

WOMEN'S HEALTH *In Focus* AT NIH

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Women's Oral Health



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Director's Corner

Janine Austin Clayton, M.D., FARVO
Director, NIH Office of Research on Women's Health
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In this issue of In Focus, we discuss women's oral health, an often-overlooked but integral part of general health. Poor oral health and hygiene can have a negative impact on overall health. Conversely, many systemic conditions and diseases can affect the health of the mouth, throat, and surrounding tissues. This issue's feature story explores these issues—along with sex and gender differences in oral health as well as NIH efforts to support diversity in the dental, oral, and craniofacial workforce.

Enriching our consideration of oral health, a guest editorial (p. 9) by Jennifer Webster-Cyriaque, D.D.S., Ph.D., Deputy Director of the National Institute of Dental and Craniofacial Research (NIDCR), discusses oral health disparities in the United States and NIH's efforts to address them. Our "In the Journals" section summarizes recent research on oral health and pregnancy as well as how vaccination against human papillomavirus (HPV) prevents not only gynecological cancers but also other malignancies, including oropharyngeal cancers (i.e., cancers of the throat and surrounding tissues), the incidences of which have increased dramatically in recent years.

Other articles describe the 6th Annual Vivian W. Pinn Symposium; the impact of the COVID-19 pandemic on women in science, technology, engineering, mathematics, and medicine (STEMM) careers; sex and gender considerations in biomedical research; and other topics relevant to ORWH's mission areas.

As we approach the winter season, I remind our readers to get their flu shots and to stay up to date on all COVID-19 vaccinations and booster shots [recommended by the Centers for Disease Control and Prevention](#).

Please share this issue of In Focus with your colleagues and subscribe by clicking the link on the front or back cover. Be well!

Janine Austin Clayton, M.D., FARVO
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NIH Supports Research on the Oral Health of Women and a Diverse Dental, Oral, and Craniofacial Research Workforce

Both the general public and the biomedical workforce can perceive dental and oral health care—let alone research on associated health, disease, and injury—as nonessential or secondary to other fields of medicine. Over the first year of the COVID-19 pandemic, for instance, many dental practices remained closed for all but emergency care, even after the [American Dental Association issued a statement](#) declaring dentistry an essential service.¹ Prior to the pandemic, an article published in *The Journal of the American Dental Association* commented that although the supply of oral health services in the United States was meeting demand, demand remained low, as many were not seeking dental services because of high costs or other difficulties in accessing care.² Poor oral health, particularly among underresourced populations, reduces economic productivity, increases national health care costs, and can adversely affect general health.¹ Although largely preventable, dental caries (i.e., tooth decay) remains the most prevalent childhood disease in the United States, resulting in pain, missed school days, and other negative outcomes.³

Over the past year, the National Institute of Dental and Craniofacial Research ([NIDCR](#)) has produced several publications and a complementary online seminar that have focused the attention of NIH and the greater biomedical research community on the importance of dental, oral, and craniofacial (DOC) health and associated research; the close connection between DOC health and general health; and the importance of fostering a diverse, robust DOC health research and clinical workforce. In December 2021, NIDCR released [Oral Health in America: Advances and Challenges](#), an update to [Oral Health in America: A Report of the Surgeon General](#), which was published in 2000. The Surgeon General's report identified substantive disparities in DOC health, disease burden, and access to care. The recent report from NIDCR notes some improvements over the past two decades, such as increases in dental care service delivery to American children and young adults as well as an increase in the number of people with public or private dental insurance. However, the United States continues to face many DOC-related public health challenges. For instance, many



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adults from low-income and minoritized demographics lack dental insurance, and access to care remains limited. The percentage of adolescents with dental caries remains high, at about 50%. The incidence of oral cancers associated with HPV (human papillomavirus) has doubled over the past two decades, and men have over three times the incidence of oropharyngeal cancer as women. Retirement often results in the loss of employer-supported dental insurance, and the aging U.S. population will require more DOC services in the years and decades to come.

Acting on the findings of its 2021 report, NIDCR published its strategic plan for 2021–2026, [Science: Advancing Oral Health for All](#), listing five strategic priorities (see *NIDCR's Strategic Priorities*), and followed up in May of this year with "[Leap into Action for Oral Health!](#)"—an online seminar that further articulated the institute's goals and research priorities over the next 5 years for the DOC research community. Addressing seminar attendees, [Rena D'Souza, D.D.S., M.S., Ph.D.](#), Director of NIDCR, made particular mention of her institute's emphasis on translational science to ensure that what we learn from biomedical research gets put into practice in the clinic; on diversity, equity, and inclusion, so that NIDCR supports research on the population it serves; and on thorough assessment of the strategic plan's success.



Rena D'Souza, D.D.S., M.S., Ph.D.
Director, NIDCR

In this article, we will consider NIDCR strategic priorities 1 (integrating oral and general health) and 4 (fostering a diverse research pipeline) and how they intersect with ORWH's purview. NIDCR's strategic priorities have many implications for ORWH's mission areas—namely, improving the health of women, enhancing treatment and research on the health of women, studying sex and gender differences in health and disease, considering sex as a biological variable ([SABV](#)) in biomedical research, improving maternal health, and supporting women in biomedical careers to ensure a diverse, productive, and innovative research workforce.

Women's Oral Health and Sex/Gender Differences in DOC Conditions

Multiple structural features of the U.S. health care system encourage us to conceive of oral health as distinct from general health. However, DOC



Jennifer Webster-Cyriaque, D.D.S., Ph.D.
Deputy Director, NIDCR

diseases, disorders, and injuries affect general health in myriad ways, and many systemic conditions and diseases cause oral complications. Thus, NIDCR's strategic plan prompts the biomedical community to concentrate on the interconnections between oral health and general health.

"Strategic priority 1 is to integrate oral and general health," says [Jennifer Webster-Cyriaque, D.D.S., Ph.D.](#), Deputy Director of NIDCR. "This priority focuses on advancing discoveries across the translational research spectrum and drives innovations for prevention, early detection, and diagnosis as well as treatment for DOC diseases and disorders across the lifespan. Priority 1 ... calls for the integration of DOC conditions with systemic diseases."³ Dr. Webster-Cyriaque adds that this priority articulates how NIDCR will support research on the correlations among DOC health and disease, environmental and social determinants of health,

NIDCR's Strategic Priorities

- 1. Integrate Oral and General Health.** Advance discoveries across the translational research spectrum and drive innovations that improve the early diagnosis, prevention, and treatment of DOC diseases across the lifespan.
- 2. Precision Dental Medicine.** Develop more precise and individualized treatments for the management and prevention of DOC diseases.
- 3. Translate and Implement.** Accelerate the translation of research and the implementation of new discoveries into oral and general health care practices that reduce health inequities and disparities and improve oral health outcomes for individuals and communities worldwide.
- 4. Diverse Research Pipeline.** Nurture future generations of DOC researchers and oral health professional scholars who can address public health needs within a continually evolving landscape of science and technology advances.
- 5. Partner and Collaborate.** Expand existing partnerships and create new ones to advance the NIDCR research enterprise and increase its reach and impact.



Lillian Shum, Ph.D.
Director of Extramural Research,
NIDCR

genetics, and other factors. As we discuss below, this NIDCR priority intersects with ORWH's missions to consider sex and gender differences and SABV in biomedical research and to enhance research on the health of women.

Sex and Gender Differences in DOC and General Health. As part of strategic priority 1, the NIDCR strategic plan lists "basic, translational, and clinical studies on sex-based differences as a biovariable" as an objective, one that coincides with NIH's [SABV policy](#). [Lillian Shum, Ph.D.](#), Director of Extramural Research at NIDCR, adds, "Several diseases within NIDCR's mission areas have clear sex and gender differences. NIDCR has a long history of supporting research in these areas, including the biological underpinnings of sex differences." We discuss some of these areas below.

Sjögren's Disease. Sjögren's disease, formerly known as Sjögren's syndrome, is a disorder of the immune system that affects the moisture-secreting glands of the mouth and eyes, decreasing production of tears and saliva. Dr. Shum states, "It is estimated that 1–4 million people in the United States are affected by Sjögren's disease, with women nine times more likely to have the disease than men." Sjögren's disease occurs in patients of all races and ethnicities, and most people are over 50 years old when first diagnosed. Untreated Sjögren's disease can result in several health problems. "Dry mouth can result in dental caries, can increase risk for oral infections, and may affect chewing,

swallowing, and taste perception," Dr. Shum says. "Sjögren's disease is a multisystem disorder that can affect the kidneys, lungs, liver, gastrointestinal system, and cardiovascular system and can lead to fatigue, chronic pain, and even lymphomas." The disease can also cause eye problems (e.g., sensitivity to light, corneal ulcers, and blurred vision), yeast infections, and pregnancy complications.

Current treatments primarily involve symptom relief with anti-inflammatory drugs and lubricants. Regular tooth brushing after eating is particularly recommended for patients with Sjögren's disease. Several ongoing NIH-supported studies and initiatives across the spectrum of basic, translational, and clinical research aim to improve the understanding, diagnosis, and treatment of patients with this disease. A new project called STAMP ([Sjögren's Team for Accelerating Medicines Partnership](#)) is one of several projects funded through NIH's Accelerating Medicines

Partnership® Autoimmune and Immune-Mediated Diseases program ([AMP AIM](#)). Dr. Shum explains that STAMP will apply cutting-edge multi-omics technologies (i.e., technologies that analyze data sets from multiple "-omes," such as the genome, transcriptome, proteome, and microbiome) to investigate tissue samples from patients with Sjögren's disease in hopes of identifying new therapeutic targets and pathways. NIDCR also supports the Sjögren's International Collaborative Clinical Alliance ([SICCA](#)), a data and biospecimen biorepository for research on the disease. Finally, the NIDCR Division of Intramural Research includes a focus area on [epithelial and salivary gland biology](#), which encompasses Sjögren's disease research.

Autoimmune Disorders. Autoimmune disorders—such as lupus, rheumatoid arthritis, multiple sclerosis, and vasculitis—are more common in women than in men, and many patients with autoimmune disorders have co-



occurring Sjögren's disease. "These systemic diseases can result in serious complications of the oral cavity," says Dr. Shum. "Inflammation and impaired vascularity can cause gingivitis, pain, oral lesions, ulcers, and oral infections." To fill knowledge gaps in the prevention and treatment of oral diseases associated with autoimmune disorders, NIDCR recently published *Notice of Special Interest: Achieving Tissue Robustness Through Harnessing Immune System Plasticity* ([NOT-DE-22-005](#)) to support research in this area and facilitate development of novel, personalized, immunomodulatory-based therapies.

Temporomandibular Disorders (TMDs). TMDs, diseases and disorders related to alterations of the masticatory (i.e., chewing) system, are the second-most common form of musculoskeletal pain, after lower back pain. Researchers have identified over 30 different TMDs with different causes and symptoms. "TMDs are multisystem disorders that

are comorbid with generalized joint pain and diseases, pain sensitivity, tinnitus, headaches, inflammation, visual disturbances, chronic fatigue, and sleep disorders," Dr. Shum says. "TMDs can also result in cardiovascular and respiratory complications." About a third of the population has at least one TMD symptom, and women are twice as likely to develop TMD as men.⁴

In spite of the ubiquity of TMDs, associated research and treatment development lag behind those for other common musculoskeletal pain conditions. NIDCR currently funds the majority of research on TMD and is developing an initiative called TMD IMPACT ([TMD Collaborative for IMproving PAtient-Centered Translational Research](#)). NIDCR and other NIH institutes, centers, and offices also support TMD research through multiple funding mechanisms of the HEAL ([Helping to End Addiction Long-term](#)) Initiative—e.g., [RFA-AR-22-009](#) and [RFA-AT-22-003](#).

Other Sex and Gender Considerations in DOC Health Research. NIDCR supports several NIH research funding mechanisms targeting sex and gender influences on health and disease (e.g., [NOT-MD-19-001](#), [NOT-OD-22-030](#), [NOT-OD-22-031](#), and [NOT-OD-22-032](#)). Some of the sex- and gender-related research topics of interest to NIDCR include:

- The influence of sex and gender on oral disease incidence, prevention, treatment, and recurrence (including specific study of the role of gender in different cultural and ethnic populations);
- The particular DOC needs of individuals from sexual and gender minority (SGM) populations and associated health disparities;
- The prevalence and treatment of orofacial trauma as a result of violence against women and SGM individuals;
- The effects of hormone therapy on craniofacial skeletal tissue homeostasis, injury, and repair; and
- The DOC health consequences of health inequities among U.S. women who are in populations that are understudied, underrepresented, and underreported in biomedical research.

Pregnancy, Reproductive Stage, and DOC Health. Regular dental care throughout pregnancy is safe, improves maternal health, and can reduce the likelihood of some adverse pregnancy outcomes.^{5,6} Pregnant people are advised to inform their dental care providers about their pregnancies, and most dentists forgo routine dental X-rays of pregnant patients.

Hormonal changes associated with pregnancy can result in swollen or bleeding gums, gingivitis, periodontitis, or loose teeth. Morning sickness, heartburn, vomiting, and nausea can contribute to the erosion of tooth enamel. Good oral hygiene throughout pregnancy can mitigate these issues.⁶

Untreated dental caries in pregnant people increases the risk for dental



caries in young children through vertical transmission of bacteria from mother to baby.⁷ As early as 1931, researchers identified a connection between maternal periodontal disease and adverse pregnancy outcomes. More recent studies have demonstrated a correlation—though not a causal association—between periodontal disease and preterm birth, low birth weight, stillbirth, miscarriage, intrauterine growth restriction, and preeclampsia.^{8,9} In spite of these risks, a recent study demonstrated that about half of women in the United States skip dental visits during pregnancy.¹⁰ The same study identified significant racial and socioeconomic oral health disparities among pregnant women.¹⁰ (For more information on pregnancy and oral health, see “Research Illustrates the Importance of Oral Health and Dental Care During Pregnancy” on p. 10.)

To address maternal oral health and associated health disparities, ORWH and NIDCR co-funded the [Pathways to Oral Health Among Low-income Pregnant Urban Women](#) study. This ongoing project strives to elucidate the psychosocial determinants for seeking dental care among pregnant women from low-income and minoritized populations. Dr. Shum commented, “Overcoming any barrier to dental utilization would be a significant first step to improving the oral health of vulnerable pregnant women.”

The menstrual cycle, hormonal birth control, and the menopausal transition can also affect oral health.⁶ Increases of the hormone progesterone during ovulation and in the days preceding menstruation can cause swelling, redness, and bleeding of the gums. Similar symptoms may result from hormonal birth control pills and devices that raise levels of progesterone and estrogen. Hormonal birth control can also complicate some dental procedures and subsequent healing. Some patients are more prone to canker sores during their periods. During and after the

menopausal transition and its hormonal changes, some women experience dry mouth—which can increase the risk of dental caries, infections, sore gums, and other oral problems. Others experience pain or burning sensations in their mouths, the causes of which are not fully understood. After menopause, lower estrogen levels increase women’s risk of osteoporosis, which in turn can result in gum disease and tooth loss.

Fostering a Diverse DOC Research and Clinical Workforce

NIDCR’s fourth strategic priority is to “nurture future generations of DOC researchers and oral health professional scholars who can address public health needs within a continually evolving landscape of science and technology advances.” Dr. Webster-Cyriaque states that to combat national disparities in dental caries, TMDs, head and neck cancers, and other oral diseases and conditions, “it’s going to be critical that we build the workforce to combat these diseases and important that the workforce reflect the demographics of the Nation.”³ Priority 4 coincides with a strategic goal from ORWH’s [2019–2023 Trans-NIH Strategic Plan for Women’s Health Research](#): “promoting training and careers to develop a well-trained, diverse, and robust workforce to advance science for the health of women.”

Historically, White male researchers have dominated DOC health research. (For more information on pioneering clinician-researchers who helped diversify this workforce, see *Recognizing Minority Women Leaders for Oral Health*.) NIDCR and NIH as a whole strive to diversify the biomedical workforce in the interests of both greater equity and stronger, more innovative science. “NIDCR is deeply committed to building a diverse DOC research workforce that is composed of individuals from a variety of backgrounds who represent the diversity of our Nation,” says [Lynn Mertens King, Ph.D.](#),



Lynn Mertens King, Ph.D.
Director of Extramural Activities,
NIDCR

Director of Extramural Activities at NIDCR.³ “Research focused on the benefits of diversity shows that teams composed of people from a variety of backgrounds and expertise produce better and more innovative products and ideas than a more homogeneous group.”³ (See [NIDCR’s diversity webpage](#) for more information.)

Another concern is that “the number of dentist-scientists who are pursuing research careers has been declining over time,” says Dr. Webster-Cyriaque.³ “Critical to the pipeline is the support of Ph.D.s and clinician-scientists from every background.”³ NIH has implemented and planned multiple initiatives and research training opportunities to recruit, support, retain, and advance DOC researchers throughout all stages of the educational and professional pipeline.

NIDCR fosters student and community interest in biomedicine and oral health through the Science Education Partnership Award ([SEPA](#)) program ([PAR-20-153](#), [PAR-20-239](#), and [PAR-20-244](#)) of the National Institute of General Medical Sciences ([NIGMS](#)). The SEPA program supports development of curricula, interactive digital media, teacher training programs, museum exhibits, and other educational resources for students from preschool to grade 12 and for the community. It also targets students from underserved communities to spark their interest in science, improve health literacy, and encourage them to consider biomedical research careers. In addition, NIDCR provides supplemental funds for its grantees to engage high school,

undergraduate, postbaccalaureate, and clinical students in research and research careers and to support graduate students, postdoctoral scientists, health professionals, and investigators from groups underrepresented in biomedical science ([PA-21-071](#)). Other NIDCR funds enable high school students, undergraduate students, and science teachers to participate in authentic research experiences during the summer academic break ([PAR-21-168](#)). NIDCR-supported grants and supplements also support the education, research, and retention of graduate students, postdoctoral students, dual-degree dentist-scientists, and other early-career investigators (e.g., [NOT-OD-20-054](#), [NOT-OD-20-055](#), [PA-21-047](#), [PA-21-049](#), [PA-21-050](#), [PAR-20-056](#), [PA-21-051](#), [PAR-21-060](#), [PAR-21-108](#), [PAR-22-041](#), [PAR-21-108](#), and [RFA-DE-23-001](#)).

As strong mentorship makes a demonstrable contribution to successful biomedical careers, NIDCR also supports several mentoring career-development initiatives (e.g., [PAR-19-238](#) and [PAR-22-050](#))—notably, the [MIND the Future](#) (Mentoring an Inclusive Network for a Diverse Research Workforce of the Future) program, a partnership with the American Association for Dental, Oral, and Craniofacial Research ([AADOCR](#), formerly the AADR). MIND the Future will “develop a national and sustainable mentoring and mentor training network with educational activities and interactive opportunities across the network, between mentors and mentees within and beyond the home institutions to support the development of a diverse cadre of DOC researchers to advance the objectives of the *NIDCR Strategic Plan*.”

NIDCR has also partnered with ORWH to support *Research Supplements to Promote Re-Entry and Re-Integration into Health-Related Research Careers* ([NOT-OD-21-134](#)). This program provides

Recognizing Minority Women Leaders for Oral Health

A book published last year titled *Undaunted Trailblazers: Minority Women Leaders for Oral Health* presents the stories of 31 health professionals who succeeded in a male-dominated profession; overcame racial, gender, and other systemic barriers; and made lasting contributions to public health and education. *Undaunted Trailblazers* celebrates these women, many of whom were underrecognized for their work, and amplifies the challenges they faced. The book’s authors have impressive medical and academic credentials. [Shelia Price, D.D.S., Ed.D., M.A.](#), serves as the Associate Dean of Admissions, Recruitment, and Access at the West Virginia University School of Dentistry. [Jeanne C. Sinkford, D.D.S., Ph.D., FACD, FICO](#), was the first woman to serve as a dean of a dental school in the United States. [Marilyn Woolfolk, M.S., D.D.S., M.P.H.](#), is a Professor Emerita of Dentistry and an Assistant Dean Emerita of Student Services at the University of Michigan School of Dentistry. (Some of the proceeds from sales of *Undaunted Trailblazers* benefit the Enid A. Neidle Scholar-in-Residence Program of the American Dental Education Association, with which ORWH has collaborated to develop dental curricula.)

supplemental funds to existing NIH research grants to support full- or part-time research by individuals, particularly women, returning to the scientific workforce after a career interruption caused by a qualifying life event. More information on this program is available on [this ORWH webpage](#).

The Future of DOC Health Research at NIH

NIDCR, equipped with new strategic goals and a host of funding opportunities to support DOC research and a diverse workforce of investigators, aims to enhance our understanding of oral health and disease and improve the quality of health care for all. In the near future, innovative NIDCR-supported research will investigate the oral microbiome—not only bacteria but the fungi, viruses, protozoa, and other organisms that inhabit our mouths—and explore the potential of innovative treatments. ORWH will continue to partner with NIDCR and enhance the institute’s efforts with supplemental research funds for the study of sex and gender differences in DOC health, for

studies relevant to the oral health of women, and for supporting a diverse DOC health workforce.

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NIH Works to Improve Oral Health Equity



**Jennifer Webster-Cyriaque, D.D.S.,
Ph.D., Deputy Director, NIDCR**

Major national and global health organizations recognize the centrality of oral health to general health and have recently produced comprehensive reports and resolutions focused on improving oral health. Consistently, these organizations emphasize how oral health serves as a key indicator of overall health and constitutes an essential component of optimal general health. In May 2021, the World Health Organization ([WHO](#)) passed an [oral health resolution](#) urging member nations to address risk factors for oral diseases (e.g., consumption of sugar, smoking, and alcohol misuse), to enhance the capacities of oral health professionals, and to shift the medical strategy for oral health away from the traditional curative approach toward a more preventive one that entails inclusive oral health care within the primary health care system as well as the promotion of oral health in families, schools, and workplaces. Soon after the WHO resolution, the National Institute of Dental and Craniofacial Research ([NIDCR](#)) published [Oral Health in America: Advances and Challenges](#), which discusses the strides and challenges in oral health over the past two decades. This publication stresses the importance of oral health to overall health and states, “We have begun to grapple with the challenge of improving the oral health of the nation. We now know that achieving this goal requires understanding the deep disparities in the experience of disease by different population groups and the systemic inequities in access to care that inevitably accompany those disparities.”

Both the NIDCR publication and the WHO resolution are necessary responses to the generally poor oral health of Americans and the global population. WHO reports that over 3.5 billion people suffer from oral diseases. Dental caries (i.e., tooth decay) is the most common disease in the world and affects millions of children and adults. Almost 50% of the U.S. population has periodontal (i.e., gum) disease, and nearly 10% of the world’s population suffers from severe forms of it. Xerostomia, or dry mouth, exacerbates oral disease and may stem from legitimate use of some prescription medications as well as use of opioids, cannabis, alcohol, tobacco, and e-cigarettes. Poor oral health and hygiene can result in pain, suffering, diminished quality of life, abscess development, and the spread of oral infection through the blood, the latter of which can cause sepsis and infection of other organs. Oral health problems also lead to adverse economic effects, such as reduced productivity and high costs for emergency care. Research correlates these and other oral diseases with adverse health outcomes and severe diseases, including cancer, cardiovascular diseases, diabetes, pneumonia, obesity, and premature births.

Systemic autoimmune conditions affect women disproportionately, and many can result in oral health complications. Autoimmune diseases—such as Sjögren’s disease, lupus, rheumatoid arthritis, multiple sclerosis, and vasculitis—can have up to a 16–1 female-to-male predisposition. Debilitating temporomandibular disorders (TMDs) also affect more women than men.

Oral diseases affect economically and socially disadvantaged populations disproportionately, and access to dental and oral health care and preventive measures remains inequitable in the United States and abroad. Although the Affordable Care Act has enabled more

Americans to obtain medical insurance, many continue to lack dental insurance and face obstacles to receiving routine and emergency dental care. A healthy mouth is essential for nutrition, communication, optimal digestion, and self-confidence. As such, the compartmentalization of the insurance system exacerbates not only health inequities but social inequities as well. In addition, some behavioral risk factors for poor oral health, such as tobacco use and poor diet, are much more common among low-income and minoritized groups.

NIH has developed several initiatives and funding opportunities to mitigate these oral health inequities. NIH’s overall mission advances research, programs, and policies that promote personalized dental and oral health care, that integrate general and oral health, and that remove barriers to accessing all forms of health care, including dental care. Programs such as STAMP ([Sjögren’s Team for Accelerating Medicines Partnership](#)) and TMD IMPACT ([TMD Collaborative for Improving Patient-Centered Translational Research](#)) will help to create a better oral health knowledge base to inform new clinical practices for diseases and conditions disproportionately affecting women and minoritized populations. The NIH Science Education Partnership Award ([SEPA](#)) supports development of educational resources, exhibits, and curricula on several medical science topics, including oral health, targeting underserved students from preschool to grade 12. NIDCR has also partnered with professional organizations, such as the American Dental Association ([ADA](#)) and the American Dental Education Association ([ADEA](#)), to strengthen, expand, and diversify the dental and oral health clinical and research workforce. A larger, well-trained, inclusive, productive, and culturally competent body of dental and oral health professionals that more

closely reflects the U.S. demographics will help to ameliorate oral health disparities and to meet research demands beyond the capacity of the current workforce of research dentists. NIDCR strives to “build belonging” through NIH diversity, equity, and

inclusion initiatives, and training, reentry, and mentoring programs (see [NIDCR’s diversity webpage](#) for more information) complement these efforts to move toward better oral health for all. Through these and other programs, NIH hopes to enrich our understanding of human oral

health with a more robust research and clinical workforce, address associated oral health disparities, and improve both the oral health and the general health of the U.S. population.

IN THE JOURNALS

Research Illustrates the Importance of Good Oral Health and Dental Care During Pregnancy

(Original article by [Lee et al. 2021. JDR Clin. Trans. Res. PMID: 34323108](#) and meta-analysis by [Gharehghani et al. 2020. Int. J. Dent. Hyg. PMID: 32941664](#).)

As discussed in this issue’s feature article, oral health and general health are intricately connected—a relationship that is particularly important during the “stress test” of pregnancy. Good oral health, regular dental care, and appropriate preventive interventions throughout pregnancy can help to ensure that mothers and babies are healthy and to reduce the considerable associated costs of periodontal disease, poor pregnancy outcomes, and lost productivity.

Studies have shown that untreated dental caries (i.e., areas of tooth decay) in pregnant people increase the risk for dental caries in young children through vertical transmission of bacteria from mother to baby. Other research has demonstrated an association between maternal periodontal disease and adverse birth outcomes, such as preterm birth, low birth weight, stillbirth, miscarriage, intrauterine growth restriction, and preeclampsia. [Hyewon Lee, D.M.D., M.P.H.](#), and colleagues report that in spite of these risks, about half of women forgo dental visits during pregnancy (according to 2012–2015 data from the [Pregnancy Risk Assessment Monitoring System \[PRAMS\] of the Centers for Disease Control and Prevention](#)). Further, the investigators report racial and socioeconomic health disparities among pregnant women. PRAMS data show that Black women are 14% less likely than White women to visit the dentist for routine cleaning during pregnancy. Similarly, women enrolled in Medicaid are significantly less likely than those with private health insurance to receive a dental cleaning while pregnant.

In a separate review of research articles on oral health determinants (e.g., brushing frequency and lifestyle), demographics, and oral caries in pregnant women, [Mohammad Ali Mohammadi Gharehghani, Ph.D.](#), and colleagues found results consistent with those of Dr. Lee’s team. The analysis of pregnant women by Dr. Gharehghani’s

group showed positive associations among (1) decayed, missing, and filled teeth; (2) poor quality of life; and (3) being non-White.

Both teams of researchers stress the importance of quality oral hygiene and dental care for pregnant people and call for programs, policies, and behavioral interventions to improve oral health—and, by extension, overall health—and to address health disparities.

Studies on HPV and HPV Vaccination Link Oral and Gynecological Cancer Protections and Risks

(Review articles by [Kaczmarczyk and Yusuf. 2022. Community Dent. Health. PMID: 34304398](#) and [Jordan et al. 2022. Front. Oncol. PMID: 35425709](#).)

Researchers have firmly established an association between infection with the human papillomavirus (HPV) and many cancers, including those of the cervix, vagina, vulva, penis, anus, and back of the throat (oropharynx) in both men and women. Of the approximately 14 high-risk types of HPV that can cause these cancers, [HPV 16 and 18](#) are responsible for most HPV-related cancers. Vaccinations against HPV prove highly effective at preventing these cancers. Currently, high-income nations are experiencing rapidly increasing incidences of HPV-associated oropharyngeal cancer (OPC). Two recent HPV literature reviews reinforce the connection between oral health and overall health and support the value of HPV vaccination.

Analysis by Katherine H. Kaczmarczyk, D.D.S., and [Huda Yusuf, Ph.D.](#), suggests that HPV vaccination administered per [the schedules recommended by the Centers for Disease Control and Prevention](#) reduces oral HPV infection and decreases the incidence of OPC. One study the reviewers considered reported that unvaccinated participants were 19 times more likely to develop OPC than vaccinated participants. Other reviewed studies showed that vaccinated participants had significantly lower rates of oral HPV infection than unvaccinated participants.

To elucidate the understudied relationship between cervical and/or oral HPV infection and cancer, [Kelsey H. Jordan, Ph.D.](#),

[Electra D. Paskett, Ph.D.](#), and colleagues reviewed over 100 published studies. Among women with HPV infection, 16% had HPV infection in both the oral cavity and the cervix. Of these, 41% were infected with the same HPV type in both sites. (Over 100 different types of HPV exist.) Most of the articles reported that among women with an HPV-related cancer in

one site, there was an increased risk of secondary cancer in the other site.

Both research teams endorse the preventive value of HPV vaccination for oral and overall health and call for additional research to improve our understanding of HPV, associated cancers, and their prevention.

WOMEN IN SCIENCE

SPECIAL COVERAGE

NIH and the 6th Annual Vivian W. Pinn Symposium Address the Pandemic's Effects on the Careers of Women Scientists

The COVID-19 pandemic has had profound short- and long-term effects on all sectors of the global economy and job market. STEMM professionals—including those involved in coronavirus research, treatment, and mitigation efforts—have struggled with increased workloads, remote work and teaching, greater domestic responsibilities, interrupted research, funding limitations, and other career challenges and disruptions. Women in STEMM, who faced multiple workplace disparities even before the coronavirus outbreak, have experienced disproportionate professional adversity throughout the pandemic. NIH has taken numerous actions to research, assess, and mitigate these negative effects. With its mission to support women in biomedical careers, ORWH has led or participated in many of these initiatives, some of which we describe below.

The 6th Annual Vivian W. Pinn Symposium. The Vivian W. Pinn Symposium (VPS), held each year as part of NIH's observance of National Women's Health Week, commemorates the contributions of the first full-time Director of ORWH. On May 12, ORWH hosted the 6th Annual VPS, titled "[The Impact of the COVID-19 Pandemic on the Careers of Women Scientists](#)." This year's symposium highlighted the inequities and issues faced by women in biomedicine before and during the pandemic, the career adaptations they have made, and other problems in the scientific workplace. Of note, over the past 2 years, both health care workers and research scientists have resigned from their positions in great numbers. About 1 in 5 health care employees have left the workforce since the pandemic began.

Echoing the findings and recommendations of [Promising Practices for Addressing the Underrepresentation of Women in Science, Engineering, and Medicine](#)—published by the National Academies of Sciences, Engineering, and Medicine ([NASEM](#))—

symposium speakers discussed how the pandemic has harmed women in biomedical careers in terms of diminished productivity, decreased opportunities for networking, blurred work-life boundaries, professional burnout, and challenges to mental health. Demographics such as race, ethnicity, age, gender identity, sexual orientation, and ability status can affect the degree of these consequences. Acting NIH Principal Deputy Director [Tara Schwetz, Ph.D.](#), reviewed two recent NIH surveys: the [NIH COVID-19 Impact on Extramural Researchers Survey](#) and the [NIH COVID-19 Impact on Extramural Institutions Survey](#). Survey respondents overwhelmingly reported the pandemic has had a negative impact on their careers. Dr. Schwetz also reported that COVID-19 has undone many of the modest gains in gender equity realized by STEMM fields and that NIH must partner with and learn from stakeholders to address this problem. In spite of these setbacks, ORWH Director Janine A. Clayton, M.D., FARVO, and others noted that the pandemic has also provided STEMM fields with an opportunity for long-term systemic change.



Keynote Speaker of the 6th Annual Vivian W. Pinn Symposium Reshma Jagsi, M.D., D.Phil.

VPS Keynote Address by Reshma Jagsi, M.D., D.Phil. Dr. Reshma Jagsi is an NIH-supported investigator who researches issues facing women in medical research. She is the co-author of over 350 peer-reviewed journal articles, including seminal reports demonstrating gender gaps in the [authorship of academic papers](#) and in the [salaries of physician-researchers](#). Her research also covers unconscious bias, the intersectionality of gender and identity, gender differences in domestic responsibilities among physician-researchers, and workplace harassment. This year, Dr. Jagsi gave the VPS keynote address, titled "Promoting Equity for Women in Medicine: Seizing a Disruptive Opportunity."

In her speech, Dr. Jagsi discussed her research on [how the pandemic has widened the gender gap in publishing rates among scientific academicians](#); reviewed her recent [New England Journal of Medicine article](#) in which she described how the urgency of COVID-19 research resulted in a lack of attention to gender, diversity, equity, and inclusion (DEI) in academic medicine; and touched on other issues related to gender equity. However, she also discussed how the “disruptive opportunity” of the pandemic affords the field a chance to put effective DEI policies and practices in place. For instance, virtual academic conferences have enabled increased participation by working mothers, those with limited travel budgets, and others. Other changes in practices and policies have functioned to decrease disparities by reducing gender bias in the grant process and recognizing “hidden” academic labor, such as service work and mentoring.

NIH and White House Scientific Leadership Publish Article on Women and Inclusion. Senior leadership from ORWH, the [National Institute of Dental and Craniofacial Research](#), and the [White House Office of Science and Technology Policy](#), as well as the [NIH Chief Officer for Scientific Workforce Diversity](#), recently published [“Community Voices: NIH Working Toward Inclusive Excellence by Promoting and Supporting Women in Science” in Nature Communications](#). The article describes the pandemic’s impact on women scientists, their productivity, systemic biases, and inappropriate behavior in the workplace. The article reviews NIH’s policies and practices for addressing sexual harassment in NIH-supported workplaces; the commitment of NIH leadership to participate in gender-equitable conference panels; the hiring, resource allocation, and promotion practices of the [NIH Intramural Research Program](#); and the establishment of the [Women Scientists](#)

[Advisors](#), the position of Chief Officer for Scientific Workforce Diversity, the [Working Group on Women in Biomedical Careers](#), and the [Prize for Enhancing Faculty Gender Diversity in Biomedical and Behavioral Science](#). The article also lists several NIH grant mechanisms designed to provide a reintegration pathway for scientists whose careers have been derailed by harassment or discrimination ([NOT-OD-21-134](#)); to study the impact of racism, discrimination, and harassment on the biomedical workforce ([PAR-19-295](#)); to develop interventions to address harassment ([NOT-OD-21-150](#)); to establish a coordinating center for advancing gender-inclusive excellence ([NOT-OD-21-051](#)); and to promote continuity and retention of K awardees and first-time research project grant recipients when they experience a critical life event such as childbirth ([NOT-OD-20-054](#)).

The NIH Office of Extramural Research. The Office of Extramural Research ([OER](#)) provides a wealth of information to NIH-supported researchers. OER’s extensive [FAQ page](#) describes COVID-19-related flexibilities for grantees. In addition, NIH Deputy Director for Extramural Research [Michael Lauer, M.D.](#), has written several blog posts on how the pandemic has affected NIH grantees and the medical field in general, including a [four-part series updating researchers on grant applications submitted during the pandemic](#) and [“A Reflection on Impact.”](#)

NIH Will Continue Its Support of Women Scientists. In the future, NIH initiatives, policies, and practices will continue to support women in STEM to ensure gender equity and a robust scientific workforce. For more information on how ORWH supports women in biomedical research, visit the [Career Development & Interprofessional Education section of the ORWH website](#).

FEATURED RESEARCH AND PERSPECTIVES

Photovoice Study Illuminates Challenges and Inequalities Facing Academic Mothers During the Pandemic

(Original article by [CohenMiller and Izenkova. 2022. Innov. High. Educ. PMID: 35615725.](#))

Researchers [Anna CohenMiller, Ph.D.](#), and [Zhanna Izenkova](#) recently published findings from their photovoice study of academic mothers throughout the pandemic. [Photovoice](#) is a methodology

in which members of a community under study collect photographs of their daily environments to promote critical discussion or influence policy. Dr. CohenMiller and Ms. Izenkova used photovoice as a form of participatory action research to collect data on how pandemic-related changes to work and domestic life (e.g., online classes, working from home, and lockdowns) may have affected academic gender inequalities that predate the pandemic.

The researchers recruited 68 academic mothers from multiple nations. Using online tools, Dr. CohenMiller and Ms. Izenkova collected convenience-sampled photographs and associated written descriptions from study participants. The researchers then systematically identified the common themes emerging from the data about the lived experiences of mother-scholars throughout the pandemic. The data showed that academic mothers have experienced (1) blurred boundaries

between their work and their personal lives, (2) overwhelming responsibilities and emotional burnout, (3) decreased research productivity, (4) challenges in balancing children's needs and work demands, (5) the need to develop new strategies to cope with unusual work and domestic situations, and (6) greater amounts of domestic labor than their partners.

Scholars Consider the Effect of Gender, Race, and Caregiving on COVID-Era Faculty Evaluation

(Original article by Mickey et al. 2022. [Gend. Work Organ. PMID: 35600799](#).)

In a recent article, [Ethel L. Mickey, Ph.D.](#), and colleagues discuss how the pandemic has affected the careers of faculty members who are women, people of color, or caregivers and how many of those at the intersections of these groups have experienced profound

career disruptions. Dr. Mickey and her co-authors describe many of the steps that research institutions have taken to address these disruptions—particularly as they pertain to faculty evaluations—and how these steps may function to reinforce assumptions about gender, race, and the efficacy of objective measurement. According to the writers, such assumptions create a problematic ideal: The perfect faculty member is a devoted researcher with few outside obligations to family or caregiving. This unrealistic ideal negatively affects caregivers and disproportionately disadvantages women and people of color, particularly during moments of widespread upheaval like the COVID-19 pandemic.

Throughout the pandemic, many research institutions have delayed faculty reviews, suspended teaching evaluations, accepted “COVID impact statements” as justifications for career delays or stalled research projects, and implemented other flexibilities

for faculty members. More innovative universities have redefined teaching excellence; emphasized quality over quantity in scholarship; allowed for flexibilities in the tenure clock and in the timing of reviews; ensured that evaluators avoid gender, racial, and caregiver biases; and instituted other policies and practices.

Praising these innovations, the writers call for a complete recalibration of faculty evaluation, one that deemphasizes objective, metric-driven approaches (e.g., numbers of high-profile publications and values of grants) and takes a more contextual approach. Such a system of evaluation would recognize the particular resources and opportunities that were (or were not) available to individual faculty members during a given review period and would recognize scholarly accomplishments that are more difficult to quantify, such as service work, community-based engagement, mentoring, and high teaching quality.

SCIENTIST SPOTLIGHT



Patricia Silveyra, Ph.D.

[Patricia Silveyra, Ph.D.](#), is an Associate Professor of Environmental and Occupational Health at the [Indiana University School of Public Health-Bloomington](#). Her laboratory studies sex-specific mechanisms of lung inflammation triggered by exposure to air pollution. She received her doctorate in biochemistry from the University of Buenos Aires and came to the United States as a postdoctoral fellow in 2008. She later

joined the faculty at the [Penn State College of Medicine](#) and the [University of North Carolina at Chapel Hill](#). Since 2021, she has been a faculty member and Principal Investigator at Indiana University, where she leads an NIH-funded program. Dr. Silveyra has received numerous awards for her research and mentoring of trainees and has served within several national and international scientific organizations.

What are you researching currently?

My research focuses on understanding the roles of sex hormones in the development and progression of inflammatory lung diseases and how these diseases are

affected by exposure to air pollution. We know that there are several diseases—asthma, chronic obstructive pulmonary disease, and some lung cancers—that affect more women than men. We also know that hormonal fluctuations during the menstrual cycle, pregnancy, and menopause can influence lung function and exacerbate asthma. Thus, we use a combination of animal models and cell-based approaches to understand the mechanisms by which ovarian hormones contribute to inflammatory processes in the lungs.

Which career achievement are you proudest of?

I am an immigrant scientist from Argentina and the first in my family to obtain a Ph.D. I moved to the United States as a postdoc to gain additional training and hopefully to become a professor. I reached that milestone in 2013 and have been a Principal Investigator at multiple institutions since then. I am proud of establishing an independent research laboratory, particularly of doing so in the United States with funding from NIH, which can be difficult to accomplish for scientists trained abroad.

How has mentorship helped your career?

When I was at Penn State University, I applied to the Building Interdisciplinary Research Careers in Women's Health

(BIRCWH) program. I was selected for the program in 2013, and BIRCWH's mentoring component helped me to establish my first independent research laboratory. Mentors and senior scholars provided feedback and coaching, explained how NIH works, connected me with NIH Program Officers and a network of other researchers, and introduced me to the types of funding opportunities that I could pursue. At the conclusion of my BIRCWH funding, I obtained a K01 award from the National Heart, Lung, and Blood Institute (NHLBI), which enabled me to continue working on sex differences in lung inflammation and win the R01 grant that currently funds my lab.

What are some challenges facing women in science, particularly women from minoritized populations?

As I was establishing myself as an independent researcher, I had to overcome biases and stereotypes, which often manifested in inappropriate comments from reviewers, exclusion from speaking opportunities, and tokenization. The

"minority tax" represents an invisible and complex barrier faced by women from populations traditionally excluded from science. We can spend a lot of time mentoring students and trainees from other labs, as we understand the barriers they face. Of course, we aren't their official mentors, and the time we spend mentoring these students is usually not recognized. I advise my mentees to be very efficient with time management, to document the service requests they receive, and to establish a group of peer mentors.

Why is it important to support and encourage the next generation of female scientists?

Women represent half of the world's population, and their perspectives are needed for finding solutions to societal and health challenges. When we fail to include perspectives and ideas from all sectors of the populations we serve, we miss important information, and the resulting science is not as impactful. Thus, we should continue to support and encourage women entering **and remaining in** science careers.

IN CASE YOU MISSED IT

Nature Article Comments on the "Great Resignation" in Academia

A [recent article in Nature](#) discusses increasing numbers of departures from universities in favor of industry jobs, particularly among midcareer scientists but even among tenured scientists. Those participating in this global trend of resignations cite overall workplace discontent, increasing work demands throughout the pandemic, a perceived dearth of opportunities for career advancement, institutional politics and bureaucracy, staff cuts, salaries that fail to keep up with the cost of living, systemic bias, and other reasons for leaving academic life.

NOTEWORTHY

OER Podcasts Discuss NIH Policies and Grant Applications

The ["All About Grants" series of podcasts](#) from the NIH Office of Extramural Research (OER) provides applicants, investigators, early-career scientists, fellows, students, research administrators, and others with valuable information on the NIH grant application and award process. Three recent podcasts focus on NIH's [Inclusion Across the Lifespan Policy](#), [Policy and Guidelines on the Inclusion of Women and Minorities as Subjects in Clinical Research](#), and [Policy on Sex as a Biological Variable \(SABV\)](#) as well as how to address these policies in NIH grant applications. In the [first podcast](#), NIH

Inclusion Policy Officer Dawn Corbett, M.P.H., explains how investigators can best describe their research project's inclusion plans in an application. In the [second podcast](#), Ms. Corbett discusses the inclusion information the reviewers look for when assessing an application and the expectations for addressing inclusion in post-award progress reports. In the [third podcast](#), Chyren Hunter, Ph.D., Associate Director for Basic and Translational Research at ORWH, explains how to account for SABV in NIH grant applications, peer review, training, reporting, and more. The "All About Grants" podcast series is an excellent source of reliable information on all aspects of NIH grants.

NIH Updates Research Performance Progress Report (RPPR) Instructional Guide

NIH requires its grantees to submit regular progress reports on the research projects it supports. NIH recently released the updated [NIH and Other PHS Agency Research Performance Progress Report \(RPPR\) Instructional Guide](#) to help its awardees complete and submit annual, interim, and final RPPRs correctly and efficiently. Grantees must now include valid analysis of phase III clinical trials by sex/gender, race, and ethnicity when they report project outcomes in progress reports in addition to submitting this information to [ClinicalTrials.gov](#). More information on RPPRs is available [here](#).

Nature Journals Require Authors to State How Studies Considered Sex and Gender

The editors and publishers at Nature Portfolio, which publishes the journal *Nature* and many others, have been at the forefront of encouraging researchers to incorporate sex and gender considerations into their study designs, to disaggregate and analyze data by sex and gender, and to report results as they relate to sex and gender. Recently, [Nature Portfolio announced a new policy related to sex and gender](#) for many of its journals. Researchers submitting articles to these journals “will be prompted to state whether and how sex and gender were considered in their study design, or to indicate that no sex and gender analyses were carried out, and clarify why.” This new policy aims to foster greater awareness of the importance of incorporating sex and gender in study design, to yield more robust scientific findings, and to avoid potentially dangerous results (e.g., studies that fail to account for sex-dependent side effects of prescription

drugs). ORWH applauds the Nature Portfolio publishers for this initiative and encourages all researchers to consider sex and gender as is scientifically appropriate, in keeping with the [NIH Policy on Sex as a Biological Variable](#).

Survey Research Shows Health Disparities and Differences in Access to Care for LGB Adults

A recent issue of [National Health Statistics Reports](#) from the Centers for Disease Control and Prevention (CDC) shares findings from an analysis of three national health surveys of the National Center for Health Statistics (NCHS). This study examined differences between heterosexual adults and lesbian, gay, and bisexual (LGB) adults in health status, access to care, and other health indicators. LGB adults reported greater use of tobacco, alcohol, marijuana, and illicit stimulants than heterosexual adults. Compared with heterosexual women, lesbian and bisexual women reported more diagnoses of arthritis,

asthma, cancer, diabetes, heart disease, and hypertension, and bisexual women reported greater incidences of endometriosis, ovulation/menstrual problems, and pelvic inflammatory disease. Survey data also showed other differences between heterosexual and LGB adults in overall health and in the use of and ability to afford health care and mental health services, indicating a national pattern of health disparities that disadvantage LGB adults.

ORWH’s “Bench to Bedside” Course Offers Free CME Credits

The ORWH e-learning course “[Bench to Bedside: Integrating Sex and Gender to Improve Human Health](#)” offers up to six American Medical Association Physician’s Recognition Award (AMA PRA) Category 1 Credits. The free online course gives users a thorough and up-to-date understanding of sex- and gender-related influences on health and disease. Also, learn about the e-learning course titled “[Sex as a Biological Variable: A Primer](#).”

STAFF UPDATES



Balkissa Abdoulaye, M.A., joined ORWH as a Supervisory Management Analyst in May 2022 and is the new ORWH Assistant Director for the Management, Reporting, Operations, and Communications Section. She received her undergraduate degree in social work in West Africa and her graduate degree in organizational

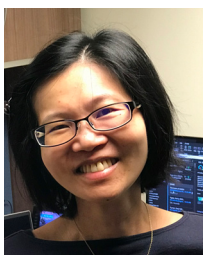
management from Ashford University in Clinton, Iowa. She started her NIH career in 2006 as a contractor at the National Cancer Institute, where she transitioned to a Program Analyst in 2017 and led the business operations of the Center for Global Health. Ms. Abdoulaye joined the NIH Office of the Director in 2022 and led the Travel Policy Branch at the Office of Financial Management prior to her transfer to ORWH. Outside of work, she enjoys traveling, hiking, and volunteering to fight violence against women.



Julianne Caviston, Ph.D., joined the Science Policy, Planning, and Analysis Section of ORWH in May 2022. She earned her Ph.D. in cell and molecular biology from the Perelman School of Medicine at the University of Pennsylvania. Dr. Caviston spent several years as a postdoctoral fellow in the Division of Intramural

Research at the National Heart, Lung, and Blood Institute before joining the National Institute of Allergy and Infectious Diseases (NIAID) as a Health Science Policy Analyst. While at NIAID, Dr. Caviston served as a point of contact for ORWH and participated in the creation of several NIH-wide strategic plans. She is happy to be at ORWH developing the follow-up to [Advancing Science for the Health of Women: The Trans-NIH Strategic Plan for Women’s Health Research](#), which will be called the *NIH-Wide Strategic Plan for Research on the Health of Women*.

STAFF UPDATES



Helen Huang, Ph.D., joined ORWH as a Health Scientist Administrator in May 2022. She earned her Ph.D. in biochemistry from the University of Texas Health Science Center at Houston. Dr. Huang conducted her postdoctoral research first at Stanford University and then at the Division of Intramural

Research at the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). After her postdoctoral training, Dr. Huang took a position in NICHD's Division of Extramural Research, where she served as a Scientific Review Officer, administered three study sections, and managed a variety of special emphasis panels, covering research in biomedical, biobehavioral, and behavioral sciences. The mission and vision of ORWH felt near and dear to her heart, so Dr. Huang decided to bring her expertise and experience to the office to help advance the careers of women in STEMM.



Tonya Parker joined ORWH in May 2022 as a Scientific Management Analyst in the Basic and Translational Research Section. Ms. Parker studied at Bowie State University. Previously, she served as the Program Coordinator and Administrative Program Director in the

Healthcare Delivery Research Program of the Office of the Associate Director at the National Cancer Institute, where she provided analytic and policy support for the Associate Director and managed the administrative aspects of the grant process. Outside of work, Ms. Parker enjoys working out, especially running.

New Publications from ORWH Staff

ORWH Health Science Strategy and Relations Lead Jamie White, M.S., and **ORWH Director Janine A. Clayton, M.D., FARVO**, recently published a commentary article titled "[The Gender Health Innovation Gap: A Perspective from the NIH Office of Research on Women's Health](#)" in the Cell Press journal *Med*. The article discusses Federal policies and programs addressing systemic barriers to gender health innovation, including "inattention to the effects of sex and gender on health, underinvestment in health conditions relevant to or limited to women, workforce diversity inequities, and societal attitudes."

Dr. Clayton and **Michelle D. Gaugh, M.A.**, published "[Sex as a Biological Variable in Cardiovascular Diseases: JACC Focus Seminar 1/7](#)" in the *Journal of the American College of Cardiology*. The article describes how the failure to consider sex and gender as variables in research on cardiovascular diseases has contributed to health disparities.

UPCOMING EVENTS

57th Meeting of the NIH Advisory Committee on Research on Women's Health

October 18, 2022
9:30 a.m. – 4:30 p.m. EDT

Gender and Health: Impacts of Structural Sexism, Gender Norms, Relational Power Dynamics, and Gender Inequities

October 26, 2022
11:00 a.m. – 5:00 p.m. EDT

Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Annual Meeting

November 2, 2022
10:00 a.m. – 4:00 p.m. EDT

For up-to-date information, visit www.nih.gov/women.

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