Sex and Gender

HEALTH EDUCATION SUMMIT

Intersectionality of Sex, Gender, Race and Social Determinants

November 12-14, 2021

Summit Proceedings

AMWA
American Medical Women's Association
The Vision and Voice of Women in Medicine since 1915

Laura W. Bush
INSTITUTE for WOMEN'S HEALTH
TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

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WITH GRATITUDE

This Summit would not have been possible without the many institutional leaders who attended the Summit and the generous contributions from our lead sponsors: the American Medical Women's Association, Laura W. Bush Institute for Women's Health, and Mayo Clinic; our continuing education provider - Southern Illinois University School of Medicine; our supporting sponsors: University of Utah Health, National Association of Nurse Practitioners in Women's Health, Brown University Division of Sex and Gender in Emergency Medicine, Florida State University College of Medicine, and HealthyWomen; and our outreach partner - the Augusta University / University of Georgia Medical Partnership.

We would like to acknowledge the work and support of the Sex and Gender Health Education (SGHE) Summit Executive Planning Committee, Scientific Poster Committee, Outreach Committee, Southern Illinois University Office of Continuing Professional Development, and the American Medical Women's Association.

BOOKS FEATURED IN SUMMIT PRESENTATIONS AND WORKSHOPS

Jenkins MR, Newman CB (Eds). *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care*. London: Elsevier. 2021.

Koerber A. *From Hysteria to Hormones*. University Park, PA: Penn State University Press. 2018.

McGregor AJ. *Sex Matters: How Male-Centric Medicine Endangers Women's Health and What We Can Do About It*. New York: Hachette Go. 2020.

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> ***"We need to make sure that we prepare our educators and our students to take care of diverse populations."***
>
> ***-- Alyson J. McGregor, MD, MA, FACEP (2021)***

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CHAIRS' STATEMENT

Dear Colleagues,

Over the past decade, there has been increasing awareness of the importance of sex and gender specific health, both within the healthcare community and among the public at large. We were honored to help organize the fourth summit in the series to advance the integration of sex and gender health education into the curriculum of health professional schools. In building upon the work of the past 3 summits and in conjunction with our growing awareness of the importance of diversity, equity, and inclusion, this summit highlighted the intersectionality of sex, gender, race, and the social determinants of health. Not only do we hope to raise a generation of healthcare practitioners who will approach clinical care with a sex/gender lens, but we also want to ensure that they incorporate an understanding of the intersectional factors which may impact care. Ultimately, this will result in a more empathetic and patient-centered model of care for all our patients.

Sincerely,

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A WORD FROM OUR SPONSORS

AMERICAN MEDICAL WOMEN'S ASSOCIATION

The American Medical Women's Association (AMWA) is honored and pleased to have co-led and co-sponsored all four of the Sex and Gender Health Education Summits since 2015. Established in 1915, AMWA has considered the improvement of women's healthcare to be one of its major objectives. As modern research continues to discover sex, gender, ethnicity, and racial differences in presentation, diagnosis, treatment, and outcomes, the importance of bringing this information to the bedside is critical. Furthermore, including all professions in this effort is crucial. Experts from multiple professions were represented at this Summit. They are all working toward the common goals of educating health professionals in these differences and of optimal care of all people, i.e., including women, men, LGBTQIA people, black, indigenous, and people of color.

Building on the work of the past Summits, the 2021 Summit was designed to move this concept forward. The experts assembled here are introducing and advancing innovative ideas designed to translate the known research about these differences into curricula for all providers who deliver healthcare. There are sessions on curricular development, the duty of journal editors and reviewers, research projections, teaching tools, educational resources, tenets for curricular development, and even a global view of the issue.

By working together in this movement and ensuring that sex and gender specific research data is applied to the individual person, we anticipate that healthcare and health outcomes will improve not only for women, but for all. This is the first needed step toward individualized precision medicine.

JANICE L. WERBINSKI, MD, FACOG, FAMWA
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American Medical Women's Association
The Vision and Voice of Women in Medicine since 1915

MAYO CLINIC

Mayo Clinic was honored to sponsor the 4th Sex and Gender Health Education (SGHE) Summit. Under the leadership of Dr. Virginia Miller, Mayo Clinic hosted the first Sex and Gender Medical Education Summit in 2015. We remain committed to sex and gender based health care, which is a critical component of medical education. Women and men have different chromosomes and hormones, sometimes making their manifestations of disease and responses to medical treatments distinct. Mayo Clinic Women's Health has a bold vision for the future where women and men receive individualized care based on evidence from research into sex and gender differences. This individualized approach to medicine through the lens of sex and gender is embedded in Mayo Clinic's strategic priorities of discovering, translating, and applying scientific advances to address patients' unmet needs. The Sex and Gender Health Education Summit is an important step forward to achieving our mission.

KEJAL KANTARCI, MD
Director
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MAYO CLINIC

A WORD FROM OUR SPONSORS

LAURA W. BUSH INSTITUTE FOR WOMEN'S HEALTH

Welcome to the 4th Sex and Gender Health Education Summit. The Laura W. Bush Institute for Women's Health is always proud to be a premier sponsor and, as you heard from Mrs. Laura Bush's introduction, we are All In.

The most significant contribution our Institute makes to this important cause is our web based educational materials, which you can find at sexandgenderhealth.org. We launched this resource at the first Sex and Gender Medical Education Summit at the Mayo Clinic in 2015. It is now in use by over 242 medical schools in 28 countries. The learning modules, videos, disease specific slide sets, and tutorials are also being integrated into the curricula of all health care professions. Sexandgenderhealth.org is accomplishing its goal to provide peer reviewed information through innovative and sustainable educational products. We have awarded 275 Sex and Gender Specific Health Certificates to students who have completed all 5 Sex and Gender Learning Modules.

The latest improvement has been to condense the lengthy learning modules into 5 Micro-Modules that deliver an 8-10 minute summary, and can be used as video or audio. The Micro-Modules provide essential sex and gender difference information for the following topics: alcohol use disorder, cardiovascular disease, diabetes, osteoporosis, and infectious disease. We have also added more slide sets, resource tools and videos that are designed to educate the lay audience. These are in high demand for Clinic Waiting Rooms.

Last year, we introduced a new partner of ours, VxMED. VxMED is an exciting new medical education resource consisting of interactive, gamified, virtual patient encounters. It's very popular with students! The Laura W. Bush Institute's sex and gender content is being integrated into many of the VxMED cases. Also, VxMED has launched a new case authoring tool, which allows users to create their own Virtual Reality patient content in minutes. Please check out the VxMED link on the sexandgenderhealth.org website.

As educators, you may be aware that the LCME standards and requirements are evolving. Some medical schools are documenting and reporting the use of sex and gender specific health Learning Modules as part of their LCME accreditation process. These meet the educational objectives and are relevant to the LCME standards related to curricular content and health care disparities.

On behalf of the Laura W. Bush Institute, I want to invite you to take full advantage of our sexandgenderhealth.org website. The information is open access, and we encourage you to use it and share it! Our hope is that by working together, we can mainstream sex and gender difference education, and one day, there will be no need for special advocacy.

Thank you for attending this Summit and for being the Spark that leads to CHANGE!

Warmest regards,

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SEX AND GENDER EDUCATION SUMMITS 2015-2021: A HISTORICAL OVERVIEW

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Between 2015-2021, four Sex and Gender Education Summits (sghesummit.com) were held to convene educators and thought leaders from around the country to advance sex and gender concepts in health professionals' education. These efforts built upon the earlier work of Dr. Virginia Miller, Director of the Women's Health Research Center at Mayo Clinic, who convened a 2-day workshop in 2012 that brought together 13 institutions to discuss the integration of sex and gender based content into medical education and training. The goal was to identify gaps in curricula, existing resources, and strategies to embed these concepts into health professional curricula.

Texas Tech University Health Sciences, through the Laura W. Bush Institute for Women's Health (LWBIWH), became a leader in curriculum development in sex and gender specific health. They created resources for faculty that included teaching slide decks and a PubMed search tool as well as educational modules for students.

In 2014, I reached out to Dr. Marjorie Jenkins, then Chief Scientific Officer at the LWBIWH, to discuss the possibility of a summit to promote increased awareness of these issues. Her leadership would prove to be pivotal, leading to a collaboration between the American Medical Women's Association, the Laura W. Bush Institute for Women's Health, the Mayo Clinic, and the Society for Women's Health Research (SWHR) to plan the first Sex and Gender Medical Education Summit: A Roadmap for Curricular Innovation. Hosted by the Mayo Clinic, the event brought together 148 attendees from 99 U.S. medical and health professions schools, 12 international schools, and 15 professional organizations. Highlights from the Summit included the presentation of diverse perspectives based on international experiences and national efforts among federal agencies, institutions, and associations. Attendees were empowered to become change agents within their institutions to advance sex and gender health. Outcomes from that Summit included proceedings, a dedicated supplement in the *Biology of Sex Differences*, a messaging toolkit, and the dissemination of resources from the Laura W. Bush Institute for Women's Health. The need for multi-professional outreach was identified at this Summit.

In 2018, the Sex and Gender Health Education (SGHE) Summit: Advancing Curricula through a Multidisciplinary Lens, brought together educators from medicine, nursing, dentistry, pharmacy, physical and occupational therapy, and other health professions. This Summit was a collaboration between the American Medical Women's Association, the Laura W. Bush Institute for Women's Health, the Mayo Clinic, and University of Utah Health. Highlights of the Summit, which was hosted by the University of Utah, included a discussion of competency domains across health professions, curricular integration, and a panel on trans healthcare. Five major health professions (medicine, nursing, pharmacy, dentistry, and physical and occupational therapy) were represented among the 246 attendees who hailed from 144 U.S. schools, 8 international schools, and 10 professional organizations. Outcomes from the Summit included a proceedings, a messaging toolkit, the dissemination of resources, and a special supplement in the *Journal of Women's Health*. Participants also identified the need for a set of common tenets for advancing sex and gender health in curriculum development among the various professions.

SEX AND GENDER EDUCATION SUMMITS 2015-2021: A HISTORICAL OVERVIEW

The 2020 Sex and Gender Health Education (SGHE) Summit: Innovative and Sustainable Curriculum Integration was again a collaboration across professions. Highlights from the summit included discussions about proposed common tenets for teaching sex and gender health and their importance with respect to genomic health, technological innovation, and high value care. This Summit was a collaboration between the American Medical Women's Association, the Laura W. Bush Institute for Women's Health, the Mayo Clinic, and Thomas Jefferson University. Outcomes from this Summit included a proceedings and publication of the 4 common tenets for teaching sex and gender specific health within individual health professions and also for interprofessional education.

The 2021 Sex and Gender Health Education (SGHE) Summit: Intersectionality of Sex, Gender, Race, and Social Determinants is our fourth summit and builds upon the work of prior summits. Understanding the primary social factors that may impact clinical care within the lens of sex and gender specific healthcare will result in better, more targeted care for our patients. The post-summit dissemination plan includes distributing summit proceedings, a faculty toolkit, distribution of sex and gender textbooks to medical school deans, and screenings of the film *Ms. Diagnosed*.

2015 Sex and Gender Medical Education (SGME) Summit: A Roadmap for Curricular Innovation
Chair: Dr. Marjorie Jenkins
Co-Chair: Dr. Eliza Chin
Host Co-Chair: Dr. Virginia Miller

2018 Sex and Gender Health Education (SGHE) Summit: Advancing Curricula through a Multidisciplinary Lens
Co-Chairs: Dr. Marjorie Jenkins, Dr. Alyson McGregor, and Dr. Eliza Chin
Host Co-chairs: Dr. Kathleen Digre and Dr. Ana Maria Lopez

2020 Sex and Gender Health Education (SGHE) Summit: Innovative and Sustainable Curriculum Integration
Co-chairs: Dr. Juliana Kling and Dr. Rebecca Sleeper
Program Director: Dr. Eliza Chin
Host Co-chairs: Dr. Karen Novielli and Dr. Ana Maria Lopez.

2021 Sex and Gender Health Education (SGHE) Summit: Intersection of Sex, Gender, Race, and Social Determinants
Co-chairs: Dr. Connie B. Newman, Dr. Juliana Kling,, Dr. Rebecca Sleeper, and Dr. Eliza Chin

> ***"No scientific discovery can save a life without first traversing a learning environment."***
>
> ***-- Marjorie R. Jenkins, MD, MEdHP, FACP (2015)***

> ***"All patients possess the basic human variables of sex and gender, and therefore the integration of these variables into our health professions' curricula is the new challenge."***
>
> ***-- Alyson J. McGregor, MD, MA, FACEP (2018)***

KEYNOTE: ACHIEVING INTEGRATIVE AND EQUITABLE HEALTHCARE

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The NIH established the Office of Research on Women's Health (ORWH) in 1990 to serve as the focal point for women's health research. The ORWH's mission for women's health research aligns with NIH's broader vision for women's health – one where the influence of sex and/or gender are integrated into the biomedical research enterprise; every woman receives evidence-based disease prevention and treatment tailored to her own needs, circumstances, and goals; and women in science careers reach their full potential.

Sex and Gender Differences in Health

There are many differences in the type and severity of health conditions experienced by women. Certain conditions, such as endometriosis, are female-specific. Autoimmune and musculoskeletal diseases are more common in women. Heart, lung, and liver diseases present differently in men and women. Incidences of multiple mental health conditions are different in women and men.

A landmark Institute of Medicine (IOM) report published in 2001, entitled *Exploring the Biological Contributions to Human Health: Does Sex Matter?,* addressed the contribution of sex to human health. Sex is an important basic human variable that should be considered when designing and analyzing the results of studies in all areas and at all levels of biomedical and health-related research. Differences in health and illness between individuals are influenced not only by individuals' genetic and physiological constitutions, but also by environmental and experiential factors - all of which interact.

The concepts of sex and gender are often conflated within biomedical research, so it is important to clarify the distinction. Sex is a biologic variable defined by factors including but not limited to the chromosomes, hormones and reproductive capacities of humans, animals, and other living beings that defines many of our physiologic systems. Gender is a psychosocial construct based on social expectations that guide acceptable behaviors which are unique to humans. Gender influences how we behave, how our behaviors are perceived, and in health, how we interact within our society.

At a cellular level, male and female cells are different. Sex influences molecular responses to environmental stimuli such as estrogens – with different expression of proteins based upon hormonal signals in the presence of stress. Sex also influences cellular metabolism with male cells more likely to use carbohydrate and amino acid metabolism, while female cells favor fatty acid metabolism. For example, female mitochondria produce less reactive oxygen species despite their higher mitochondrial activity. These cellular and pathway sex differences accumulate at the level of the organism to influence the way many systems function.

> ***At a cellular level, male and female cells are different … Cellular and pathway sex differences accumulate at the level of the organism to influence the way many systems function.***
>
> ***-- Sarah M. Temkin, MD***

These cellular sex differences are important to consider when proposing, designing, and analyzing research. Historically, there has been an over-reliance on male animals used in preclinical investigations. However, inclusion of animals of both sexes in animal research is essential for the findings to be applied to both men and women, and in order to understand biologic, sex-based differences. For men and women, these system level differences may mean that our measurements of health are different depending on sex. For women during their reproductive years, there are even more considerations based upon sex. Health measurements may differ during the various time points within the menstrual cycle.

In the human system, however, simply studying the influences of sex is insufficient. Sex and gender act independently and in ways that can complement or negate each other's influence on health. Without incorporating the effects of culture on biology in the study of human health, we may miss opportunities to study and influence the health of women. Gender is a psychosocial construct based upon assigned sex and upon our social expectations of how women and men act, speak, dress, groom, and conduct themselves. Women are generally expected to be polite, accommodating, and nurturing, while men are generally expected to be strong, aggressive, and bold.

> ***In the human system, simply studying the influences of sex is insufficient. Sex and gender act independently and in ways that can complement or negate each other's influence on health.***
>
> ***-- Sarah M. Temkin, MD***

Gender also influences how we think about sex. Sex differentiation in the female has been historically described as a "default" or "passive" developmental outcome. Research into sex determination has focused primarily on testis development, while active processes controlling ovarian development were largely ignored. The notion of a "passive" female developmental process fit with gender assumptions about women. In 1991, the anthropologist Emily Martin published a tale of a princess egg and prince sperm to illustrate some of the ways that we ascribe gender to sex. Gendered expectations translate into certain consequences such as women waiting longer for care, having their concerns downplayed or dismissed, and not being taken seriously by healthcare providers.

Racial Differences in Health

Another social construct, race, influences the health of women. The idea of race as a social construct which affects health is not a new concept. In the late 1800s, the impact of social conditions was described by W.E.B. DuBois as a result of the "vastly different conditions" under which Black and White citizens lived. His case study was tuberculosis in Philadelphia where the causative factors in the worse outcomes for Black patients were bad ventilation, lack of outdoor life for women and children, and poor protection against dampness and cold.

In the United States today, an overwhelming amount of evidence points to the impact of social and environmental differences as causative of poor health outcomes for historically underserved racial and ethnic groups. A CDC map of life expectancy shows that life expectancy at birth varies tremendously depending on geography within states. The shortest life expectancies are found in the parts of the country with the highest percentages of Black residents.

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KEYNOTE: ACHIEVING INTEGRATIVE AND EQUITABLE HEALTHCARE

Intersectionality

In 1989, Kimberlé Crenshaw coined the term "intersectionality" to denote the overlapping and intersecting of social constructs. The study of intersectionality has grown to include all of our intersections and identities. In 2013, *The Oxford Dictionary of Social Work and Social Care* broadened Crenshaw's conceptualization of the term, defining it as the combined effects of one's multiple identities, which includes identities such as race, gender, sexual orientation, religion, and employee status.

Maternal mortality is an ongoing public health crisis in the U.S. Rates of pregnancy-related deaths have increased steadily between 2000 and 2015. However, there is tremendous variation in the incidence of severe maternal morbidity and mortality by racial and ethnic groups in the U.S. Black, American Indian, and Hispanic women have significantly higher rates of morbidity and mortality compared to White women. 42% of pregnancy-related deaths in the U.S. occur in Black women.

Cardiovascular disease (CVD), the leading cause of death in both women and men, provides another example of disparities. Marked differences in the burden and outcomes of disease are associated with biologic, environmental, psychosocial, and structural factors. The percentage of all deaths caused by heart disease varies widely by sex, race, and ethnicity. While women overall have a lower rate of CVD death compared to men, the rates of CVD mortality vary when disaggregated by race and ethnicity. Some populations of women (e.g., Black women) have higher mortality rates than some populations of men (e.g., Asian men).

Underrepresentation and Bias in the Healthcare Workforce

Gender, race, and ethnicity also influence health at the level of the workforce. Women have made up half of medical school matriculants since 2003, but they remain underrepresented in leadership in academic medicine. The number of full professors, department chairs, and deans is disproportionately low compared to what would have been expected if leadership was gender neutral. When race and ethnicity are considered, we also see poor diversity in our physician work force. Only 5% of physicians across medical specialties identify as Black or African American, and Black women make up just 3% of all medical providers. Less than 1% of professors are Black women, and less than 1% of professors are Latina. This number is so small it has been called the inexorable zero – a term for a percentage so small you can't even see it.

Women's health physicians are doing more for less. The percentage of women in a specialty is inversely correlated to the salaries in the specialty. Payments for procedures performed on females are reimbursed at lower rates than comparable procedures performed on males. Women are less likely to participate on NIH study sections, while Institutes and Centers with high funding amounts are less likely to have women reviewers. Research performed by women is less likely to be NIH-funded, and research involving women is less likely to be published than research conducted in men.

> ***Payments for procedures performed on females are reimbursed at lower rates than comparable procedures performed on males.***
>
> ***-- Sarah M. Temkin, MD***

KEYNOTE: ACHIEVING INTEGRATIVE AND EQUITABLE HEALTHCARE

ORWH Advancing the Study of Women's Health and Sex/Gender Differences

Because of the influence of these accumulated sex and gender differences, the inclusion of women into clinical research is an ORWH priority. For the results of clinical trials to be relevant to the entire population for which an intervention is intended, the research should include a representative population. Without inclusion of women in clinical research, the results might not be applicable to them. In the more than 30 years that ORWH has been coordinating research on the health of women, inclusion of women in clinical trials has increased. In total, more than half of participants in NIH-funded clinical research are women. Our office uses this multidimensional framework to understand all of the factors that have the potential to affect a woman's health. At ORWH, our definition of women's health extends across a woman's life course. It includes both biologic factors, such as our genetics and hormonal environment, as well as external factors influenced by gender that include our environment and social interactions. ORWH is committed to training the next generation of women's health researchers by supporting programs such as the Building Interdisciplinary Research Careers in Women's Health (BIRCWH). This is a mentored career-development program designed to connect junior faculty, known as BIRCWH Scholars, to senior faculty with shared interest in women's health and sex differences research. ORWH supports interprofessional education on sex and gender through its several e-learning courses which are available on its website. Through these and other programs, we strive to develop a world where all women receive evidence-based and high quality healthcare.

> ***Without inclusion of women in clinical research, the results might not be applicable to them.***
>
> ***-- Sarah M. Temkin, MD***

SPECIAL SCREENING AND DISCUSSION - *MS. DIAGNOSED: THE MOVIE* AND DIRECTOR'S Q&A

INTRODUCTION

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The Summit included a private exclusive screening of *Ms. Diagnosed: The Movie*, a documentary which highlights the importance of recognizing sex and gender differences and the inequities in medicine that can result within a male-dominated healthcare system. The film followed several patient stories and showcased the importance of patient voices in improving our understanding of less commonly understood medical conditions. It also included practitioners' perspectives and a discussion about the importance of education regarding sex and gender specific medicine within the medical community, both for clinical practice and for curricula. The ultimate goal is to ensure better healthcare outcomes, particularly for women.

> ***"Although women and men are completely different genetically, almost all the healthcare we receive is based solely on research done on men. Because of this inequity, women die every single day, worldwide. Ms. Diagnosed will explore why the inequality exists, why it persists, and how it can change."***
>
> ***Ms. Diagnosed: The Movie***

SPECIAL SCREENING AND DISCUSSION
MS. DIAGNOSED: THE MOVIE AND DIRECTOR'S Q&A

Following the film screening, a Q&A discussion was held with key film stakeholders. Patients who were featured in the film shared updates about their continued advocacy work and, in some cases, ongoing health challenges. The director and executive producers shared their motivation behind creating the film and discussed the importance of media in patient education. The film demonstrates the impact of storytelling, and the power of patient advocacy.

Some key points emerged from the discussion:

This film fills a gap in knowledge. We need to educate the healthcare community with this film. How can we find a platform to promote this film more broadly so that the film's message can be disseminated among the general public and the healthcare community? These are important testimonials that every healthcare practitioner should hear.

Raise patients' voices. Patients often know their own history, their own bodies, and/or their family's history better than anyone else. How do we empower more patients to be advocates for their healthcare?

Make this a conversation. We should evolve the growing evidence of sex and gender specific healthcare with more education and awareness. This will increase detection and improve outcomes.

Keep asking questions. Ask questions about the data, about the possibility of sex and gender differences, and most importantly, ask patients about their symptoms and health conditions. Patients may sometimes be the most knowledgeable about their condition.

Change is happening, albeit slowly. Cardiac troponin levels, the marker used for diagnosis of a heart attack, has different reference ranges for men and women. Just recently, the American Heart Association stopped using the term "atypical chest pain" to refer to symptoms which were more common among women and which diverged from the "typical chest pain" symptoms that were more likely to be exhibited by male patients in the context of a male healthcare model.

Education of the healthcare workforce is needed. Healthcare practitioners need to understand and be trained in how risk factors, disease processes, and symptoms can differ between women and men.

BUILDING BLOCKS OF SEX AND GENDER HEALTH

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Definitions

"Sex" and "gender" are related terms, but they are not interchangeable. The term "sex" refers to biological characteristics, such as sex chromosomes and their expression, and reproductive organs (ovaries, testes) and the hormones secreted by reproductive organs (1). These biological characteristics categorize humans as female, male, and intersex. They lead to differences in the pathophysiology and presentation of disease, and in the efficacy and safety of therapies. The term "gender" is a sociocultural variable and refers to roles, behaviors, expressions and identities of girls, women, boys, men, and gender-diverse persons (2, 3). Gender identity and expression are not binary, and they can shift over time in individual persons. There may be gender differences in behaviors related to nutrition, physical activity, smoking, alcohol use, willingness to seek health care, stress exposure and response, perception of disease by both patients and physicians, and decision making by practitioners. Together, sex and gender differences influence health, disease manifestations, and prognosis. They also influence communication, the behaviors of patients and practitioners, and adherence to treatment. Sex and gender alone as well as their intersectionality with other variables such as race, ethnicity, religion, education level, etc. can ultimately impact health and disease and potentially lead to health disparities.

> ***Together, sex and gender differences influence health, disease manifestations, and prognosis. They also influence communication and the behavior of patients and doctors. Sex and gender may affect adherence to treatment and ultimately may affect health outcomes.***
>
> ***-- Connie B. Newman, MD, MACP, FAMWA, FNYAM***

Examples of SEX Differences [2, 4, 5]

- Autoimmune diseases are more common in females, possibly because females have stronger immune systems compared to males.
- Fluctuations in sex hormones in females may affect symptoms of autoimmune disease.
- Estradiol, progestins, and testosterone affect bone health, breast cancer (which can occur in males, albeit rarely), and other diseases.
- Females have sex-specific risk factors for cardiovascular disease that are related to pregnancy, e.g., pre-eclampsia and gestational diabetes.
- Early menopause (before the age of 40) increases the risk of cardiovascular disease.
- Pharmacokinetic properties of drugs (absorption, distribution, metabolism, elimination) and pharmacodynamic effects may differ between females and males. For some medications, sex differences in these properties may warrant different doses in females and males.
- Gender may affect access to care, diagnosis, prescribing practices, adherence to medications, and disease outcomes.
- Women are less likely to be insured than men, and more often have financial barriers to care and other barriers related to childcare.

Examples of GENDER Differences [2, 4, 5]

- Men are less likely than women to use health care and disease prevention practices. Men are more likely to engage in risky behaviors.
- Health care delivery may be influenced by implicit and explicit individual and systemic biases based on sex, gender, and other personal variables.
- Women on average have longer wait times for the evaluation of chest pain, which can lead to delayed diagnosis and treatment. A delay in diagnosis and treatment can reduce the ability to benefit from thrombolysis.
- Women are less often prescribed anti-hypertensive medications and statins.
- Communication is influenced by the gender of the practitioner and the gender of the patient.

Terminology in Literature and Clinical Practice

It is important to understand when to use the terms sex and gender. Although gender is non-binary, the most common gendered terms are man/boy or woman/girl. These terms are to be used in the context of epidemiology, environmental exposure, clinical presentation, oral history, morbidity and mortality (prognosis, sequelae, comorbidities). Sex based (biological) terms (male, female) are to be used to express the influence of sex hormones, genetics, physical exam and diagnostic tests. Terms related to treatment may be either biological (efficacy and safety) or gendered (compliance). Table 1 explains the rationale for using sex and gendered terms.

TABLE 1: RATIONALE FOR USE OF SEX AND GENDER TERMINOLOGY

Parameter	Sex or Gender?	Specific Term	Rationale
Epidemiology	Gender	Man or Woman	Population-based reporting is gendered
Influence of sex hormones	Sex	Male or Female	Biological
Environmental exposure	Gender	Man or Woman	Environmental exposures are often gendered due to societal roles and opportunities
Genetics	Sex	Male or Female	Chromosomal
Clinical presentation and history	Gender	Man or Woman	Patients present to the provider based on gender
Physical Exam	Sex	Male or Female	Physiological or anatomical
Laboratory/imaging	Sex	Male or Female	Physiological or anatomical
Treatment	Sex and Gender	Male or Female Man or Woman	Physician selected is gendered Compliance is gendered Efficacy and Safety are biological
Morbidity and mortality (prognosis, sequelae, comorbidities)	Gender	Man or Woman	Population based reporting more likely to be gendered

Adapted with permission from Jenkins MR, Newman CB (Eds). *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care*, page 5. Copyright Elsevier (2021).

Intersectionality

There are factors in addition to sex and gender that can influence health, disease, and willingness to seek health care. These factors include race, ethnicity, age, sexuality, religion, education, occupation, income, geography, immigration status, and community, among others, and they intersect with sex and gender. Considering intersectionality can reveal the existence of health disparities (2, 6). For example, a woman living in a rural setting with a low income and low level of education may take longer to access medical care in comparison with a man living in an urban setting who has a higher income and higher level of education. A heterosexual woman will have less anxiety about healthcare practitioners' potential biases than a lesbian or a transgender woman. Healthcare providers are more likely to be uncomfortable with the latter, affecting both access and quality of care. These differences in access and delays in care may result in more severe disease symptoms, greater abnormalities in laboratory tests or imaging studies, and a worse prognosis.

Summary and Key Points

1. Sex and gender are not synonymous.
2. Both biological sex and sociocultural gender influence health and disease.
3. Sex and gender interact with race, ethnicity, age, sexual orientation, religion, social determinants of health, and other variables in what we refer to as intersectionality. Together, these variables impact access to health care, willingness to seek health care, diagnosis, treatment decisions, and disease outcomes.

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Considering intersectionality can reveal the existence of health disparities.
-- Connie B. Newman, MD, MACP, FAMWA, FNYAM

KEYNOTE: ADVANCEMENTS IN FACULTY DEVELOPMENT: NEW INSIGHTS FOR SUSTAINABLE SEX AND GENDER HEALTH EDUCATION

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Research and education must evolve in order to improve patient care. Studying sex differences in research and integrating it into education has made a difference in our understanding, and it has led to improvements in patient care. There are different sources for sex differences, which include environmental, genetic, hormonal, among others. There are different ways to study the differences, including anthropometric and participant interaction. Whichever way we study sex and gender differences, however, the science must be rigorous and reproducible.

Adopt a Multi-Professional Lens

Cardiovascular disease provides a good example of how different professions might contribute to reducing sex and gender differences. Cardiovascular disease is the primary cause of mortality and morbidity in women, and women have a higher mortality rate from cardiovascular disease than men. The causes of observed sex differences for cardiovascular disease can be viewed from a multi-professional lens. For example, there may be differences in the pharmacokinetics or pharmacodynamics of drugs that affect the heart. Differences in dosing of heart drugs can have an impact on observed sex differences in outcomes. Hormonal changes may play a role. Periodontitis affects the heart, including heart valves. Cardiac rehabilitation support services may make a difference, as could protocols and guidelines in nursing. We need to consider sex and gender differences across all health professions because those differences can have an impact on the sex and gender specific outcomes that we observe in our patients.

Systemic Bias in Health Education

There is systemic bias with respect to sex and gender in health education. For example, the standard paradigm for a heart attack has historically been a white man clutching his heart; but women often present with different symptoms such as dizziness, nausea, fatigue, and shortness of breath. These symptoms can be hard to identify because we have become so entrenched in thinking that signs of heart disease behave in a certain way. Yet, the teaching of sex and gender differences as well as racial differences, are often not integrated into curricula.

There are systemic biases, both conscious and unconscious, in what we teach our students. One bias in health education occurs in the apps and tools which are used by students and which tend to ignore race and sex. For example, there are sex specific ranges for many blood tests and some biomarkers, but these are often not integrated into the tools. Textbooks demonstrate gender bias when they overwhelmingly use images of young white men. Women have different anatomical structures which are often ignored, including fat distribution. Women are also more likely to have microvascular disease. The use of biased terms such as "typical presentation" to refer to men and "atypical presentation" to refer to women shapes students' understanding of health conditions and contributes to bias in their future practices. Educational materials must also include sex specific thresholds such as for blood tests and biomarkers. For example, using sex specific troponin cutoffs in emergency departments finds more women with myocardial injury. Using sex specific biomarkers would increase the number of women who are treated for myocardial injury.

> ***There are systemic biases, both conscious and unconscious, in what we are teaching our students.***
>
> ***-- Alyson J. McGregor, MD, MA, FACEP***

KEYNOTE: ADVANCEMENTS IN FACULTY DEVELOPMENT: NEW INSIGHTS FOR SUSTAINABLE SEX AND GENDER HEALTH EDUCATION

As we recognize sex and gender differences between men and women, we must also consider the needs of transgender patients. For transgender patients, pharmacy recommendations change if the patient has been taking hormones for more than six months. After 6 months of hormone therapy, research shows that patients have creatinine clearance and body weight which corresponds with their gender identity. Electronic medical records must reflect this information so that we can provide appropriate care to these patients.

Textbooks are often characterized by racial bias. For example, skin conditions and rashes are typically shown on white skin. This does not adequately prepare educators or our students to take care of diverse populations. When faculty members use biased texts, it perpetuates bias in their teaching.

Faculty Development: Integration of Sex and Gender into Medical Education Curricula
Dr. Alyson McGregor and Dr. Mehrnoosh Samaei embarked on a faculty development project at Warren Alpert Medical School, Brown University, to assist faculty in creating an integrative, evidence-based and longitudinal curriculum that takes into account biological sex and gender identity. The ultimate goal was to prepare medical students to consider the role of sex and gender in each element of health and disease (including basic science, clinical care, population health) and to develop practical skills for their future careers.

Phase 1 of the project focused on engaging and obtaining commitment from both institutional and student stakeholders, and identifying and aligning current curricular initiatives with a sex and gender lens. In phase 2, current practices and points of intervention were identified through surveys and focus groups with faculty and students. Phase 3 involved an educational intervention with faculty through faculty development sessions and development of a toolkit to assist faculty. Phase 4 was an assessment of progress with a post-intervention survey completed by both faculty and students.

Survey Results
Preliminary data from the student and faculty surveys are below.
Students were more diverse than faculty in terms of gender identity, sexual orientation, and race.

TABLE 1: DEMOGRAPHICS

	Faculty (%)	Students (%)
Cisgender Women	58	61
Cisgender Men	41	33
Transgender/gender fluid/queer/non-binary/other	0	4
Heterosexual	92	68
Other sexuality	7	30
White	80	61

Attitudes in addressing people using non-binary pronouns were assessed. The majority of faculty members were either comfortable or very comfortable using non-binary pronouns, but female faculty members were more comfortable than male faculty members (60% vs. 53%). Students were more comfortable using non-binary pronouns compared to faculty members, and female students were more comfortable than male students (87% vs. 81%).

KEYNOTE: ADVANCEMENTS IN FACULTY DEVELOPMENT: NEW INSIGHTS FOR SUSTAINABLE SEX AND GENDER HEALTH EDUCATION

Sex and gender based knowledge was also assessed. Both student and faculty responses indicated a need for substantial knowledge-based education in this area.

STUDENT SURVEY RESULTS

- The curriculum is adequate: men (47%), women (13%).
- Were taught about sex differences for these topics: myocardial infarction from obstructive coronary artery disease (40%), heart failure (10%), autoimmune disorders (54%), osteoporosis (66%), sports injuries (17%), osteoarthritis (33%), pharmacotherapy (12% to 19% on various topics).
- Reported being given an explanation for the contributing factors leading to the sex and/or gender differences, or were informed that the cause of the difference was unknown for most topics. Average across topics: fewer than 50% of students (Range: 0% for asthma to 94% for urinary tract infections.).

FACULTY SURVEY RESULTS

- Believed they adequately incorporated the available information regarding sex and/or gender differences into their educational activities: women (27%), men (46%).
- Sometimes had an intersectional discussion of sex and gender identity with race and other social determinants of health in courses: 47% of faculty.
- Received continuing medical education (CME) about sex and gender in the past year: women (53%), men (31%).
- Top identified barriers to integrating sex and gender content: lack of familiarity with the subject matter (77%), time limitations in allotted teaching time (70%), time limitations in learning new materials (63%), not a predetermined learning objective of the course (45%), and feeling uncomfortable discussing sex and gender related issues (30%).
- Factors to reducing barriers and facilitating curricular integration: teaching tools, links and resource recommendations from their schools, PowerPoint slides, details about the impact of not attending to sex and gender – especially clinically, and direct assistance with integrating the materials into the curriculum.

The greater numbers of women faculty compared to men who received CME about sex and gender differences may have an impact on inclusion of this content into curricula. When working with faculty to integrate sex and gender into their teaching, it is essential to ensure that the information is translated into patient care, and that all faculty receive the tools, resources, and support that they need.

> ***"When you are ordering a blood test and you are looking at the results, think about the biological sex of that patient because you should be looking at the reference ranges based on that."***
>
> ***-- Alyson J. McGregor, MD, MA, FACEP***

A Faculty Toolkit to Assess and Change Curricula

Dr. McGregor and Dr. Samaei created a toolkit to identify the five steps that faculty could use to review their curricular content and transform their curricula. The five steps are as follows:

KEYNOTE: ADVANCEMENTS IN FACULTY DEVELOPMENT: NEW INSIGHTS FOR SUSTAINABLE SEX AND GENDER HEALTH EDUCATION

Step 1: Use an assessment scale to review existing content
This scale is used to determine if teaching tools are *sex and gender biased* (promote old stereotypes), *sex and gender blind* (ignore differences), *sex and gender sensitive* (mention differences but do not explain the cause of the differences), *sex and gender specific* (state the components of the differences), or s*ex and gender transformative* (show the differences and then demonstrate how to use the information in the patient care setting to improve care and outcomes – the highest goal).

Step 2: Identify content to change
Faculty members identify what is inaccurate, missing, and what could be improved. The checklist items for both lectures and the clinical setting can be found in the textbook *How Sex and Gender Impact Clinical Practice*. Example items for lectures include terminology, etiology, an example of a clinical case, etc. Example items for clinical settings include communication, patient history, treatment plan, etc.

Step 3: Use resources to update teaching materials
Examples of resources include free slide sets from the Laura W. Bush Institute of Women's Health, which can be downloaded at sexandgenderhealth.org. This website also contains a PubMed search tool which is very useful. The Jenkins and Newman textbook is an excellent resource. Additional information about these steps is in the Workshop 2 discussion in these proceedings.

Step 4: Edit teaching materials

Step 5: Reassess the curriculum using the assessment scale and checklists

Students have responded positively to sex and gender content at the Warren Alpert Medical School, Brown University, and they want more integration of sex and gender content into the curriculum. The new assistant dean for diversity, inclusive teaching, and learning has also responded very positively.

The faculty development toolkit for Sex and Gender Integration into Medical Education Curricula can guide faculty to create a transformative curriculum. It is available online at Brown University at facultydev.med.brown.edu/resources/inclusive-teaching.

RESOURCES
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facultydev.med.brown.edu/resources/inclusive-teaching
sexandgenderhealth.org

> ***The assessment scale is used to determine if teaching tools are sex and gender biased, sex and gender blind, sex and gender sensitive, sex and gender specific, or sex and gender transformative.***
>
> ***-- Alyson J. McGregor, MD, MA, FACEP***

FOUR EDUCATIONAL TENETS: GUIDING THE INTEGRATION OF SEX AND GENDER INTO HEALTHCARE

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Sex and gender has not been systematically incorporated into education across the health professions. One of the challenges has been that there are differences across curricular structures among the professions. This makes it difficult to adopt a systematic approach to curricular change. When sex and gender are integrated into curricula, it is usually sex and gender exclusive content and is often in the context of "special populations." Sex and gender are not typically embedded throughout the entire curriculum.

Following the 2018 Sex and Gender Health Education Summit, a draft of sex and gender specific learning goals was developed and adapted by the Laura W. Bush Institute for Women's Health and presented at the 2019 American Association of Colleges of Pharmacy annual meeting. This formed a basis for facilitated interprofessional group discussions at the 2020 Sex and Gender Health Education Summit. Working groups were tasked with developing tenets that could be used by all health professions to guide curricular development. Following the 2020 Summit, meetings were held with representatives from the various professions who had attended the Summit in order to further refine the tenets for all professions. An interprofessional writing group composed of twelve sex and gender thought leaders further refined four agreed upon tenets. A paper discussing the process and introducing the tenets has been submitted for publication.

The following graphic indicates what healthcare professionals should be able to do by the end of training and as they enter into practice.

Tenets for Sex and Gender Specific Education of Health Professionals

These tenets provide the framework for systematic integration of education about sex and gender specific health across health disciplines. Individual professions can use the tenets to develop practice specific competencies, competency statements, and/or assessment benchmarks within the structures of their respective accrediting bodies to advance the health of women, men, and gender diverse persons. The tenets can also be used to guide interprofessional education training sessions, courses, and programs.

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GASV: GENDER AS A SOCIOCULTURAL VARIABLE

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Gender as a sociocultural variable (GASV) is a complement to sex as a biological variable (SABV). Gender refers to sociocultural factors and attitudes. Together, GASV and SABV interact to influence health and disease across the lifespan. In order to advance sex and gender into education and research, it is helpful to have objective measures for both variables. Sex as a biological variable is a much more straightforward concept. Thus far, there has not been a way to measure gender consistently across researchers. Drs. Stefanick, Londa Schiebinger, Mattias Nielsen and colleagues at Stanford created a gender assessment tool (Nielsen et al. 2021) to capture gender quantitatively.

Beginning in January 2016, the National Institutes of Health (NIH) mandated that SABV be included in all human and animal studies. The Canadian Institutes of Health have required analysis based on both sex and gender since 2010. Since 2021, the European Commission has required analyses by sex, gender, as well as an intersectional analysis.

There are commonly used scales for measuring aspects of gender such as gender identity, gender roles, gender norms, and gender relations. However, many of these scales were created prior to 2000, and needed to be updated because as society has changed, our views and understanding of gender have also changed, and they will continue to evolve. Gender has a substantive impact on health. For example, high scores for masculinity in men and high scores for femininity in women are both related to acute coronary syndrome (Pelletier, Ditto and Pilote 2015). It was not maleness or femaleness, per se, that affected health. It was the behaviors that society prescribes and delimits for men and women that affected health.

The U.S. must also move beyond the binary of masculinity and femininity in gender scales. In contrast to the dominant U.S. culture, many societies have a third gender which integrates masculine and feminine roles into non-binary identities and perceptions of other humans.

> ***"The gender as a sociocultural variable (GASV) questionnaire is designed to shed light on how specific gender-related behaviors and attitudes contribute to health and disease processes, irrespective of, or in addition to biological sex and self-reported gender identity."*** ***-- Marcia Stefanick, PhD***

The GASV scale that was created at Stanford captures gender and includes norms, gender identity, and gender relations. Norms refer to social expectations and cultural rules produced within social institutions. Norms are influenced by the workplace, family culture, institutional policy, state and federal laws, national culture, and global culture. Identity refers to how individuals and groups perceive and present themselves. Social relations refer to the relationship between individuals based on gender identities, expressions, and perceptions.

The approach used to create the new GASV scale has three primary advantages. First, each specific variable measures an individual's behavior or attitude for that characteristic. Each is intended to be scored individually. Second, each variable can be correlated with other variables such as sex, socioeconomic status, educational background, income, and physical characteristics such as body mass index. Third, these gender-related variables can also be correlated with other behaviors often collected in health data sets such as smoking, exercise levels, and diet.

GASV: GENDER AS A SOCIOCULTURAL VARIABLE

To create the GASV scale, a literature review was conducted which identified nearly 3,000 relevant articles from between 1975 and 2015 to be screened, yielding 74 eligible scales to inform the development of gender variables (3 gender norm scales; 31 gender identity scales; and 40 gender relations scales). After specific methodological assessments, the final GASV instrument had seven gender-related variables.

Gender Related Variables Associated With Health

- Caregiver strain (*gender norm*)
- Occupation (*gender norm*)
- Independence (*gender identity)*
- Competitive/Risk-Taking (*gender identity*)
- Emotional Intelligence (*gender identity*)
- Social Support (*gender relations*)
- Discrimination (*gender relations*)

The GASV questionnaire took over a year to create, with each behavior to be captured in a variable, e.g. alcohol, smoking, body mass index, and self-reported physical and mental health, correlating well with a health outcome. The initial survey was completed by 2,043 individuals and took about ten minutes. Social determinants of health were built into the survey, such as education, income, and relationship status. Respondents reported the following with regards to assigned sex at birth: male (46.5%), female (53.1%), and intersex (0.1%). Self-reported gender included: men (47.0%), women (51.9%), gender fluid (1.3%), other (0.1%), declined to state (0.3%).

The two gender norms in the assessment tool are caregiving strain and occupation. Caregiving strain is negatively associated with smoking and poor self-reported physical and mental health. Occupation includes physical strain and safety, and is negatively associated with smoking, drinking, and poor self-reported physical and mental health. The three gender identity items include independence, competitive/risk-taking, and emotional intelligence. Competitiveness and risk-taking can have both a positive and negative impact on health. A negative impact would be alcohol use, while a positive effect would be lower body mass index and better physical and mental health. Emotional intelligence is negatively associated with alcohol and tobacco use, and positively associated with physical and mental health. The two gender relations items include social relations and discrimination. Discrimination is associated with negative health behaviors such as drinking and worse physical and mental health. Positive social relations have a positive impact on health.

Gender interacts powerfully with biology and has an impact on health. The GASV instrument will be helpful for researchers and for our understanding of the impact of gender on health. It can be used independently or with SABV to better understand the impact on health in research studies. It may also impact treatment decisions.

The Gendered Innovations program at Stanford has resources for sex and gender analysis, such as methods, terms, checklists, and a listserv that one can sign up for at: genderedinnovations.stanford.edu.

> ***"Gender interacts powerfully with biology and has an impact on health. The GASV instrument will be helpful for researchers and for our understanding of the impact of gender on health. It can be used independently or with SABV to better understand the impact on health in research studies."*** ***-- Marcia Stefanick, PhD***

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STRATEGIES FOR TEACHING SEX AND GENDER BASED HEALTH CARE ACROSS HEALTH PROFESSIONS (PANEL)

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This panel discussed the integration of sex, gender, and intersectionality into the overall curriculum within their institutions, integration into clinical and experiential training, integration into interprofessional education, and assessment.

SHARON M. GORDON, DDS, MPH, PHD (DENTISTRY)
The Kansas City University College of Dental Medicine is a new dental school which created a new curriculum from scratch. Sex and gender based health is addressed in many areas of the curriculum:

- As a social determinant of health throughout the three year Biomedical and Clinical Sciences course,
- In presentations of epidemiology of diseases and conditions, for example, in the discussion of risk factors,
- Through the thread of cultural competency woven throughout the curriculum,
- Via standardized patient cases as part of collecting patient histories and teaching doctor-patient communication techniques (e.g., learners gather information about how patients prefer to be identified and about their sex at birth),
- Within the clinical curriculum as part of the demographic, medical, and social history data collection documented in the electronic health record,
- During treatment planning regarding identified sex and preferred pronouns, so that by using a patient-centered approach, patient preferences and values can be taken into account by students.

One course designation was converted to interprofessional education for both medical and dental students. Sex and gender will be integrated into standardized patient cases where medical and dental students will work together to solicit patient histories, conduct physical examinations, and generate differential diagnoses. Part of the rationale for using standardized patients is to teach doctor-patient communication techniques. Learners will gather information on patient preferences such as how they prefer to be identified.

STRATEGIES FOR TEACHING SEX AND GENDER BASED HEALTH CARE ACROSS HEALTH PROFESSIONS (PANEL)

In dentistry, there is no separate competency assessment for sex and gender specific health, but it is broadly included in the social determinants of health. At the College of Dentistry, it will be covered within treatment planning competency assessment.

DEBORAH BARTZ, MD, MPH (MEDICINE)

At Harvard Medical School, the faculty began with Kimberlé Crenshaw's (1989) work on intersectionality and convened a multi- and interdisciplinary team to address the teaching topic from different angles and perspectives. They developed a robust, first of its kind, month-long selective course to explore these issues with junior and senior medical students. The specific learning objectives for the course were created following a needs assessment. The course included presentations by individuals with diverse expertise, including clinicians, community members representing various patient groups, social workers, epidemiologists, pharmaco epi regulators, policy experts, patients, and more. Students rotated through inpatient and outpatient settings, including mental health facilities. They also completed a capstone project identifying other places within the medical school curriculum where intersectionality could be integrated.

Integrating patients and community members into the course allowed a deeper exploration of the patient experience, sex and gender identities, and intersectionality issues that students needed to understand. Interdisciplinary care teams were also included in the course so that students could learn the realities of sex and gender care from a whole team perspective. This helped them to better meet the needs of a full spectrum of patients, including gender minorities, those with other identities, and those who have experienced intimate partner violence or other traumas.

There was a wide selection of potential faculty available for this course who work with sex and gender health issues and who are at Harvard Medical School affiliated hospitals. Faculty members receive a great deal of advance preparation to teach in this course. Preparatory and educational activities in the course included large and small group discussions, debates, journal clubs, patient interviews, etc. Students completed reflection exercises throughout the month, which enabled an assessment of student understanding of sex, gender, and intersectionality.

ANNE BRADLEY MITCHELL, PHD, ANP-BC, FGSA (NURSING)

The Jefferson Center for Interprofessional Education conducts programs for students in interprofessional teams. Over 800 students from nine different health professions participate in a three-semester curriculum in the Health Mentors Program. Students are placed into six-person teams and work with a community volunteer who is their health mentor. Students ask their community Health Mentors about sex and gender in two steps, i.e., about assigned sex at birth and about their current gender during the health interview. They also ask about sexual orientation. To evaluate the experience, a program survey was conducted with the students.

Most of the students appreciated the opportunity to ask the two-step sex and gender questions, but 26% did not. Students from some health professions were more experienced at asking the questions and were more educated about sex and gender compared to others. Some professions provided information about sex and gender early in the curriculum. A little over a third of students reported that the Health Mentors seemed confused by the two-step questions, but no one refused to respond. Students appreciated the opportunity to have a low-stakes learning environment and the opportunity to learn from each other in interprofessional education teams. Next steps include asking the individual programs about their approach to education on sexual orientation and gender identity, and to provide faculty resources.

STRATEGIES FOR TEACHING SEX AND GENDER BASED HEALTH CARE ACROSS HEALTH PROFESSIONS (PANEL)

KATHLEEN VEST, PHARMD, CDCES, BCACP (PHARMACY)

Diversity, equity, and inclusion (DEI) are core values which guide the curriculum at Midwestern University College of Pharmacy. Midwestern University has a Women's Health elective where the first lecture is on sex and gender differences in health care. The course includes an hour on intersectionality that reviews the pharmacists' role in helping transgender patients, terminology related to the LGBTQ+ community, and how pharmacists can support their patients. Students requested more training about transgender patients which led to new courses being created, increasing the sex and gender content in Cultural Care and Public Health. Pharmacy students learn and practice their patient care skills early in their coursework.

Faculty members have been integrating sex and gender throughout the curriculum for various health conditions, but more faculty training is needed about sex, gender, and transgender care to ensure that appropriate terminology is being used.

Midwestern College of Pharmacy organized several task forces, some of which examined the curriculum via a faculty survey, to ensure that cultural competency and health barriers were addressed. Other task forces examined recruitment, research, faculty/student relations, and community needs. There have been faculty trainings covering DEI and unconscious bias and a new training certificate program (Inclusion, Diversity, and Equity in Academics) that 50 faculty members will enroll in beginning in January 2022.

Professional pharmacy organizations and associations have also made DEI a priority. The American Association of Colleges of Pharmacy supports diversity and inclusion in the governance and teaching at colleges of pharmacy, so most colleges have incorporated it into their mission and core values. The Center for the Advancement of Pharmacy Education (CAPE) outcomes state that graduates should be able to provide effective, team-based care for diverse populations. The American College of Clinical Pharmacy supports a model curriculum for providing culturally-sensitive care encompassing all social determinants of health, in addition to disabilities, sexual orientation, gender identity, religion, spirituality, health disparities, and social justice.

In 2018, Dr. Vest and a colleague surveyed faculty at colleges of pharmacy regarding how much sex and gender was covered in the curriculum. Of 641 faculty members participating in the survey, the majority (54.9%) indicated that they did not teach about gender and/or sex related differences. Of those who reported teaching gender and/or sex related differences, 28% indicated that it was addressed in one clinical topic, while 7.7% indicated that the content was included in up to five topics. About half of faculty (53.6%) indicated that they believe this topic is someone important. This study suggests that gender and/or sex related differences are not adequately addressed in pharmacy curricula in the U.S.

Professional pharmacy organizations and associations have also made DEI a priority.

-- Kathleen Vest, PharmD, CDCES, BCACP

STRATEGIES FOR TEACHING SEX AND GENDER BASED HEALTH CARE ACROSS HEALTH PROFESSIONS (PANEL)

THERESA BYRD, DRPH, BSN (PUBLIC HEALTH)

In public health, sex and gender is a natural discussion because the profession's members focus on populations and the social determinants of health (SDOH). Health issues arise from a "web of causation" and not just from a disease-causing agent. Understanding social determinants as a web of causation requires looking at intersectionality and the additive or multiplicative effects of having more than one social label. Students must also understand that every individual may have very different lived experiences linked to sex, gender, race/ethnicity, social class, zip code, etc.

At Texas Tech University Health Sciences Center Graduate School of Biomedical Sciences, as at other institutions, there is a struggle to fit things into the curriculum because of the accrediting body's competency requirements. Accreditors require discussing equity and SDOH, but they do not require that sex and gender be in the curriculum. Sex and gender can be included in SDOH and equity, and at Texas Tech, it is integrated across courses in discussions of social determinants and social policy.

At Texas Tech, all of the students are required to have a minimum of two interprofessional education (IPE) events in order to graduate, and depending on the program, they may be required to complete many more. Texas Tech has an office of IPE which provides many opportunities for training. In November 2021, a conference and online event with 2,000 students about health equity, diversity, and inclusion allowed for discussions around sex and gender. It can be difficult to assess public health students for achievement of competencies or learning objectives, however, because students are often in a public health setting and are not being directly observed.

> ***Understanding social determinants as a web of causation requires looking at intersectionality and the additive or multiplicative effects of having more than one social label.***
>
> ***-- Theresa Byrd, DrPH, BSN***

FRAMEWORK FOR THE PATIENT ENCOUNTER: TEACHING A STEP BY STEP SEX/GENDER APPROACH (WORKSHOP 1)

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The purpose of Workshop 1 was to stimulate the development, for each health profession, of a stepwise approach to patient care using a sex and gender and intersectional perspective. To guide the discussion, examples were used from two texts. A stepwise clinical approach from the textbook, *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care* (2021), demonstrated how to integrate sex and gender into the six components of clinical care (Figure 1). These components are communication, history,[2] physical exam, diagnostics, treatment, and outcomes. An article by McGregor et al. (2017) outlined the cognitive steps for integrating sex as a biological variable into clinical care (Table 1). These include: identify patient sex, understand sex differences in clinical manifestations of disease, recognize diagnostic testing limitations, use sex specific thresholds for biomarkers or laboratory references, dose based on sex, and use a sex and gender specific search tool for research articles.

FRAMEWORK FOR THE PATIENT ENCOUNTER: TEACHING A STEP BY STEP SEX/GENDER APPROACH (WORKSHOP 1)

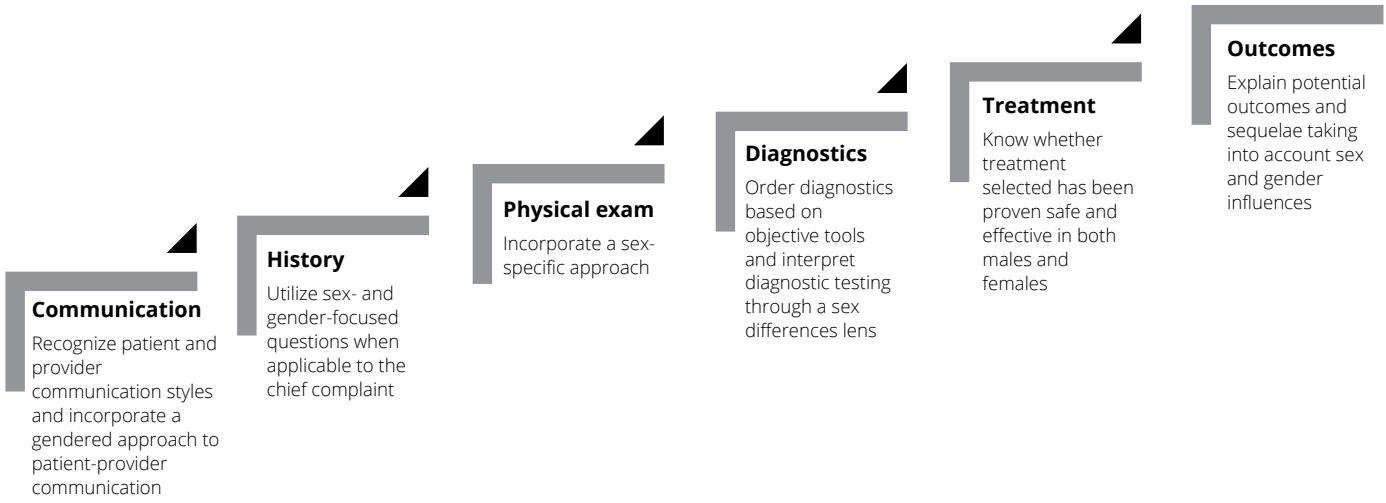

Figure 1: A stepwise approach to integrating sex and gender into daily clinical practice.
Reprinted with permission from Jenkins MR, Newman CB (Eds). *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care*, page 6. Copyright Elsevier (2021). Permission also granted from Marjorie R. Jenkins.

TABLE 1: COGNITIVE STEPS TO INTEGRATE SABV INTO CLINICAL PRACTICE WITH EXAMPLES

COGNITIVE STEP	EXAMPLES
1. Identify patient sex	Male or Female
2. Understand sex differences in clinical manifestation of disease	Females more likely to have coronary microvascular disease than men
3. Recognize potential limitations in diagnostic testing	Variable prognosis of exercise treadmill test in men versus women
4. Use any sex-specific thresholds for biomarkers or laboratory value references	Troponin, hemoglobin/hematocrit, calcium, creatinine, cholesterol and uric acid
5. When available, dose medications based upon sex-specific evidence	Sex-based dosing of analgesia, antiemetics, sedation medications, neuromuscular blockade, vasopressors or inotropes, anticoagulants for treatment of myocardial infarction
6. Use sex and gender specific health PubMed search tool	www.sexandgenderhealth.org

Adapted from McGregor et al. (2017) with permission.

FRAMEWORK FOR THE PATIENT ENCOUNTER: TEACHING A STEP BY STEP SEX/GENDER APPROACH (WORKSHOP 1)

After a short presentation of relevant background information, participants were divided into small groups, mainly by health profession. Two of the groups were composed of members from different health professions. A sample of the points discussed by the groups is presented in Table 2.

TABLE 2: SAMPLE EXAMPLES FROM HEALTH PROFESSIONS GROUPS

STEPS	EXAMPLES
1. Communication	• Use open-ended questions to identify patients' sex and gender in discussions and intake forms • Allow patients to tell their stories • Recognize the different communication styles of patient and provider • Equalize the power differential • Consider that patient's verbiage may be different from yours • Consider implicit bias among both patients and providers
2. History	• Begin by asking the patient's pronouns • Incorporate sex and gender by integrating it into the social history • Incorporate intersectionality by asking about social determinants • Listen to the history from a psychosocial lens and without judgment • Approach past traumatic and adverse experiences in respectful ways • Ask about the transitioning process for transgender or non-binary patients (i.e. medications, surgeries) • Ask which organ(s) the patient uses for sex • Screen for intimate partner violence
3. Physical Exam	• Ask for permission before performing an exam or removing clothing • Attend to intersectionality with respect to culture and religion by using cultural humility • Be respectful of how much or little patients feel comfortable with disrobing • Be mindful of your approach and terminology with sensitive exams • Explain what will be examined and assess patients' comfort • Respect patients' history of trauma • Recognize exams may find differences based on race and ethnicity (i.e. skin changes, nevus)
4. Diagnostics	• Develop differentials, diagnosis, and care plans based on sex and gender • Consider differences in prevalence rates of diseases between men and women • Understand limitations of testing as it relates to sex and gender • Consider if the clinical or testing environment is friendly to a patient regarding sex, gender, and/or intersectionality, and address psychosocial aspects (e.g., mammograms for men) • Be aware of how race and ethnicity, socioeconomics, and social determinants affect diagnostics and patients' decisions

TABLE 2: SAMPLE EXAMPLES FROM HEALTH PROFESSIONS GROUPS

STEPS	EXAMPLES
5. Treatment	• Consider efficacy and safety based on sex and gender • Offer treatment options based on sex and gender • Consider gender differences in access (e.g., cost of medications, health insurance) • Be aware that pain medication effects vary between men and women • Consider differences in dosing regimens • Recognize that older studies of medications were based on white male models • Consider knowledge gaps related to treatment, guidelines, and intersectionality • Explain treatments and how the patient's response may vary based on their sex or gender • Create a database that lists differences in treatment response based on sex and gender
6. Outcomes	• Listen to the patient -- rapport and trust can enhance compliance • Be aware of the social determinants of health and how the social environment could impact outcomes • Discuss outcome differences based on sex and gender with patients • Educate patients on how their sex and gender may impact their health now and in the future • Explore interdisciplinary sex and gender research

The Pharmacy Group's discussion focused on refining the current curriculum and educational standards. The educational standards for pharmacy are defined by the Accreditation Council for Pharmacy Education (ACPE). The last update was in 2016, and the next update will be in 2025, providing an opportunity to incorporate more emphasis on sex and gender differences. The group discussed embedding intersectionality into the pharmacy curriculum rather than having dedicated modules. They believed that sex and gender differences should be incorporated into all curricular areas from clinical literature reviews to therapeutic classes to clinical encounters. The group also discussed the importance of developing a coursework rubric that captures the elements of the patient counter specific to intersectionality.

While there are some unique differences in the responses across the health professions, there are also many commonalities. Some of the key similarities were in relation to communication across the patient encounter. Each patient encounter should be approached in an open-ended manner, helping to minimize assumptions and build rapport. The patient's permission should be requested, and providers should ask for clarification when unsure. Clinicians should consider shared decision making and not assume what is best for a patient. Finally, they should take time to explain differences in diagnostics, treatments, and outcomes based on sex, gender, and intersectionality. By utilizing the six steps highlighted above, the patient care experience can be optimized. This will result in improved outcomes, as well as better patient and provider experiences.

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POINT COUNTER POINT: THE BUCK STOPS WHERE? KEY STAKEHOLDERS FOR ADVANCEMENT OF SEX AND GENDER BASED HEALTH IN RESEARCH (PANEL)

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There is increasing acknowledgement that consideration of sex and gender in healthcare research would help all patients. This has led to the current focus on improving the reporting of research results based on the sex and/or gender of participants. Reporting of results based on sex and/or gender will never reach 100%, because not all conditions occur in both women and men, and studies can still have merit without sex/gender analyses. For those conditions for which everyone is at risk, however, sex and/or gender should be considered. The key is representation so that we are able to translate research results into clinical care.

Why Focus on Research?
Research informs public, patient, and healthcare professional education, the development of clinical practice guidelines, and future investigations. All of these ultimately impact patient care.

One of the pushbacks to including sex and gender in healthcare professionals' education has been the lack of readily accessible data. Without data, there is nothing to teach. Review of the literature from various fields, from cell culture to animals to humans, notes a lack of inclusion of sex or gender in the research design, or there is a lack of evaluation and/or reporting of results based on sex or gender. Noting how many men and women or males and females were included in a given study without further consideration or mention of these important variables is not sufficient. But where does the responsibility for assuring inclusion of sex and/or gender in published research lie?

POINT COUNTER POINT: THE BUCK STOPS WHERE? KEY STAKEHOLDERS FOR ADVANCEMENT OF SEX AND GENDER BASED HEALTH IN RESEARCH (PANEL)

Initiatives such as the National Institutes of Health's (NIH) Sex as a Biological Variable (SABV) and those at other funding agencies are important and are helping to turn the tide in sex and gender research. However, most research is not funded, or it is funded with local or intramural grants. There are fewer restrictions and fewer layers of oversight from these latter funding sources, especially early in the development of the project and before institutional review board (IRB) submission. This indicates that we need to also focus on touch points other than, or in addition to, funders in the research and publication processes to improve knowledge regarding sex and gender.

The Role of Investigators

Ultimately, it is the researcher's responsibility to determine when to include sufficient numbers of both sexes in studies, if applicable or appropriate, and how to analyze and report data based on sex and/or gender. Researchers need to have an open mind in this area and consider sex and/or gender early in the development and planning of studies. If they ascertain a priori that sex and/or gender are not important in the context of their study, they need to explain their rationale. There are initiatives which are intended to increase sex specific and sex differentiated scientific/clinical investigations on novel therapeutics for disorders that are exclusive to women or affect them predominately or differently. One example is the First.In.Women (FiW) Precision Medicine Platform which is being launched at the Connors Center for Women's Health and Gender Biology (connorscenter.bwh.harvard.edu › first-in-women). Such initiatives will enable a sex/gender lens to be incorporated earlier in the drug/device/digital innovation process. However, if researchers are not aware of this issue or if there are not IRB or publication requirements, change will be slow.

> ***"Researchers have the primary responsibility here. They need to be open-minded to the possibility that there could be important differences in sex/gender, and they need to design studies that can capture those differences where they exist."***
>
> ***-- Seth S. Leopold, MD***

The Role of IRBs

Most studies are institutional review board (IRB) approved, potentially making IRBs important backstops, because the decision to include sex or gender as part of the analysis needs to be determined at the beginning of the study process, not at the end. We can't answer questions regarding the impacts of sex and gender without including consideration of these in the research design and planned statistical analyses. IRBs could request or require inclusion of sex and/or gender in proposals. They could ask important questions when reviewing study proposals such as: "Are you sure sex/gender aren't important?" "How could you design your analyses to include sex/gender?" "What would it take to do this?" IRBs could document and track responses and compliance. Asking or requiring researchers to state and then have IRBs track the inclusion of sex or gender in proposed studies could raise awareness among researchers of the importance that their local IRB places on this area. IRBs could also take a "more muscular" role by not approving study proposals if researchers do not provide appropriate or sufficient rationale regarding inclusion of sex and/or gender in the study design and analyses. Developing these types of requirements and responses to proposals could help to raise awareness of the importance of sex and gender and stimulate the interest of researchers in this area.

> ***"IRBs could request or require inclusion of sex and gender in proposals."***
>
> ***-- Kimberly J. Templeton, MD, FAAOS, FAOA, FAMWA***

We need to be careful, however, in what we expect from IRBs. The purview of IRBs is constrained and they have their own limitations. The primary responsibility of IRBs is the protection of human subjects in a given study, reviewing standards of care, and ensuring appropriate assessment of risks/benefits. It is not to drive scientific investigation. IRBs also respond to local cultures. But is there a larger role for IRBs? Are they also responsible for looking out for the population impacted by a study? A study's participants should reflect the larger population with a disease/condition. Otherwise, the resulting data could lead to wrong clinical decisions on toxicities or benefits. If study participants do not reflect those impacted by the research, is the larger population protected? What does it mean to protect human subjects, and should sex and/or gender be considered as part of human subjects' protection? If participants take risks to participate in a study, should the data obtained in the study be assessed to determine if the results are applicable to them as individuals?

The Role of Journals

Journals are the last step in the promulgation of research results, and they play a different role. Once submitted, the study is complete, and it is too late to mandate changes in the research protocol or ask the authors to re-design or redo experiments at that time. Journals should also not require post hoc analyses if sex and/or gender was not part of the initial study design, including the power of the study, or planned analyses and interpretation of results. This could lead to misleading inferences in both directions (type I and II errors) and may not provide reliable answers to questions. Journals/editors cannot require reporting of data based on sex and/or gender at the time of manuscript submission unless, for example, it was required by a funder such as the NIH at the design stage. Even so, journals should use care and pay attention to this issue.

The primary role of journal editors and editorial boards is to improve the consistency of reporting. They can do this by adopting and following guidelines such as the Sex and Gender Equity in Research (SAGER) guidelines or something similar (most cover the same basic elements). SAGER guidelines, published in 2016 and developed by the European Association of Science Editors, are a "comprehensive procedure for reporting of sex and gender information in study design, data analyses, results and interpretation of findings" (Heidari et al. 2016). These were developed to encourage consistency among researchers, authors, and publishers. While these were quickly supported and endorsed, implementation has unfortunately been slow and spotty. Journals that have adopted SAGER or similar guidelines can ask authors questions such as "Why did you not consider sex and/or gender?" "How do you justify that decision?" "What are the implications of that choice?" The answers to questions about why sex and/or gender were not considered need to be outlined and explained/justified in the Methods section, with discussion of why reporting by and/or stratifying by sex and/or gender wasn't possible or appropriate. Authors need to offer caveats to readers about not assuming that the reported results equally apply in women and men, and they need to discuss the limitations posed by the lack of inclusion of sex and/or gender. They also need to bring this into context in the Discussion section, noting what other publications have done in this area. Journals can alert readers about interpreting results if sex and/or gender were not included at the study design stage. In addition to following SAGER or similar guidelines, journals also have a podium from which they can editorialize, offer features, and run symposia to keep these issues front-of-mind.

> ***"The primary role of journal editors and editorial boards is to improve consistency of reporting. They can do this by adopting and enforcing guidelines such as the Sex and Gender Equity in Research (SAGER) guidelines or something similar."***
>
> ***-- Kimberly J. Templeton, MD, FAAOS, FAOA, FAMWA***

If data are not analyzed by sex and/or gender, journals can also have impact by providing researchers with the opportunity to provide raw data, as has been done by *The Lancet* group of journals. This data can be used in meta-analyses post hoc, which serve as feedback loops to funders and researchers, and may lead to new

questions being asked. These analyses need to be done cautiously, but they can be a signal to researchers about opportunities to set up other, confirmatory studies, and they may impact future trial designs.

Adopting SAGER or Similar Guidelines

Adoption and promotion of SAGER or similar guidelines can encourage authors to consider the inclusion of sex and/or gender early into the study design and planned data reporting. Emphasizing the importance of the inclusion of sex and/or gender, whether through SAGER or other similar guidelines, is ultimately the editor's responsibility. Reviewers are selected because they are subject matter experts, but they may or may not have experience or awareness of this area. When they do, they can bring a more informative perspective into their reviews, benefitting both researchers and editors.

Rather than forcing the inclusion of sex and/or gender at the time of manuscript submission, adopting and implementing SAGER or similar guidelines has the potential for not only impacting individual manuscript submissions, but also provides an opportunity for editors/journals to engage in dialogue with researchers/authors earlier, raising awareness of the importance of sex and/or gender, and encouraging authors to consider and discuss this issue. Engagement and awareness among researchers/authors should improve momentum in this entire endeavor and help inform future study designs.

Conclusion

There is a collective swell of energy related to sex and gender issues along the research and publication continuum. Both individuals and groups have roles in continuing the momentum. Improving inclusion of women in research and reporting results based on sex and/or gender is not really an issue of the buck stopping anywhere. Everyone needs to be engaged and take responsibility in making this a priority.
For example:

1. Researchers, at the inception and development of a project, should appropriately power the design and determine methods of data analysis to include consideration of sex and/or gender.

2. IRBs can have an impact by requiring that sex and gender be incorporated into research designs and intended data analyses, unless investigators provide rationale for why this is not appropriate. Both IRBs and investigators should understand that this issue is greater in scope than only sample sizes.

3. Journals/editors can reinforce the idea that sex and gender influence health and illness. One approach to this would be to promote and implement SAGER or similar guidelines. Journals should also determine how they will respond if systematic reviews include literature that does not report results based on sex and/or gender, limiting the applicability of the review findings.

4. Readers, including healthcare professional students, should ask, “If sex and/or gender wasn’t accounted for, why not?" “What is the implication for clinical practice?” “How could this be addressed in future research?”

5. Researchers, IRBs, and journals have the responsibility to ensure the correct use of the words "sex" and "gender," and readers should understand that these are not interchangeable terms.

6. The American Medical Women’s Association (AMWA) and other groups can develop or leverage existing materials to engage with researchers on SABV and gender influences early in the process and before IRB submission. This could be done across institutions, such as using simple, downloadable tools for researchers. AMWA and other groups could also engage with IRBs to raise awareness of this issue, including providing any needed educational materials to IRB members.

REFERENCE

Heidari S, Babor TF, De Castro P, Tort S, Curno M: Sex and gender equity in research: Rationale for the SAGER guidelines and recommended use, *Research Integrity and Peer Review*, 2016.

INTERSECTIONALITY AND LGBTQ+ HEALTH EDUCATION (PANEL)

MODERATOR

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SHANNON CUTTLE
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DDS Candidate
University of California San Francisco School of Dentistry

A panel of physicians, health educators, advocates, and a student discussed intersectionality and improving LGBTQ+ health education and patient care.

Changing Education to be Sensitive to and Care for a Diverse Population
In order to effectively teach about diversity, it is first necessary to create a safe learning environment where students can learn and ask questions about LGBTQ+ health. These spaces must be welcoming and affirming both for those who are the subject being discussed, and for those who are not. Second, the educational spaces must be intentional and mindful about creating concrete change. Diversity is not just another checklist item. Educators should be prepared for many of the discussions to be uncomfortable, but that is part of the learning process. Educators should recognize and embrace the discomfort in the learning process.

According to Orlando Harris, PhD, RN, FNP, MPH, "the labor of doing this work often falls on the people closest to the issue." While those who work on LGBTQ+ issues are often fueled by passion, it also constitutes emotional labor which can be taxing. Thus, there is a need to engage more individuals in LGBTQ+ education. This emphasizes that LGBTQ+ health education is not a side issue that only members of this community should teach. All faculty members should integrate this into their classrooms. In addition, outside agencies and groups could be invited to lead professional trainings, rather than relying on LGBTQ+ staff members and colleagues. However, one should avoid asking LGBTQ+ patients to do a quick training for staff members. The patient is there to receive care and not to serve as an educator.

> ***"We are more than just what is visible."***
>
> ***-- Shannon Cuttle (Safe Schools Movement)***

INTERSECTIONALITY AND LGBTQ+ HEALTH EDUCATION (PANEL)

Some panelists spoke about themselves as patients, highlighting the challenges that LGBTQ+ individuals experience when obtaining healthcare. Bias and discrimination are common experiences. To counter this, LGBTQ+ patients could benefit from support systems and from allies who are educators. In their teaching, educators could show that patients' identities do not create health disparities. Instead, it is various social institutions and biases in these institutions that contribute to disparities in part via the impact of the social determinants of health.

Both students and faculty can serve as change agents within their programs. Educators can integrate training in implicit bias, anti-bias, and cultural competency (or cultural humility) into their teaching, in addition to adopting a social determinants of health approach. Existing case materials can be easily modified to include individuals from diverse backgrounds and not only in stereotypical situations. Students can view their own programs and curriculum from a critical perspective and be proactive in driving change. Student advocacy has already contributed to increased integration of LGBTQ+ education in many medical schools in comparison to most residency programs.

The need to avoid medical discrimination can serve as an impetus for educational change and for addressing existing deficits. Bias can be reduced by integrating the following into clinical training: how to care for LGBTQ+ patients, appropriate documentation in the medical record, common health problems, and specialized situations such as hormone therapy for trans patients.

> ***"There is a lot of room for nuance in these conversations (about intersectionality and LGBTQ+)." -- Katarina Morgan (DDS Candidate)***

Language and Caring for Diverse Patients

Language is a core component of patient care, and health care providers need to be sensitive to the language that they use with a diverse patient population. The specific language used with patients should be patient driven; it should reflect the terms that patients use. The first use of a term should be standard language, and subsequent references to the term should use the patient's language. Extending beyond anatomical terminology, using terms that patients use for themselves, for anatomical terms, names, pronouns, etc., demonstrates respect for the patient and contributes to building a trusting relationship.

There is a need for education about how to take a complex sexual history. When taking a sexual history, one should be aware of body language, which can help to connect practitioners and patients. There is truth to the adage, "Don't yuck their yum." Teaching curricula should include information about standard aspects of sexuality, followed by less standard forms of sexual expression, including vernacular phrases.

Respect, transparency, and precision are primary principles in patient care that should be incorporated into clinical interaction and throughout the healthcare system. Proper and respectful reflection of the patient's identity should be integrated into all systems and processes of care, from the front desk to administration and EMR systems. Gender identity, gender expression, biological sex, and sexual orientation all exist on a spectrum. They are not binary. Greater awareness and advocacy are needed to increase understanding, reduce bias, improve patient care, and create a healing environment for students and patients.

> ***"We may not always be culturally knowledgeable, but we should be culturally humble…We should always be learning." -- Benjamin Laniakea, MD***

RESOURCES

Advocatesforyouth.org	Amaze.org	Familyacceptanceproject@sfsu.edu	GLAAD.org	GLSEN.org
Transgenderlegal.org	HRC.org	Njsafeschoolscoalition.org	Trevor.Project.org	Tylerclementi.org

A LEARNER'S PERSPECTIVE: WHY SEX AND GENDER MATTER (PANEL)

MODERATOR

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PANELISTS

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Students from various health professions discussed how their schools were incorporating sex and gender into the curriculum, students' interest in and awareness of sex and gender, and the changes that they would like to see in their curricula.

Current Integration of Sex and Gender in Curricula
Students across the health professions indicated that sex and gender was beginning to be integrated into their curricula, but it was not comprehensive. Instead, it was included by individual faculty members who had a specific interest in or knowledge of sex and gender differences. This inconsistency resulted in troubling omissions, such as a lack of discussion about differences in the presentation of cardiovascular disease in women.

The Washington University School of Medicine has encouraged faculty members to incorporate sex and gender specific healthcare into the curriculum, although how much each faculty member does so varies. The University of Utah School of Dentistry includes information about sex and gender differences related to tooth development, classification, appearance, dimorphism of tooth morphology, medical and legal and anthropological cases, gender determination, and diseases that have different prevalence (e.g. men have increased risk of periodontal diseases while temporomandibular joint disease is more common in women). At Mesa Community College's nursing program, sex and gender is sprinkled throughout the curriculum. It tends to be most common in discussions of disease presentation, pathology and prevalence, and differences in laboratory values. There are also sex-specific courses on women's health and men's health. At Texas Tech's School of Pharmacy, broad integration of sex and gender was not apparent to students. Instead, it was taught by individual faculty members. A lack of training on sex differences in the presentation of cardiovascular disease was notably absent in some Emergency Medical Technician (EMT) programs.

> ***"Make sex and gender variables a cornerstone of the curriculum early on."***
> ***-- Alexander Kling (Nursing Student)***

A LEARNER'S PERSPECTIVE: WHY SEX AND GENDER MATTER (PANEL)

Students' Interest in and Awareness of Sex and Gender

Student interest in sex and gender differences in the curriculum correlated with their awareness about these differences. Among students who knew about sex and gender differences, there was a great deal of interest in having the content be integrated into the curriculum. These students often asked faculty members to address these issues. Many other students, however, did not know about sex and gender differences; although once they learned about the differences, they became interested in learning more through the curriculum. Thus, awareness of these issues can be a driver for curricular change.

Among students conducting research, such as in MD/PhD programs, it was possible to consider sex and gender more critically with respect to the sex of laboratory animals and the inclusion of women in clinical trials.

Students' Desired Curricular Changes

There was agreement among the student panelists that both sex and gender needed to be addressed more substantively within the curriculum, particularly early on in the training process to build awareness. One student believed that sex and gender should be a cornerstone in the curriculum. Another spoke of the need for data transparency and an acknowledgement of when data does not tell the full story. For example, more women patients present with borderline personality disorder, but the actual prevalence of borderline personality in the community is similar between men and women. Are there sex and gender differences that cause more women to seek care compared to men? Transparency is important so that bias is not introduced. Similarly, statements presented as fact might not apply to women or to a more diverse patient population.

It is also important to consider other factors such as race and ancestry, keeping in mind that ancestry is genetic, but race is not. Race is socially constructed. Solely considering race as a variable could be misleading. These are nuanced discussions that can help us to better understand the intersectionality of sex and gender health with other factors, which enables us to adopt a more sophisticated and person-centered approach within health professions education.

Students wanted more training in LGBTQ+ healthcare overall. Two students specifically noted that they wanted more teaching about how to care for transgender patients, the transition process, hormonal and interactional effects, and how to treat these patients. Lastly, students noted that they could use their own experiences as patients who had experienced inequities within the healthcare system in order to educate others and to advocate for change.

> ***"My number one area that we need to learn more is transgender medicine"***
>
> ***-- Rachel Smith (Pharmacy Student)***

GLOBAL UPDATE ON SEX AND GENDER HEALTHCARE EDUCATION: BREAKTHROUGHS AND BARRIERS: LEADERS FROM BRAZIL, CANADA, GERMANY, ITALY, AND SWEDEN (PANEL)

MODERATOR

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CLOSING

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Western Michigan University, Homer Stryker MD School of Medicine

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University of Calgar; Nephrologist, Alberta Health Services - Calgary Zone

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Vice-Chair, Swedish Medical Women's Association

MARILENE MELO, MD
Past President
World Association of Societies of Pathology and Laboratory Medicine (WASPaLM)

BETTINA PFLEIDERER, MD, PHD
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Head research group Cognition & Gender
Medical faculty, Westfalian University of Muenster

ANTONELLA VEZZANI, MD
Anesthesiologist
President, Italian Medical Women's Association (AIDM - Associazione Italiana Donne Medico)

Moderator: Claudia Morrissey Conlon, MD, MPH, FAMWA (USA)
In this session, we sought to go beyond issues of curricular content and pedagogical approaches. We examined the extent to which the teaching of sex and gender based medicine (SGBM) and testing for its proficiency are being institutionalized at medical schools in a range of countries. By sharing global experiences and lessons learned, our intent is to accelerate efforts to mandate the teaching and practice of SGBM here in the U.S.

The session featured panelists from five different countries - Brazil, Canada, Germany, Italy, and Sweden - all actively engaged in the effort to mainstream sex and gender health education (SGHE). Two countries, Italy and Brazil, have state and regional mandates to incorporate SGHE into their medical school curricula. Two others, Canada and Germany, have robust electives and are pushing for institutionalization. We also presented a cautionary tale from Sweden, where promising momentum in the late 90s has given way to marginalization.

> ***"Two countries, Italy and Brazil, have state and regional mandates to incorporate SGHE into their medical school curricula. Two others, Canada and Germany, have robust electives and are pushing for institutionalization."***
>
> ***-- Claudia Morrissey, MD, MPH, FAMWA***

GLOBAL UPDATE ON SEX AND GENDER HEALTHCARE EDUCATION: BREAKTHROUGHS AND BARRIERS: LEADERS FROM BRAZIL, CANADA, GERMANY, ITALY, AND SWEDEN (PANEL)

Sofia Ahmed, MD, MMSC, FRCPC (Canada)
Although the Canadian Institutes of Health Research (CIHR) mandate the incorporation of sex and gender considerations into all research funded by the agency, no such mandate exists for medical education in Canada. There are seventeen accredited medical schools in Canada. A recent study (*BMC Medical Education* volume 21, Article number: 435 (2021)) found that the integration of women's health into the curricula of Canadian medical schools was low. This suggests that future physicians have little exposure to the full breadth of women's health.

There are several champions for SGHE including the Canadian Institute of Gender and Health (IGH), the Organization for the Study of Sex Differences (OSSD), the Canadian Women's Heart Health Alliance (CWHHA) (cwhhc.ottawaheart.ca/national-alliance/cwhha), and individual physicians. The CWHHA is a national network of women with lived experience, clinicians, and scientists. It was formed in 2018 "to develop and disseminate evidence-informed strategies to transform clinical practice and enhance collaborative action on women's cardiovascular health in Canada." In response to the paucity of sex and gender specific educational material regarding cardiovascular disease in clinical training programs for physicians, educational modules focusing on women's cardiovascular health were created, targeting trainees and healthcare professionals within cardiology, emergency medicine, and general internal medicine (cwhhc.ottawaheart.ca/national-alliance/projects-and-initiatives/canadian-womens-heart-health-education-course). Resources are shared across medical schools in Canada, providing hope for the institutionalization of SGHE.

Elizabeth Lichtenstein, MD (Sweden)
In the 1990s, Dr. Lichtenstein was part of a group of female physicians who were successful in having gender systematically integrated into all medical education institutions in Sweden. She ensured that gender was integrated into the medical curriculum at Karolinska Institute. This national success was accomplished by a network of women doctors and teachers at all the medical faculties in Sweden who met, networked, shared experiences, inspired, and helped each other. They had experienced challenges in academics and with the clinical care of women patients that their male colleagues did not recognize. Interestingly, when male colleagues advocated for the cause, they were taken more seriously than the women. Together, they developed a curriculum that received a government prize for the best gender curriculum in Swedish universities. This enabled them to overcome past obstacles such as certain conservative local forces which did not see the benefits of teaching students about gender. Sadly, much of the work that was accomplished has disappeared at many of the institutions. The problem was that those advocating for gender education did not have people in key positions who could push for these subjects and network on a national and international level. Current champions for SGHE are individual faculty members within medical institutions.

Dr. Lichtenstein offered the following strategies to effect change:

- Identify people with whom you can work both internally at your medical school, as well as externally.
- Network with others.
- Find educational resources that you can use.
- Determine how you can integrate gender into various subjects.
- Document what you are doing.
- Use the influence of media to achieve changes, and don't give up.

Marilene Melo, MD (Brazil)
Teaching SGBM in medical schools in Sao Paolo was initially championed at two medical schools. A group of committed Brazilian women physicians used several strategies to effect change. They created a consumer-friendly brochure about the importance of SGBM. They printed and distributed 500,000 copies of the brochure across medical schools throughout Sao Paulo state, to Parliamentarians, in churches, and among women's health advocacy groups. They identified champions in Congress and lobbied at the State legislature. Lastly, they mobilized the Sao Paulo Medical Association and the Council of Pastors of the State of Sao Paulo.

The advocacy efforts by women physicians were successful and resulted in a mandate by law that SGBM be taught in the 40 medical schools in Sao Paulo State (Law No. 16,767, June 12, 2018). The President of the Legislative Assembly's Decree:

> *Article 1*: The Executive Branch is authorized to include in the study of the discipline of clinical medicine in all State medical schools, a special chapter on the main diseases that present themselves differently between women and men.
>
> *Article 2*: This law enters into force on the date of publication.

The next step is to take the lessons-learned from this successful effort in Sao Paulo to mandate the teaching of SGBM at the national level.

Bettina Pfleiderer, MD, PhD (Germany)
The implementation of sex and gender aspects into the medical curriculum at German medical schools is still a voluntary effort of a few passionate female experts. Only 3% of all medical schools formally teach sex and gender sensitive medicine (SGSM), and they tend to focus on sex differences rather than gender. Non-physician equality officers in medical schools are mostly held responsible for SGSM in Germany, which unfortunately reduces a broader sense of responsibility among physicians.

The hurdles of implementing SGSM are (1) not enough experts in SGSM, (2) hardly any German textbooks on SGSM, (3) mostly female physicians are interested in this topic, (4) a misunderstanding that SGSM is only medicine for females, and (5) a lack of mandatory proficiency testing. The COVID-19 pandemic, however, has opened a window of opportunity for change. The fact that male patients are more severely affected by and die more often of the disease has sparked huge interest among the public and within medicine.

Our approach to facilitate the inclusion of SGSM into the medical curriculum in Germany is to provide teaching materials on an educational exchange platform for topics related to sex and gender aspects in medicine. This will raise awareness among various stakeholders and enable faculty and students to obtain the latest information on SGSM.
(gendermedwiki.uni-muenster.de/mediawiki_en/index.php/Welcome_to_GenderMed-Wiki).

In medical schools, it would be helpful to install SGSM professorships. Involving and lobbying political stakeholders is also needed. Moreover, mandatory questions related to SGSM need to be included in national proficiency exams. As a bottom-up strategy, students should request SGSM to be taught in their courses.

Antonella Vezzani, MD (Italy)
In Italy there are 85 medical schools. 55.7% of the students who graduated in 2020 were women. Less than 10% of University Chancellors are women, and 15-18% of department heads are women. General curricula in medical schools are set at the national level by the MIUR (the Italian Ministry of Education, University, and Research), and the Ministry of Health.

Since 2017-2018, SGHE was strongly recommended to be taught in the medical school curricula by the permanent Conference of the Presidents of all the Schools of Medicine. Subsequently, it was made mandatory by the MIUR. Even though the law on gender medicine dates back to 2018, a national university training plan has not been established yet. Each university decides in which courses this is taught. SGHE has been inserted into some training courses.

GLOBAL UPDATE ON SEX AND GENDER HEALTHCARE EDUCATION: BREAKTHROUGHS AND BARRIERS: LEADERS FROM BRAZIL, CANADA, GERMANY, ITALY, AND SWEDEN (PANEL)

There is a great deal of interest in gender medicine in Italy. When an elective course was offered on gender medicine, so many medical students registered that not everyone was able to participate. The course had to be repeated several times. Gender medicine is becoming institutionalized in Italy. The Observatory on Gender Medicine, established in 2020, has the function of monitoring the implementation of the promotion, application and support actions for Gender Medicine. Public education has already started with the placement of information about gender differences on buses. The next steps are to develop a national training plan for SGHE and to expand public education.

Closing Summary: Janice L. Werbinski, MD, FACOG, FAMWA (USA)
Several common themes and suggestions emerged from this panel:

- Only a small percentage of schools (8.6% in Canada; 3% in Germany) have formal courses in sex and gender based medicine (SGBM).
- Even in countries with a law to teach SGBM, the uptake has been slow to nil.
- Most SGBM programs, even if only an elective, have had a motivated woman champion or advocate who brought the concept to the forefront. If that champion retires, moves on, or is disillusioned, the program is often not sustained.
- Common themes: It is primarily women faculty and researchers who promote this education. Most schools showed a scarcity of women in leadership positions such as dean, department head, or full professor positions.
- Could advocacy for promotion of women to leadership positions be a path to incorporating these principles for appropriate woman-centered clinical care?
- Men who are allies can sometimes be effective in advancing a sex and gender lens in curricula.
- Common adversaries: 1) traditional teaching based on research done on males; 2) the misperception that sex and gender based medicine refers only to women's or LGBTQIA health; 3) a perceived lack of faculty resources; and 4) those happy with the status quo.
- A number of presenters commented on the success of the "bottom up" grassroots approach. For example, when students asked for this information in Italy, the elective courses filled so quickly that many students could not be accommodated.
- Several presenters mentioned advocacy from the lay public to improve their own healthcare and to address their specific health concerns.
- In Sao Paulo, Brazil, one of the most impactful activities was the distribution of 500,000 brochures about sex differences to churches and women's health advocacy groups.

> ***"Common adversaries: 1) traditional teaching based on research done on males; 2) the misperception that sex and gender based medicine refers only to women's or LGBTQIA health; 3) a perceived lack of faculty resources; and 4) those happy with the status quo."***
> ***-- Janice L. Werbinski, MD, FACOG, FAMWA***

In summary, the similarities in experiences across countries show that there is still much work to be done before SGBM is incorporated into healthcare providers' curricula. Yet, we can learn from each other about the processes, successes, and pitfalls when we collaborate, network, and share experiences.

As an extension of this panel, this group will conduct a research project, overseen by the Advocacy Committee of AMWA's Sex and Gender Health Collaborative. Leaders of the 35 countries where national medical women's associations exist will be asked to complete a survey to assess the reach and depth of SGHE in each country. Results will be reported at the Medical Women's International Association 32nd Congress in Taiwan in 2022.

KEYNOTE: THE POWER OF LANGUAGE: GENDER DIFFERENCES IN COMMUNICATION

AMY KOERBER, PHD, MA
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Language is powerful. Consider the common phrase "He's such a good guy." It allows one to overlook some of the bad qualities that a man may possess, while affirming that he belongs. It is a term that is used in a way that is beneficial for men. There is no equivalent term or way to say the same about women. This shows how language can constrain what we see as true, and thus it can shape our reality.

Denotation and connotation are theoretical concepts from the field of communication. Denotation is the dictionary definition or literal meaning of a word or phrase. Connotation refers to the emotional overtones of language, i.e., the baggage it carries. For example, the phrase "He's such a good guy" carries many emotional overtones. There are words that we use in relation to women which also have connotations. For example, the word hormone was first used in 1905 by a British physician. It has become so deeply ingrained in our culture that women are viewed as hormonal beings and we commonly speak about women having pregnancy brain or mommy brain. Hysteria is another word that carries powerful baggage in medicine (Koerber 2018).

Denotations of the Word Hysteria

About 400 B.C.E., the term hysteron referred to "movement of the uterus." The uterus was described as a wild animal. It was thought that a wandering womb caused female problems. Recommended treatments in ancient times included pregnancy, intercourse, or use of smells to lure the wandering womb back to its proper place. Later, in the 13th-16th Century C.E., people began to question whether the uterus could actually move in the body, and they sought alternative explanations for the origins of hysteria. They began connecting the uterus to the female brain and thought that the brain might be the cause of hysteria. In the 17th-19th Century C.E., hysteria was understood as a psychiatric condition. It was sometimes a misdiagnosis for epilepsy or it was conflated with witchcraft. Treatments included hypnosis, smelling salts, and spirituality. In the 19th-20th Century C.E., the term hysterical neurosis replaced hysteria. In the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-4, 1994), the terms dissociative disorders and somatic symptom disorders replaced hysteria. Thus, the female brain had come to replace the uterus as the site of interest.

> ***"Women can be positioned...as unreliable symptom reporters...They are silenced and ignored by a healthcare system that privileges men and dismisses women."***
>
> ***-- J. Thompson & D. Blake***

Connotations of the Word Hysteria

Even though most women are not being diagnosed as having hysteria, the sentiment is still very much with us. In his 1991 book *The Culture of Pain*, David Morris describes hysteria as the "diagnostic box for imprisoning women whom male doctors were unable to cure." Hysteria has been replaced with diagnostic labels such as fibromyalgia (Katz 2008). Gender bias persists because women are not viewed as trustworthy reporters about their own bodies (Thompson and Blake 2020). Women are still seen as governed by forces they can't control. We have replaced the concept of hysteria with hormones. Even though no one believes that the womb is wandering around and wreaking havoc on the body, there is still a belief that women have something inside their bodies that makes them act irrationally. A great deal of bad science has been based on these beliefs, such as examining the impact of estrogen on women's ability to solve math problems. Hysteria has also led to blind spots in medicine. In "The misogyny of iron deficiency," (Dugan et al. 2021) it is hypothesized that iron deficiency has long been ignored because symptoms are often misdiagnosed as mental health symptoms. In addition, symptoms such as anxiety, depression, insomnia, and headaches are viewed as normal aspects of being a woman.

KEYNOTE: THE POWER OF LANGUAGE: GENDER DIFFERENCES IN COMMUNICATION

Language Shapes our Reality

Language shapes our world by determining how we understand its most basic elements. Language is not a conveyor belt; when you speak as a medical expert, your words are not just a conveyor belt for pre-existing facts. When we use language, it uses us too. It shapes our reality, and it shapes our patients' reality about what they believe and how they feel. The words you use matter. For example, diagnostic labels for various fatigue syndromes may have a long term impact on patients, and may even affect prognosis (Hamilton et al. 2005). The language we use contributes to gender bias in healthcare. As we come to understand the impact of our language, we can learn to disrupt that bias.

> ***"Language shapes our reality (as healthcare providers), and it shapes our patients' reality about what they believe and how they feel."***
>
> ***-- Amy Koerber, PhD, MA***

Gender Differences in Communication

Studies have shown differences in communication styles between men and women (Barsky et al. 2001). Women tend to rely on narrative, and they provide more details about their symptoms than men. Therefore, communication training should address gender differences in symptom reporting.

Both the gender of the physician and the gender of the patient have an impact on the type of communication that occurs in the clinical setting (Roter, Hall, Aoki 2002, Sandhu et al. 2009). In a study looking at different dyads, woman – woman dyad was found to be the most patient-centered. The man-man dyad was the calmest and was focused more on biopsychosocial content. The dyad with a man physician and a woman patient was the least patient-focused. The dyad with a woman physician and a man patient was the least comfortable. It is also important to remember that gender intersects with cultural, ethnic, and racial differences (Burt et al. 2016) and to acknowledge these factors in the clinical encounter.

Nonverbal Communication

We also communicate nonverbally. Our whole body speaks when we interact with someone. Thus, the gestures used by a physician matter. Studies have shown that if a physician has relaxed hands, i.e., not typing, it indicates attentiveness (Pawlikowska et. al. 2012). Smiling, nodding, and leaning forward lead to greater patient satisfaction (Griffith et al. 2003).

There are also gender differences in nonverbal communication. Women are better at interpreting nonverbal cues and at using nonverbal cues in the clinical setting (Street 2002). Nonverbal communication can provide additional information about the patient, and it can be taught in medical education. Women are more attuned to non-verbal communication.

While there are gender and cultural differences in communication styles, one needs to be careful about stereotyping because it can lead to bias. Effective communication is a mindset and not a skillset. You need flexibility, empathy, and awareness for effective communication (Kodjo 2009). Be constantly aware of what you have learned about different styles of communication and genders, but don't let that be the whole story. Learn how to react to the moment and the individual situation. That is what makes communication so powerful.

> ***"Effective communication is a mindset and not a skillset. You need flexibility, empathy, and awareness for effective communication."***
>
> ***-- Amy Koerber, PhD, MA***

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FLIPPED EXAM ROOM: PATIENTS EDUCATING PRACTITIONERS (PANEL)

MODERATOR

BETH BATTAGLINO, RN-C
CEO, HealthyWomen

PANELISTS

TERRIE COWLEY, BA
President and Co-Founder, The TMJ Association, Ltd.

KATHERINE K. LEON, MS
Co-Founder/Director, Spontaneous Coronary Artery Dissection (SCAD) Alliance

LARA ROSTOMIAN, BA
Graduate Student. Harvard T.H. Chan School of Public Healthy, Premedical Student Co-Chair Sex and Gender Health Collaborative, AMWA

JAIME SANDERS
Migraine Patient Opinion Leader

MODERATOR: BETH BATTAGLINO, RN-C
Practitioners have learned that a more collaborative approach to medicine, one in which they work side-by-side with patients to improve their health, is almost always a better approach to healthcare. After so many years in which sex and gender disparities were given scant attention in medical research and consequently in medical care, it has become clear how important these differences are to understanding and improving women's health. In this panel, the members discussed their experiences with gender bias in the healthcare system and the difficulties they experienced in obtaining appropriate healthcare for their conditions. The panelists brought diverse perspectives into the discussions such as integrating sex and gender into all medical education and care, the intersectionality of race and gender on diagnosis and care, and examples of specific conditions that impact women in unique ways.

TERRIE COWLEY, BA
Terrie Cowley is an advocate for improving research, professional education and awareness about Temporomandibular Disorders (TMD) and its many comorbid conditions. The pain and dysfunction of TMD can impact one's ability to eat, sleep, talk, and even breathe. It is estimated that approximately 36 million Americans are affected by TMD. There is a gender component to TMD. Women are four times more likely to develop TMD than men. Men who develop TMD often feel stigmatized about having a women's condition. For many, TMJ can resolve with or without treatment, be intermittent or advance to severe and debilitating. Because TMD was believed to be about teeth and jaws, treatment was under the domain of dentistry. However recent research has demonstrated TMD to be a complex multisystem condition requiring a multidisciplinary approach to research and treatment. Medical professionals are not routinely educated about TMD. A study conducted by the National Academies of Sciences, Engineering and Medicine on TMD recommend that Deans of health professional schools (across medicine, dentistry, nursing, physical therapy, and all relevant areas of health) should ensure that their schools' curricula include attention to TMDs and cover the physiology, pathophysiology, and assessment, referral, and management of related conditions. Patient empowerment is also important for advocacy through professional agencies and organizations.

KATHERINE K. LEON, MS
Katherine Leon is a survivor of Spontaneous Coronary Artery Dissection (SCAD). Her story was featured in the film *Ms. Diagnosed*. Ms. Leon's experience is not uncommon. Women often have difficulty in obtaining a diagnosis for conditions that are less well known. Ms. Leon had a heart attack after the birth of her second child, and after several weeks of misdiagnoses, she underwent emergency double bypass surgery. She experienced gender bias in the healthcare system and often felt minimized and dismissed by healthcare providers who used gendered language when describing her as "pleasant" and "anxious" in her medical chart. Her physicians' preconceptions about her based on her sex and gender compounded an already difficult medical situation, making the healing process even more challenging.

FLIPPED EXAM ROOM: PATIENTS EDUCATING PRACTITIONERS (PANEL)

LARA ROSTOMIAN, BA

While skiing, Lara Rostomian tore her anterior cruciate ligament (ACL). She became aware of gender bias in the context of rehabilitation therapy. Ms. Rostomian participated in group rehabilitation therapy. Most of the group members were athletes who were men. Both she and a quarterback were given the same therapy which was oriented toward getting the athlete back on the field. It was not a personalized rehabilitation plan adapted to a woman's body or to Ms. Rostomian's specific health needs and goals. Ms. Rostomian noted the important role of patient stories to guide practitioners to improve what they do and provide better patient care. In telling their stories, patients are being advocates for themselves and for others. Ms. Rostomian's work with AMWA's Sex and Gender Health Collaborative has increased her understanding of sex and gender bias within healthcare and is another form of advocacy.

JAIME SANDERS

Jaime Sanders is a patient advocate who chronicles her lifelong battle with migraines on her blog *The Migraine Diva*. As a Black woman who experiences chronic pain, she must engage in a great deal of impression management in order for her condition to be taken seriously, to not be dismissed in the clinical setting, and to avoid racial attributions that might result from implicit bias. When engaging with the healthcare system, Ms. Sanders must attend to her physical appearance in order to present herself as educated and knowledgeable. She often knows more about her condition than her healthcare providers, but she must be careful to not appear overly assertive. Her pain has often been attributed to stress or size by clinicians, and she has received recommendations to exercise. Ms. Sanders has developed a communication strategy when meeting new physicians; she brings a letter from her primary physician (on letterhead) that explains her condition. The need to exert effort to humanize herself while seeking care has been a burden. Her testimonial exemplifies the intersectionality of her experience in a healthcare system that combines both racial and gender bias.

Ms. Sanders notes that other components of the healthcare system also contribute to the bias that she experiences. There is a lack of representation of minority women as research subjects. There are also insurance barriers in accessing devices, specialists, and traveling across state lines for care. Improvements in communication between patient and practitioner can reduce the extent of bias experienced by patients. Ms. Sanders suggests that clinicians allow patients to lead the conversation. They should also be aware that culture and race play a role in patients' experiences in the healthcare system.

Patients' Recommendations for Clinicians and Educators

- **Do not be dismissive of your women patients' complaints** when they do not fit into your prior understanding of what presentation of an illness looks like.
- **Be aware of your own sex, gender, and racial biases** when it comes to recognizing patients' health problems and treating them.
- **Be aware of the gendered language** that you use with your patients and when charting.
- **Be aware of bias in the healthcare system** such as the lack of research that has included women and minorities, access issues, and insurance barriers.
- **Adapt treatments** to your patient's sex, gender, and health goals.
- **Listen to your patients and their stories** – they know their bodies.
- **Don't compare** your women patients with other women in your personal life.
- **Empower your patients** to be their own advocates and to share their stories.
- **Be an advocate for your patient.**
- **Include education about sex and gender differences and intersectionality** in health professions education, including interprofessional education.
- **Teach your students all the above information.**

HOW TO MAKE YOUR EDUCATIONAL CONTENT SEX AND GENDER TRANSFORMATIVE: INTRODUCTION TO THE SEX AND GENDER INTEGRATIVE EDUCATIONAL TOOLKIT (WORKSHOP 2)

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The goal of this workshop was to assist educators and curriculum leaders in creating an integrative, evidence-based and longitudinal curriculum that considers biological sex and gender identity. The workshop introduced the Sex and Gender Integrative Educational Toolkit, which was developed at the Warren Alpert Medical School, Brown University by Dr. McGregor and Dr. Samaei. The toolkit includes five easy steps that help faculty assess and modify educational content to include the role of sex and gender.

Step 1: Use a modified assessment scale to understand the current status of the educational content.

Based on the assessment scale in the Toolkit, educational materials could fall into one of the following categories

- Sex and gender **biased**: Stigmatizing, reinforces stereotypes, wrong use of language.
- Sex and gender **blind**: Ignores sex and gender differences.
- Sex and gender **sensitive**: Acknowledges the differences in sex and gender without mentioning the mechanisms or contributing factors.
- Sex and gender **specific**: Acknowledges the differences, discusses the reasons or contributing factors or knowledge gaps. Doesn't discuss how this information could be applied to the clinical setting.
- Sex and gender **transformative**: Acknowledges the differences. Considers gender norms, roles, and relations for people of all genders. Discusses contributing factors, mechanisms of the differences, or the knowledge gap. Includes knowledge translation strategies to improve patients care.

Step 2: Use the adapted checklist to identify what is not accurate, what is missing, and what could be improved in your education materials.

The checklist is derived from the book *How Sex and Gender impact Clinical Practice* (Jenkins and Newman [Eds.] 2021). Examples of items included in the checklist are discussions of sex and gender in epidemiology, history and presentation, physical exam, diagnoses, etc. (See Workshop 1, Figure 1)

HOW TO MAKE YOUR EDUCATIONAL CONTENT SEX AND GENDER TRANSFORMATIVE: INTRODUCTION TO THE SEX AND GENDER INTEGRATIVE EDUCATIONAL TOOLKIT (WORKSHOP 2)

Step 3: Identify existing resources and use them. Most of the following resources are free, available, and easy to use:

- **Slides and videos**: Visit Sexandgenderhealth.org for slides and videos that can be inserted into existing presentations. The website is developed by Laura W. Bush Institute for Women's Health, Texas Tech University Health Sciences Center.
- **PubMed search tool**: Sexandgenderhealth.org also contains a PubMed search tool to facilitate searches for research articles that include sex or gender for an issue of interest. (*an advanced search tool is also available*)
- **Textbook**: *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care* (Jenkins MR, Newman CB [Eds.], Elsevier, 2021)
- **Organizations**:
  - Organization for the Study of Sex Differences
  - Sex and Gender Health Collaborative of the American Medical Women's Association
  - Laura W. Bush Institute for Women's Health
- **Proceedings**: Prior Sex and Gender Health Education Summit proceedings sghesummit.com

Step 4: Use the resources to edit your educational materials.

For example, you can show the differences between women and men in epidemiology, symptoms, treatment, pharmacology, management, complications, and outcomes. You can include sex specific factors in your materials, as appropriate. Be sure to address knowledge gaps. You can use knowledge translation strategies to indicate how sex and gender knowledge is applied in the clinical setting to improve patient care.

Step 5: Reassess your modified educational content with the assessment scale and checklists.

Repeat Steps 1 - 4 as needed.

Break Out Rooms

Participants were divided into small groups following the introduction of the toolkit. The objective of the small group activity was to understand the participants' willingness to use the toolkit, their perceived barriers for including discussions of sex and gender in their educational activities, as well as possible barriers in using the toolkit. Participants from professions other than medicine discussed how the toolkit could be applied to their discipline. The toolkit is available from the presenters.

CONCLUSION & NEXT STEPS

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This was the fourth summit that focused on sex and gender in health professions education. In this summit, we highlighted the need for a person-centered approach to care that considers all of an individual's personal variables when engaging in clinical decision making. The concept of intersectionality provides us with a new way to advocate for sex and gender based education.

Four domains were discussed during this summit: knowledge, research, clinical practice, and advocacy.

Knowledge
If we adopt a public health perspective and use the concept of "web of causality," we can better understand how health outcomes are impacted by multiple factors. This naturally leads us to consider how sex and gender intersect with other personal variables to impact health and healthcare. As we work to change health professions curricula, we must adopt an intersectional approach into our sex and gender lens.

Faculty development is essential to this process. Faculty need to understand the nomenclature and the contexts in which to use the term sex vs. gender. Institutions should also have a culturally-sensitive LGBTQ+ specific curriculum and incorporate the talents and voices of a gender-diverse faculty.

Standards to assess sex and gender knowledge within individual professions must also be developed. Assessment through changes in licensing exams can be a driver for curricular change, and we must continue to work toward that. We can look toward international examples of success to inspire us and to serve as models in the U.S. and abroad.

Research
Research is critical to advancing the field of sex and gender specific health. Research studies should be designed to include both women/men in human studies and females/males in cellular and animal studies. The role of gender should be considered in study designs. It is critical that data be disaggregated and analyzed by biologic sex.

New tools and methods are being developed to measure gender as a sociocultural variable, which will make it easier for researchers to incorporate gender more explicitly into their studies. Conducting an analysis by gender will provide an understanding of how gender influences clinical presentation, disease sequelae, attitudes toward healthcare, and bias in the clinical setting. There may also be opportunities for Institutional Review Boards to emphasize the importance of sex and gender.

CONCLUSION & NEXT STEPS

Clinical Practice
Clinical decision making should be done through a sex and gender lens which includes the intersectional factors that impact care. This person-centered approach to care will not only lead to improved care for women, men, and individuals of diverse genders, but to increased trust within the provider-patient relationship. An intersectional sex and gender lens is essential to providing high value care.

We also need to take more care with the language that we use and attend to our verbal, nonverbal, and gendered communication styles. As we care for a diverse patient population, we must practice cultural humility and recognize when our own biases create barriers to care and when systemic factors result in health disparities. Above all, we must listen to our patients.

Advocacy
During this summit and in previous summits, we have seen many examples of success in advancing curricular change with respect to sex and gender across the world. None of this would have been possible without advocacy. As we continue to advocate for change, we need to be aware of our champions and allies and encourage them to join us. We must also know the gatekeepers and anticipate our adversaries. Patients can be our allies in this process by harnessing the power of storytelling.

Next Steps – A Call to Action
We need ambassadors for change to share the information from these Summits with institutions and learning communities. We hope you will use the Summit toolkits to speak with institutional leaders, submit proposals for symposia at local and national meetings in your field, and promote screenings of the film *Ms. Diagnosed*.

As you go forward, make sure to emphasize the intersectionality of sex and gender with other personal and social factors as they relate to patient disease, treatment, and outcomes. These efforts will help close the gaps in healthcare disparities. If we work within our individual disciplines and also work together in inter-professional groups, we will benefit from learning from each other. Only then can we effect transformative change.

> ***"Above all, this summit communicated an important lesson for healthcare practitioners. Each person, no matter who they are, no matter their gender identity, sexual orientation, job, or level of education, should be treated with dignity and respect. And if that person is one of our patients, we must listen to their story. This is a lesson that needs to be communicated when we talk about sex, gender, and intersectionality, and when we educate students."***
>
> ***-- Connie B. Newman, MD, MACP, FAMWA, FNYAM***

APPENDIX

SCIENTIFIC POSTERS

Barr EA, South EM, Hunter C, Huang C, Vasisht K, Bersoff-Matcha S, Temkin SM, Clayton JA. *The development of a successful sex-and-gender interprofessional education curriculum.*

Duerst AM, Vanderschaegen AB, Kling JM, Graves LE. *Exploring the hidden curriculum of sex and gender-based medicine: Medical school faculty knowledge and attitudes.* **(HONORABLE MENTION)**

Eskridge CD, Chin EL. *Innovative methods for teaching sex and gender health: The power of storytelling, theater, and role play.* **(2ND PLACE)**

Modderkolk L, Jurrius A, Oertelt-Prigione S. *Which teaching formats do students prefer to acquire complex skills in sex- and gender-sensitive medicine?*

Primeau CA, Vader K, Philpott HT, Birmingham TB, Unger J, Le CY, MacDermid JC. *Do Canadian physiotherapy students perceive their training addresses content and skills related to working with 2SLGBTQIA+ populations?* **(1ST PLACE)**

Primeau CA, Vader K, Philpott HT, Birmingham TB, Unger J, Le CY, MacDermid JC. *Do Canadian entry-level physiotherapy students who identify as 2SLGBTQIA+ consider their training programs to be inclusive?*

Reyes NO, Marrero EL, Ramírez GO, Jiménez S, Ostolaza KM, Jiménez S, Espinosa JM, Garcia ME. *Integrating precision medicine in an interprofessional health and humanities curriculum to address sex and gender issues in medical school education.*

Sutherland BL, Trieglaff K, Zamzow M, Johnson P, Rossman AH, Nwaelugo N, Mann R, Stamm K, Ark T, Pfister S. *Is a female always a woman and a male always a man? Sex and gender terminology in the M1 and M2 courses at the Medical College of Wisconsin.* **(3RD PLACE)**

Trieglaff KM, Zamzow M, Sutherland B, Johnson P, Rossman AH, Nwaelugo N, Mann R, Stamm K, Ark T, Pfister S. *Sex and Gender Medicine (SGM) in the Second Year (M2) MD Curriculum at the Medical College of Wisconsin (MCW).*

Vasilev DV, Luong H, McKenzie NC, Lee YS, Cook CB, Kling JM. *Assessment of needs and satisfaction in transgender and gender diverse people for development of an educational selective.*

Zamzow M, Trieglaff K, Sutherland B, Stamm K, Ark T, Pfister S. *Sex and gender medicine in the first year MD Curriculum at the Medical College of Wisconsin.*

SEX AND GENDER SPECIFIC HEALTH RESOURCES

MEDICAL EDUCATION CURRICULAR MATERIALS

CHARITÉ UNIVERSITY INSTITUTE OF GENDER MEDICINE
eGender Curriculum
egender.charite.de/en/index.php

CIHR INSTITUTE OF GENDER AND HEALTH
Gender, Sex, & Health Research Case Book
cihr-irsc.gc.ca/e/44082.html

DREXEL UNIVERSITY COLLEGE OF MEDICINE
Gender and Ethnic Medicine Project
webcampus.drexelmed.edu/gem/default.htm

SEX AND GENDER HEALTH COLLABORATIVE
amwa-doc.org/sghc

LAURA W. BUSH INSTITUTE FOR WOMEN'S HEALTH
TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
Sex and Gender Specific Health Curriculum and Modules
sexandgenderhealth.org

CONTINUING MEDICAL EDUCATION

NIH OFFICE OF RESEARCH ON WOMEN'S HEALTH
orwh.od.nih.gov/career-development-education/e-learning

LAURA W. BUSH INSTITUTE FOR WOMEN'S HEALTH
TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
Y Does X Make A Difference CME Series
laurabushinstitute.org

RESEARCH INTEGRATION TOOLS

CIHR INSTITUTE OF GENDER AND HEALTH
Sex and Gender in Biomedical Research
cihr-irsc-igh-isfh.ca/?lang=en
Webinars: cihr-irsc.gc.ca/e/48641.html

KAROLINSKA INSTITUTET CENTRE FOR GENDER MEDICINE
ki.se/en/research/tools-for-sex-and-gender-analysis-in-health

NATIONAL INSTITUTES OF HEALTH – OFFICE OF RESEARCH ON WOMEN'S HEALTH
orwh.od.nih.gov/

STANFORD UNIVERSITY/EUROPEAN COMMISSION
U.S. NATIONAL SCIENCE FOUNDATION
Gendered Innovations in Science, Health & Medicine, Engineering, and Environment.
genderedinnovations.stanford.edu

LITERATURE SEARCH & DATABASE RESOURCES

CHARITÉ UNIVERSITY INSTITUTE OF GENDER MEDICINE
GenderMed Database
gendermeddb.charite.de/?site=home&lang=eng

TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
LAURA W. BUSH INSTITUTE FOR WOMEN'S HEALTH
Pubmed Search Engine Tool
sexandgenderhealth.com

CONSUMER AND PROFESSIONAL RESOURCES

EUROPEAN SOCIETY OF GENDER HEALTH AND MEDICINE
gendermedicine.org

GENDERMAG
gendermag.org

SEX AND GENDER HEALTH COLLABORATIVE
amwa-doc.org/sghc

iGIANT®
igiant.org

NATIONAL INSTITUTES OF HEALTH – OFFICE OF RESEARCH ON WOMEN'S HEALTH
orwh.od.nih.gov/

SOCIETY FOR WOMEN'S HEALTH RESEARCH
swhr.org

VxMED
vxmedc.com

SEX AND GENDER SPECIFIC HEALTH RESOURCES

TEXTBOOKS

Jenkins MR, Newman CB. (Eds.) 2021. *How Sex and Gender Impact Clinical Practice: An Evidence-Based Guide to Patient Care*. London: Elsevier.

McGregor AJ. 2020. *Sex Matters: How Male-Centric Medicine Endangers Women's Health and What We Can Do About It.* New York: Hanchet Go.

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JOURNALS

BIOLOGY OF SEX DIFFERENCES
Official Journal of the Organization for the Study of Sex Differences
bsd-journal.com

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ORGANIZATIONS

THE FOUNDATION FOR GENDER-SPECIFIC MEDICINE, INC
gendermed.org

INTERNATIONAL SOCIETY OF GENDER MEDICINE
isogem.com

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TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
sexandgenderhealth.org

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SEX AND GENDER HEALTH COLLABORATIVE
AMERICAN MEDICAL WOMEN'S ASSOCIATION
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SOCIETY FOR WOMEN'S HEALTH RESEARCH
swhr.org

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