting core set is being used to define disability status for HP2020 and is now the recommended standard for collection of data relevant to Section 4302 of the Affordable Care Act. At the request of the Office of Management and Budget (OMB), OAE staff also provides expert advice and technical assistance to OMB and other Federal agencies in evaluating proposed survey content related to disability and in improving data collection instruments. Inter- and intra-agency analysis of the performance of these measures is ongoing.

Joint UNECE/WHO/Eurostat Task Force on Measurement of Health Status (Budapest Initiative or BI). This initiative is a cooperative effort of multiple international organizations, including the United Nations Economic Commission for Europe, the World Health Organization, the Organization for Economic Cooperation and Development, and the United Nations Economic and Social Commission for Western Asia, among others, as well as representatives from North America and Australia. The primary purpose of the initiative is to develop an internationally accepted standard set of questions for assessing general health state within the framework of official statistics, primarily obtained through population interview surveys administered at the national and international levels. The NCHS Associate Director for Science (ADS) and OAE staff chair the BI and serve on the Steering Committee.

Washington Group on Disability Statistics (WG). This United Nations City Group, which comprises representatives from national statistical agencies, non-governmental organizations and disabled persons organizations, serves under the auspices of the United Nations Statistical Division (UNSD) to develop internationally comparable measures of disability and to provide expertise in the development, analysis and interpretation of measures of

disability and functioning. (See: http://www.cdc.gov/nchs/washington_group.htm.) At the request of the Chief Statistician of the U.S., NCHS hosted the first meeting of the WG in 2001. The NCHS Associate Director for Science chairs the WG steering committee and OAE acts as the Secretariat. OAE staff has worked collaboratively with statistical agencies around the world for over 12 years to develop and test question sets for use in censuses and surveys. Currently, the WG has developed, tested, and adopted a short set of six questions suitable for censuses. An extended set of questions on functioning suited as a survey module (e.g. health survey, labor force survey or a specialized disability survey) has been developed and finalized in collaboration with the Budapest Initiative (BI) and United Nation's Economic and Social Commission for Asia and the Pacific (UNESCAP). The WG is currently collaborating with the United Nations Children's Fund (UNICEF) in the development of a survey module on child functioning and disability. Cognitive testing of this module is currently underway in several countries (Belize, India, US, Oman, and Montenegro). This same collaboration has begun to assess question development in the area of school participation for children. Finally, work has also begun in a dedicated workgroup that is addressing the development of internationally comparable questions to assess environmental barriers and facilitators to participation.

National Children's Study (NCS). This major long-term research project is led by the National Institute of Child Health and Human Development (NICHD) of the National Institutes of Health (NIH) in collaboration with a consortium of federal government partners including CDC. (See: www.nationalchildrensstudy.gov.) The NCS will examine the effects of the environment, broadly defined, on the growth, development, and health of children across the United States, following them from before birth until age 21 years. OAE represents CDC on the

Interagency Coordinating Committee and has provided statistical and topic-area advice to NICHD periodically throughout the Study's planning period.

Data for public reporting

Health: United States and the Healthy People initiative are important cross-cutting activities that include developing measures and technical specifications and drawing from multiple data systems to monitor the nation's health. These initiatives (including their substantive and methodological approaches) have made them models for other national reporting efforts. Furthermore, to coordinate Federal data reporting, measures OAE produces for these programs are disseminated to other Federal interagency health monitoring efforts. The following are two such efforts.

National Healthcare Quality and National Healthcare Disparities Reports. Each year since 2003, NCHS has collaborated with the Agency for Healthcare Research and Quality (AHRQ) on reports to Congress on progress and opportunities for improving health care quality and reducing health care disparities. The *National Healthcare Quality Report* (NHQR) focuses on "national trends in the quality of health care provided to the American people" (42 U.S.C. 299b-2(b)(2)) while the *National Healthcare Disparities Report* (NHDR) focuses on "prevailing disparities in health care delivery as it relates to racial factors and socioeconomic factors in priority populations" (42 U.S.C. 299a-1(a)(6)). OAE collaborates extensively with the Interagency Workgroup that develops these annual Congressional reports, providing input into what measures may be obtained from NCHS data systems, producing tables for the reports, and providing technical review of the report. Approximately 60 measures in the NHQR and NHDR are derived from NCHS or CDC data systems, and these measures correspond to Healthy People 2020 objectives. OAE staff develops technical specifications and provide data for the reports.

Federal Interagency Forum on Child and Family Statistics (Children's Forum) and Federal Interagency Forum on Aging-Related Statistics (Aging Forum). These initiatives foster coordination and integration among Federal agencies that produce or use statistical data. The Children's Forum's signature report, *America's Children: Key National Indicators of Well-Being*, reflects coordination among 22 Federal agencies to provide annual updates on the well-being of children and families in the United States across a range of domains. (See: http://www.childstats.gov.) In a similar vein, the Aging Forum's signature report, *Older Americans: Key Indicators of Well-Being*, represents coordination among the 14 Federal agencies that use or produce statistical data on aging-related issues, and presents annual updates on the well-being of older Americans across a range of domains. (See: www.agingstats.gov.) OAE staff provides analysis for the majority of NCHS measures contained in the reports, and are the principal NCHS representatives to these interagency endeavors.

Conducting, and building capacity in, cross-cutting research on major public health issues and statistical methods

As noted above, OAE was created with an explicit mission to provide in-house research capacity. Activities in this programmatic area take the form of intramural research and research training.

Intramural Research. OAE staff conducts research in five key areas: aging and chronic conditions; maternal and child health; disability and injury; health care access and costs; and health status and health disparities. Data are analyzed from all NCHS data systems as well as other data sources. This research often focuses on survey content, methodologies, and measures development, leading to survey enhancements in content and design. Other research findings have implications for health and health care programs or policy, while other results impact measurement or statistical methodologies. Appendix I provides some examples of OAE's published research.

OAE research is both anticipatory and responsive. For example, epidemiological and methodological research identifies and quantifies health issues and disparities, showcases how NCHS data and tools can be used to examine current issues of concern, and demonstrates considerations in using those tools. Health services research is both anticipatory and responsive to the interests of policymakers and stakeholders in describing baseline characteristics of the health care system, or the potential consequences of policy changes (on health or health care utilization, for example).

Within OAE, criteria for undertaking research include considerations such as:

(1) *public health significance*: including the extent to which the topic addresses CDC or HHS goals;

(2) *importance in OAE's research portfolio*: for example, the extent to which it supports OAE activities, adds to OAE's efforts to develop measurement and analytic methods, fosters staff development, or uses multiple data systems, linked files, or longitudinal data; and

(3) *collaborative significance*: for example, the extent to which the research nurtures existing partnerships or fosters new partnerships, whether the research fosters cross-branch or cross-division collaborative efforts, or whether research is supported by Federal and international partners.

OAE's research reflects the range of disciplines of its researchers encompassing epidemiology, demography, economics, sociology, statistics, medicine and others. Also essential to the success of this research enterprise are the contributions of OAE programmers, information technology specialists, public health analysts and other professionals. Research collaborators come from within and outside of government. Some of OAE's most important research partners come from the NCHS data divisions and offices. Some of these are described below. Other key partners are listed in Appendix II.

OAE Research Collaborators Include:

- NCHS Divisions and Offices
- CDC Offices and Centers
- HHS agencies and offices
- Executive and Legislative branch agencies
- State and local health departments
- International organizations and foreign governments
- Private sector population health organizations
- Academic institutions and independent researchers
- Applications software developers

As is the case for other NCHS divisions and offices, OAE research is disseminated in NCHS reports and data briefs, QuickStats (a one-page feature of the CDC Morbidity and Mortality Weekly Reports)[4], or the peer reviewed literature. OAE research is featured in an array of clinical, public health, and health policy journals. It should be noted, however, that a great deal of research work takes the form of survey items, training documents, white papers, website content, documentation of linked files, or contributions to other written products.[5] OAE also provides scientific oversight for FastStats, a web page that provides statistics on topics of public health importance based on multiple data sources, which involves staff throughout NCHS. (See: http://www.cdc.gov/nchs/fastats/default.htm.)

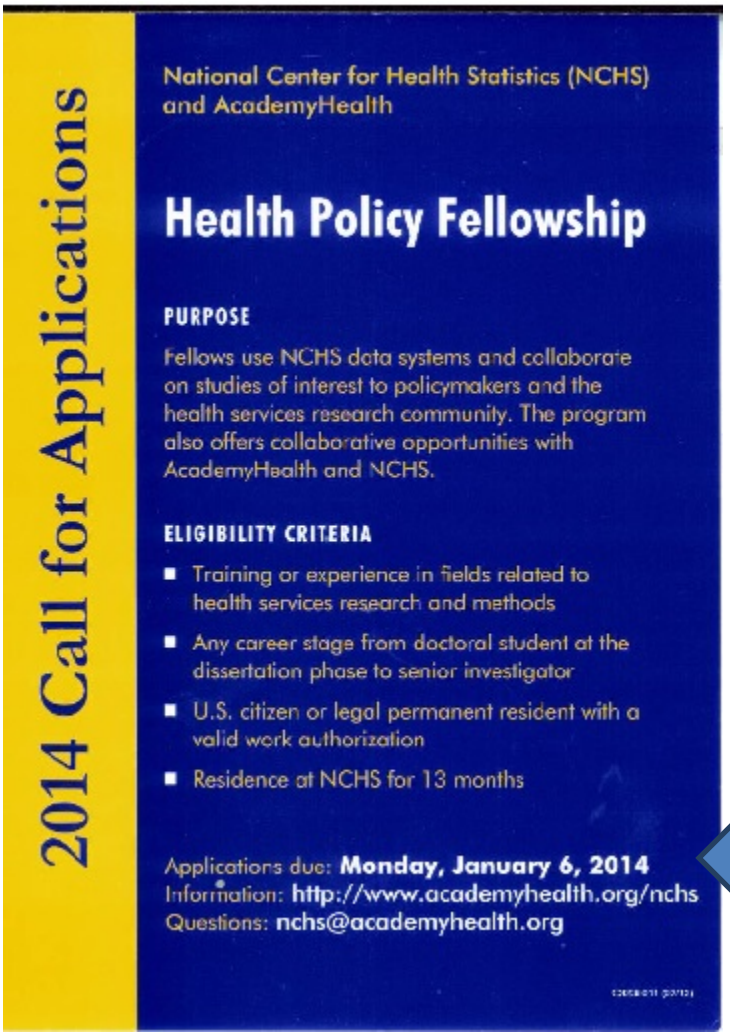
Training and capacity building. OAE, like most other NCHS components, provides training and capacity building to collaborators and data users. Technical consultation comprises an important portion of OAE's work in training and capacity building and assists collaborators in accessing and using data files and associated documentation, as well as other analytic products. Technical consultation activities also include provision of subject matter expertise, guidance on statistical methods, and assistance in developing projects conducted through the NCHS Research Data Center. Much of OAE's technical consultations focus on NCHS data systems; however, because of its cross-cutting mission, OAE also provides assistance in the use of other data systems (for example, to users of the linked data files, *Health United States*, or Healthy People 2020 data).

OAE plays an active role in hosting guest researchers and visiting scholars from academic institutions, Executive and Legislative branch agencies, and international organizations.

[4] For example, see "Human Immunodeficiency Virus (HIV) Disease Death Rates Among Men Aged 25-54 Years, by Race and Age Group – National vital Statistics System, US, 2000-2010." MMWR, January 25, 2013, Vol. 62, No. 3. NCHS QuickStats are, on occasion featured in the Journal of the American Medical Association (see, for example, "Percentage of Adults Aged 50-75 Years who Received Colorectal Cancer Screening, by Family Income Level – National Health Interview Survey, United States, 2010". JAMA, February 27, 2013, Vol. 309, No 8, p. 764.

[5] For example, OAE regularly contributes to the Office of Management and Budget's publication, *Statistical Programs of the United States Government* http://www.whitehouse.gov/sites/default/files/omb/assets/information_and_regulatory_affairs/12statprog.pdf) .

Through programs such as CDC's Epidemic Intelligence Service (EIS) program, the NCHS/AcademyHealth Fellowship program, the Association for Prevention Teaching and Research (APTR), and other training programs, new and seasoned researchers can come to NCHS and access data systems that, for reasons of NCHS' statutory mandates regarding protection of privacy and confidentiality, may only be available in the NCHS Research Data Center. Some guest research positions lead to long term affiliations with NCHS, or even NCHS staff appointments. OAE staff members hold academic appointments, and students from these or other academic institutions come to NCHS as part of their training programs, or for summer internships. OAE staff members are active in mentoring and training these investigators.

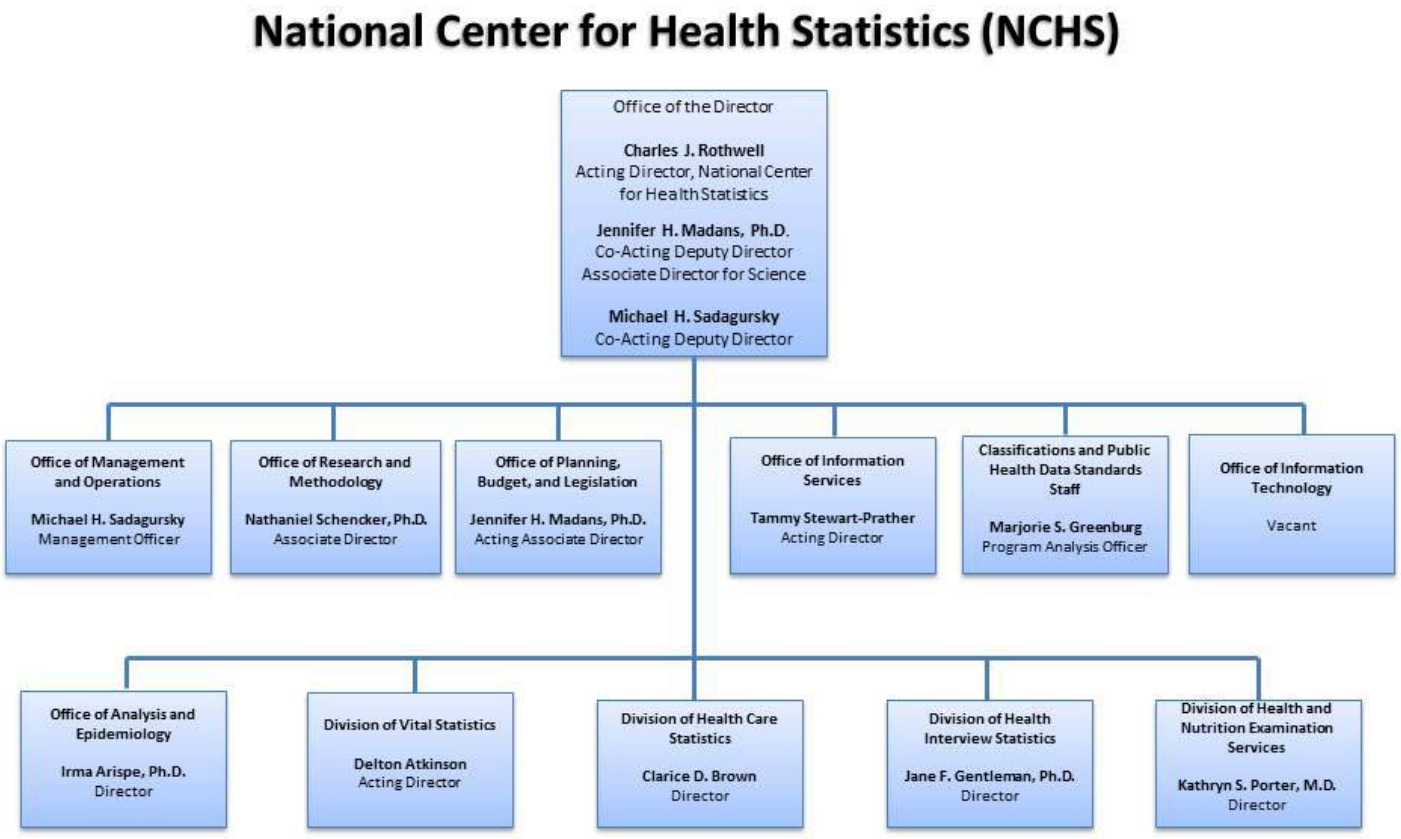


Applications are currently being accepted.

Some OAE staff members are alumni of these training programs. Others OAE staff members come to NCHS on time-limited appointments, conduct and collaborate on research, and move on to other Federal agencies, academia or the private sector. These relationships are vital to keeping the work of OAE, and NCHS more broadly, fresh and innovative. Former visiting researchers serve as ambassadors for NCHS, advocates for NCHS data systems and research collaborators.

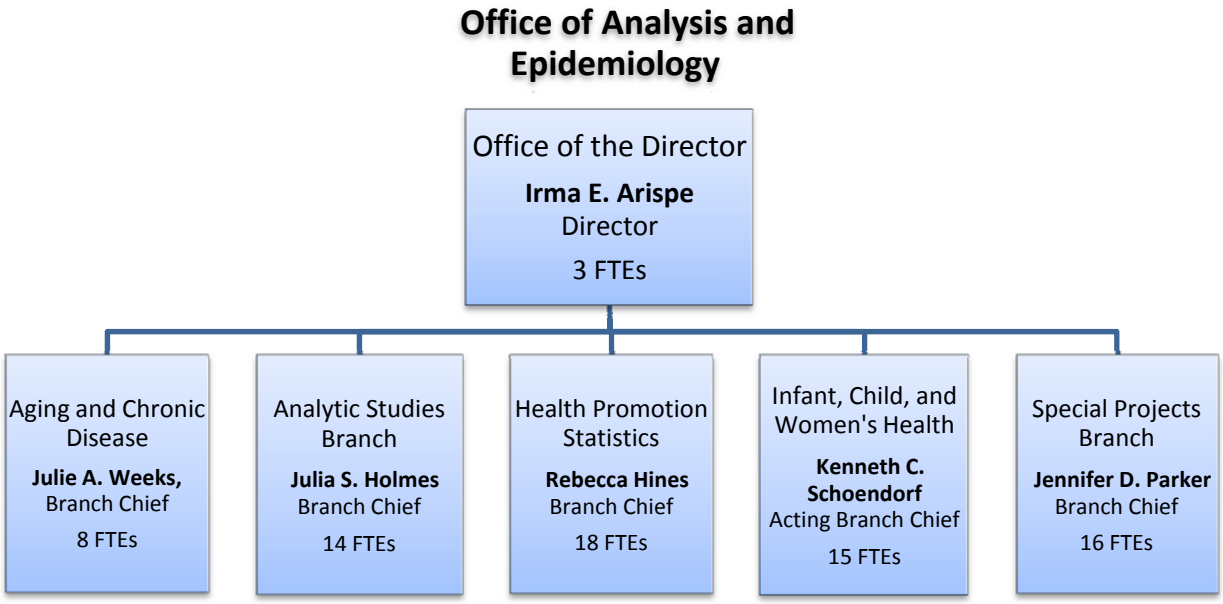
ORGANIZATIONAL STRUCTURE

NCHS is organized into four data divisions, six offices and a classification standards group. OAE is one of two offices whose mission is cross-cutting and analytical.[6] The OAE director, who serves as the NCHS Associate Director for Analysis and Epidemiology, reports to the Center Director.



OAE is comprised of five branches plus the Office of the Director. The staffing and primary functions of the branches are outlined here, with the recognition that considerable cross-branch collaboration occurs and is essential for cultivating OAE's spectrum of activities.

[6] The Office of Research and Methodology (ORM) is NCHS' other cross-cutting research office. OAE works closely with ORM on statistical and methodological research projects. For additional information on ORM, see materials provided in the September 13, 2012 meeting of the NCHS Board of Scientific Counselors. (See: http://www.cdc.gov/nchs/about/bsc/bsc_meetings.htm.)



Aging and Chronic Disease Statistics Branch (ACDSB)

ACDSB provides expertise in the development, compilation, analysis and interpretation of statistical data from multiple sources relating to aging, chronic disease, disability and functioning, and injury. Both the Disability Statistics and the Injury Statistics Programs are housed primarily in ACDSB. Analysts are subject matter experts whose responsibilities include: 1) research and measures development, evaluation, and implementation and 2) consultation and collaboration at the national and international levels in the identification of research projects, the design and analysis of data in the four broad subject areas, and the collection and dissemination of those data.

Analytic Studies Branch (ASB)

ASB is the focal point for a Center-wide analytical program to assess and develop health data from multiple sources, analyze emerging public health issues, and apply statistical techniques related to the problem of integrating and analyzing data from diverse sources. The branch's major responsibility is to produce *Health, United States*. ASB staff also support analytic contributions to the Health Indicators Warehouse. Activities in support of the HIW include updating the data, describing and assessing proposed new indicators or revisions to existing indicators, developing strategies for evaluating the HIW, and disseminating information to the user community.

Health Promotion Statistics Branch (HPSB)

The primary mission of HPSB is to provide expertise to HHS and CDC on the development and monitoring of health indicators. This work supports several major HHS and CDC initiatives, including Healthy People, the Health Indicators Warehouse, the National Prevention Strategy, and the National Healthcare Quality and Disparities Reports. HPSB staff provides statistical and data production support to these efforts, and analysts serve on interdepartmental and CDC workgroups that direct these and other initiatives. HPSB also has primary responsibility at NCHS for developing measures to assess health disparities and inequities and is a key participant in the development of summary measures of population health.

Infant, Child, and Women's Health Statistics Branch (ICWHSB)

ICWHSB, provides leadership and expertise on a range of data, statistical, and research issues relating to infant, child, and women's health. Subject matter expertise includes asthma, obesity, food allergy, child mental health and disability, infectious disease in infancy and childhood, maternal morbidity and mortality, and perinatal outcomes. Key programmatic activities include the Children's Forum, Health Data Interactive, the Survey Measures Catalog, the National Quality and Disparities reports, and support to the *Health, United States,* Health Indicators Warehouse, and Healthy People teams.

Special Projects Branch (SPB)

SPB houses the NCHS Data Linkage Program, a program whose activities include planning and implementing linkages between NCHS surveys and administrative records from vital statistics and other agencies; coordinating research to evaluate the Center's linkage projects; providing analytic guidelines, methodology reports, and technical support for data users; and representing NCHS in inter-agency activities related to the use of administrative records and data linkage. Linkage Program Staff also conducts research and analyses on linkage methodology, and on use of linked files to address specific health topics.

SPB is also responsible for producing data files and analytic tools important for research, including the Compressed Mortality File housed on CDC Wonder and the Bridged Race Population Files. Branch staff also has expertise in categorizing, coding and classifying data, and developed the NCHS Urban/Rural Typology and the Public Health Data Standards Consortium's Source of Payment Typology.

At the end of 2012, the NCHS Director created a health economics group which is housed within SPB. The group conducts health economics and health policy research using NCHS data systems, from the NCHS Data Linkage Program, or from other data systems (such as Medicare). Research this past year examines causal connections between insurance status, insurance type, and provider reimbursement rules on one hand, and the use of health care services and health outcomes for vulnerable populations on the other. In addition to collaborating with others throughout NCHS and CDC, much of the group's work involves collaboration with researchers

outside of CDC. In the past year, the group has conducted joint research with the Urban Institute, Harvard University, the University of Michigan, the University of Pennsylvania, and George Washington University. In the past year, the group's work has been published in JAMA, Health Affairs, Health Economics, Review of Economics of the Household, Medical Care, and other outlets.

Office of the Director (OD)

The OAE Office of the Director is responsible for Office-wide scientific, management, and budgetary oversight. OD consists of the OAE Director, an Assistant Director, an Associate Director for Science (a position that is currently vacant), and a secretary.

OD represents OAE to NCHS and CDC senior management. OD also represents the NCHS Office of the Center Director on Federal health initiatives. The OAE Office of the Director also provides policy and scientific oversight of OAE's work, including review of proposed and final analytic work (conducted in conjunction with OAE's Management Team) which includes the branch chiefs and OAE's Administrative Officer. In addition to the above-mentioned core management functions, the OAE OD provides leadership and direction for the office's IT initiatives, and collaboration with HHS on multiple data and evaluation initiatives.

Opportunities and Challenges

OAE faces many of the same opportunities and challenges as NCHS as a whole. This section highlights some of these challenges beginning with the health policy landscape, then with respect to organizational changes, and finally to issues as they affect OAE.

The current health care policy landscape

The passage of the Affordable Care Act (ACA), as well as HHS activity to implement the ACA and ongoing congressional action aimed at major or minor modifications of the law, provide opportunities and challenges for monitoring the nation's health. NCHS has made investments in its data systems with assistance from the ACA's Prevention and Public Health Fund. For example, ACA-specific questions[7] are being added to NCHS surveys, items on disability to the American Community Survey, and sample sizes have increased for NCHS surveys enabling state estimates. While ACA-enabled survey changes offer the opportunity for new and important policy-relevant analyses, the tremendous stakeholder and policymaker interest in the ACA (and ongoing efforts to change or eliminate it) pressures NCHS and other data systems to produce data and analysis on a new and faster cycle.

Continued interest in improving the efficiency and effectiveness of the health care system is also resulting in data demands, for example, to understand the extent to which providers adhere to best practices or the effects of Federal policies (for example environmental or housing policy) on human health and health disparities. Interest in understanding what works in health care, and how health is affected by socioeconomic and environmental factors, presents opportunities for

collaboration and dissemination and, at the same time, poses analytic and dissemination challenges.

The great interest in health data also challenges Federal data systems to create efficient ways to disseminate information to a wider range of data users. The scope of OAE's work encompasses many activities from complex linked files to individual statistics accessed through the FastStats program. Products are targeted toward new and different data users (for example, API developers, individuals looking for a query system or interactive data set as an alternative to analysis of data files).

These and other challenges are taking place within a time of budgetary constraint. Although the new fiscal year will begin on October 1, no FY 14 appropriations measures have been finalized. There is general agreement that a continuing resolution will be needed to provide funding at the start of the fiscal year. It is uncertain how long a continuing resolution would last and what total funding level it would provide.

A changing organizational landscape

As NCHS looks forward to the selection of a new Center Director, it is a dynamic time for NCHS data divisions and offices. OAE has enjoyed highly collegial and collaborative relationships with the Office of the Center Director, and the Associate Director for Science (who, as noted, is a former OAE director). A new Director will need the support of NCHS staff to learn about the wide range of programs, and OAE hopes to continue the tradition of representing the Center on cross-cutting issues that reflect the new Director's priorities. CDC is also in a time of organizational change. OAE, though initiatives such as *Health, United States*, Healthy People, and the substantive exchange between researchers in fields such as injury research, maternal child health, environmental health and many other areas, has cultivated strong cross-CDC relationships which will continue going forward.

NCHS leadership has changed within the past 3 years; several office and data division directors are relatively new in their positions. In addition to the OAE director's recent appointment, several branch chiefs within OAE have fairly recent appointments. Although many NCHS staff members have long-standing collaborative relationships, the changing composition of NCHS staff challenges us to foster communication wherever possible. To facilitate the exchange of information, the NCHS Director hosts monthly all hands meetings. Similarly, OAE, like other NCHS components, has monthly meetings and the office and data division directors meet monthly to exchange information.

Opportunities and Challenges as they affect OAE

NCHS is rising to the challenge for more data, at a faster pace, within its resource constraints. Going forward, OAE's challenges will be in maintaining excellence, innovation, and relevance in this environment.

Maintaining excellence of scientific work. OAE's strength is in its people, so objectives in this area include recruiting and retaining critical statistical and subject matter expertise and

programming and research support staff, as well as nurturing new investigators to effectively use NCHS data and contribute to its development. A priority will be to hire an Associate Director for Science, a position vacant since the retirement of Diane Makuc in 2011. OAE will strive to optimize its mix of staff, a task that could require strategic decisions and even tradeoffs between specialists and generalists, analyst and programmer positions, or permanent and temporary positions.

The ability to hire and retain good staff requires competing with other research organizations and Federal agencies, so it will be important for NCHS and CDC to support the human capital challenge through efficient and effective working relationships.

Maintaining innovation in research and dissemination products. As OAE's staff members are its strongest asset, an important way to support innovation is to support staff in conducting their work. Challenges in this area include securing adequate and appropriate staffing for a given project; establishing redeployment capability when possible to enable staff to respond to new challenges; balancing programmatic activities with time to enable staff to conduct anticipatory, investigator-initiated, or collaborative research; and balancing between potentially competing research priorities.

Another way to facilitate innovation is to support scientific interchange. Goals in this area are 1) to foster strong communication between NCHS data divisions and offices to promote information sharing and encourage collaboration; and 2) to support travel and training for staff development, scientific exchange, and dissemination of research products and analytic tools to the NCHS' diverse stakeholders and data users. Federal limitations on travel have challenged us in this regard. OAE is working with NCHS more broadly to examine options such as the use of webinars, to develop new local outlets for our work, or to co-host conferences with other Federal agencies. Our ability to identify new opportunities is unlimited; however, our ability to carry out new initiatives may be limited by a variety of factors that include Federal restrictions on travel or limitations on funding.

Our innovation will also depend on access to resources necessary to conduct research. Although ACA funds have enabled investments in data development, there is no guarantee that these investments will be sustained long term. A number of OAE programs, most notably the Health Indicators Warehouse, are funded through interagency agreements (IAA). Although these agreements reflect strong and productive research partnerships, their future is not guaranteed. Other areas where research resources (financial and human) are needed include data access (for example, for the purchase of proprietary data, or to fund access to data files for linkage) and information technology (for example, hardware, software, and IT support).

Maintaining the relevance of our work and of our participation in important public health and health policy initiatives. NCHS occupies a unique position as part of a public health service agency and as a Federal statistical agency. These two roles should always be complementary and reinforcing. NCHS data are optimal for studying health policy issues: our challenge is always to be objective, unbiased and authoritative to be policy-relevant and apolitical. Another important goal for this focus area is strengthening capacity to gather evaluative information on our programs and analytic products.

Maintaining a commitment to excellence and to the principles of a Federal statistical agency will guide us in meeting these challenges. Strengthening our existing scientific capacity through activities such as hiring an ADS, strategic choices in staffing and research, training and supporting our existing staff, and the technical consultation and mentoring of new investigators through in-house training programs and external collaborations will keep our work cutting edge.

APPENDICES

Appendix I: OAE Publications

Appendix II: OAE Committees, Collaborations and Partnerships

Appendix III: OAE FY2014 Planning Budget

APPENDIX I: OAE PUBLICATIONS

**Office of Analysis and Epidemiology Publications,
by Major Topic and Program Areas
January 2011 through August 2013**

Aging & Chronic Conditions

Freid VM, Bernstein AB, Bush MA. Multiple chronic conditions among adults aged 45 and over: Trends over the past 10 years. NCHS Data Brief, Number 100, July 2012.

Huang DT and Kandi D. QuickStats: Percentage of Adults Aged 50–75 Years Who Received Colorectal Cancer Screening, by Family Income Level — National Health Interview Survey, United States, 2010. MMWR November 23, 2012, 61(46). [Republished in JAMA. February 27, 2013;309(8):764.]

Keenan N, Rosendorf K. Prevalence of Hypertension and Controlled Hypertension-United States, 2005-2008. MMWR January 14, 2011 / 60(01);94-97.

Roger VL, Go AS, Lloyd-Jones D, et al (Writing group members of the American Health Association Statistics Committee and Stroke Statistics Subcommittee include D Makuc). Heart disease and stroke statistics – 2011 update: a report from the American Heart Association. Circulation. 2011; 123: e18-e209.

Schober SE, Makuc DM, Zhang C, Kennedy-Stephenson J, Burt V. Health insurance affects diagnosis and control of hypercholesterolemia and hypertension among adults aged 20-64: United States, 2005-2008.NCHS data brief, no 57. Hyattsville, MD: National Center for Health Statistics. January 2011.

Asthma & Allergy

Akinbami L. QuickStats: Percentage of Persons with Current Asthma Who Reported Receiving an Asthma Management Plan from a Health Professional, by Race/Ethnicity and Age Group --- National Health Interview Survey, United States, 2008 (February 4, 2011 / 60(04);116).

Akinbami L, Liu X. QuickStats: Percentage of children aged <18 years with food, skin and hay fever/respiratory allergy – National Health Interview Survey, United States, 1998-2009. (MMWR March 25, 2011 / 60(11); 9).

Akinbami L, Moorman J, Bailey C, Zahran H, King M, Johnson C, Liu X. Trends in Asthma Prevalence, Health Care Use, and Mortality in the United States, 2001–2010. NCHS Data Brief, Number 94, May 2012.

Branum AM, Simon AE, Lukacs SL. Among Children with Food Allergy, Do Sociodemographic Factors and Healthcare Use Differ by Severity? Maternal and Child Health Journal. 2012 Mar 27. [Epub ahead of print]

Jackson KD, Howie LD, Akinbami LJ. Trends in allergic conditions among children: United States, 1997–2011. NCHS data brief, no 121. Hyattsville, MD: National Center for Health Statistics. 2013.

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Simon AE, Akinbami LJ. Receipt of systemic corticosteroids during asthma visits to US emergency departments, 2007-2009. Journal of Asthma. 2013. May;50:419-26.

Child & Adolescent Health

Boss EF, Marsteller JA, Simon AE. Outpatient Tonsillectomy in Children: Demographic and Geographic Variation in the United States, 2006. Journal of Pediatrics Epub 19 December 2011.

Gingold JA, Simon AE, Schoendorf KC. Excess screen time in US children: Association with family rules and alternative activities. Clinical Pediatrics. DOI: 10.1177/0009922813498152.

Lukacs SL, Schrag SJ. Clinical sepsis in neonates and young infants, United States, 1988-2006. Journal of Pediatrics. 2012;160:960-965.

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Simon AE, Pastor PN, Avila RM, Blumberg SJ. Socioeconomic disadvantage and developmental delay among US children aged 18 months to 5 years. J Epidemiol Community Health. 2013. Aug 1;67:689-95.

Disability & Functioning

Federal Interagency Forum on Aging-Related Statistics. Older Americans 2012: Key Indictors of Well-Being. Washington, D.C.

Freedman VA, Spillman BC, Andreski PM, Cornman JC, Crimmins EM, Kramarow E, Lubitz J, Martin LG, Merkin SS, Schoeni RF, Seeman TE, Waidmann TA. Trends in Late-Life Activity Limitations in the United States: An Update From Five National Surveys. Demography online, October 27, 2012, doi:10.1007/s13524-012-0167-z.

Kramarow EA. QuickStats: Percentage of Adults Aged >= 65 Years Who Reported Excellent or Very Good Health, by Selected Race/Ethnicity and Poverty Status – National Health Interview Survey, 2009-2011. MMWR May 31, 2013 / 62(21); 431.

Kramarow EA and Pastor PN. QuickStats: Percentage of Men Aged 25–64 Years with Activity Limitation, by Age Group and Veteran Status — United States, National Health Interview Survey (NHIS), 2007–2010. MMWR October 19, 2012/ 61 (41).

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Gorina Y. QuickStats: Human Immunodeficiency Virus (HIV) Disease Death Rates Among Men Aged 25–54 Years, by Race and Age Group — National Vital Statistics System, United States, 2000–2010. MMWR January 25, 2013, 62(58).

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Talih, Makram (2013). Invited Commentary: Can Changes in the Distributions of and Associations Between Education and Income Bias Estimates of Temporal Trends in Health Disparities? Am. J. Epidemiol. (2013) 177 (9): 882-884. doi: 10.1093/aje/kwt042. First published online: April 7, 2013.

Talih M. (2013). A reference-invariant health disparity index based on Rényi divergence. Annals of Applied Statistics 7(2), pp. 1217-1243; June 2013.

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Talih, M. (2013). Supplement to "A reference-invariant health disparity index based on Rényi divergence"—technical appendix. DOI:10.1214/12-AOAS621SUPPA.

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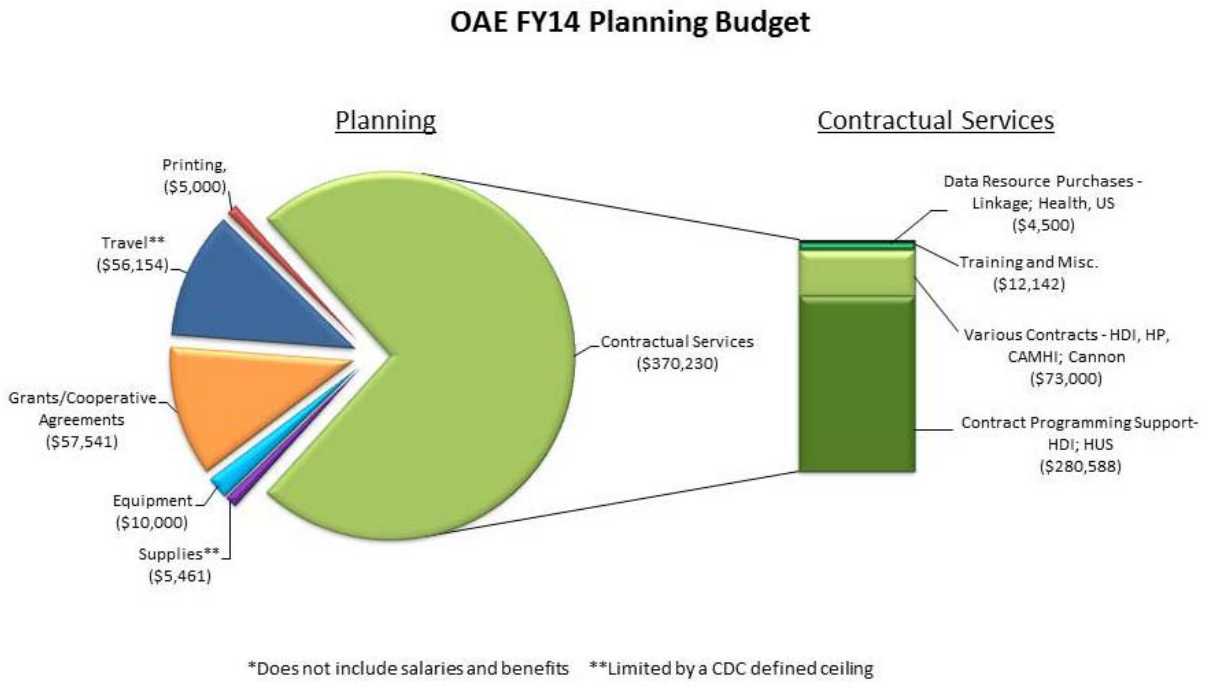
APPENDIX II: OAE COMMITTEES, COLLABORATIONS AND PARTNERSHIPS

		Health, US	Healthy People 2020	Data Linkage Project	e-Coding Improvement Partners	Health Data Interactive	Health Indicators Warehouse	Aging Forum	Air Pollution and Birth Outcomes	American Community Survey: Disability Measures Evaluation	Area Resource File	Assistive Technology	Asthma Outcomes Workshop	Budapest Initiative	Children's Forum	CPS: Disability Measure Evaluation	Gestational Age Imputation in Vital Statistics	Healthcare Survey Asthma Supplement	Injury Surveillance	ICE on Injury Statistics	Motor Vehicle Traffic-Related Injury Analyses	National Children's Study	Trend Measurement and Methodology	Washington Group on Disability Statistics
CDC CIOs	National Center on Birth Defects and Developmental Disabilities		X												X									
	National Center for Chronic Disease Prevention and Health Promotion	X	X	X																				
	National Center for Environmental Health		X															X						
	National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	X	X																					
	National Center for Immunization and Respiratory Diseases	X	X												X									
	National Center for Injury Prevention and Control		X		X														X					
	National Institute for Occupational Safety and Health	X	X		X													X		X				
	Office of Public Health Preparedness and Response		X																					
Other HHS Organizations	HHS, Office of the Secretary						X																	
	Agency for Healthcare Research and Quality		X												X									
	Assistant Secretary for Planning and Evaluation			X			X	X				X			X		X							
	Centers for Medicare and Medicaid Services	X	X	X		X	X	X																
	Food and Drug Administration		X																					
	Health Resources and Services Administration		X				X				X				X									
	National Institutes of Health	X	X	X				X					X		X			X		X		X	X	
	Office of Adolescent Health						X																	
	Office of the Assistant Secretary for Financial Resources						X																	
	Office of Disease Prevention and Health Promotion		X				X																	
	Office of Minority Health						X																	

	Office of Population Affairs	X														
Non HHS Organizations	Bureau of the Census		X			X		X			X					
	Department of Defense										X					
	Department of Education, National Center for Education Statistics										X					
	Department of Housing and Urban Development	X									X					
	Department of Justice	X									X					
	Department of Labor (BLS and Women's Bureau)	X				X					X	X				
	Environmental Protection Agency	X				X	X				X		X		X	
	Government Printing Office	X				X					X					
	National Highway Traffic Safety Administration	X									X			X		
	Office of Management and Budget					X		X			X					
	Social Security Administration		X			X										
	United States Department of Agriculture	X				X		X			X					
	Veterans Affairs	X				X										
Nongovernmental Organizations	Council of State and Territorial Epidemiologists			X												
	European Commission/Eurostat									X						
	Merck Childhood Asthma Network								X				X			
	National Science Foundation										X					
	Robert Wood Johnson Foundation				X				X							
	The State Health Access Data Assistance Center at the University of Minnesota		X													
	United Nations Economic Commission for Europe									X						
	United Nations Statistical Division															X
	World Health Organization									X						

APPENDIX III: OAE FY2014 PLANNING BUDGET



The FY14 planning budget for OAE includes the major categories of contractual services, travel, printing, equipment and supplies. In addition, a research fellowship position is supported in the form of a grant. (Salaries, benefits, and associated personal costs are not included in this planning budget because those expenses are managed across all NCHS divisions and offices at the Center level.) The largest category of expenses (73% of $504,387, or $370,231) includes the various contractual services the OAE relies on to meet its mission. Over three quarters of this amount (76% of $370,230, or $280,588) is used to support to onsite contract SAS programmers processing data for the Health, US and Health Data Interactive projects. Other smaller contracts for services serving Healthy People, Health Data Interactive, and the Survey Measures Catalogue amount to one fifth of all contractual services (20% of $370,230, or $73,000). In addition to contractual services and the grant, just over one tenth of the OAE planning budget is allocated to travel (11% or $504,387, or $56,154). This amount is a ceiling developed by CDC and represents the maximum OAE is authorized to spend on travel related expenses in the fiscal year.