Moving Forward
A Conversation with Dean Nancy J. Brown

Dean Nancy J. Brown, a physician-scientist and the first woman to become dean of the 212-year-old Yale School of Medicine, arrived in February 2020. Since her return to Yale, having graduated from Yale College, Dean Brown has championed efforts to enhance the medical school’s research, clinical service, and education.

Woven throughout these efforts is her dedication to a diverse, equitable, and inclusive environment in which all have a sense of being welcome. This is matched by the dean’s commitment to health equity, through which everyone’s health is optimized. These goals guide the vision of both Dean Brown and Women’s Health Research at Yale. With the support of the school, WHRY advances equity by ensuring that the health of women is studied and differences in health outcomes between and among women and men are a focus of investigation. Aligned with the school’s commitment to improving health, WHRY also incorporates research findings into our teaching, shares new health information with the community, and uses emerging data to inform clinical interventions.

In a recent conversation, Dean Brown and WHRY Director Carolyn M. Mazure, PhD, spoke about the

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INNOVATIONS IN WOMEN’S HEALTH

Gifts Made to Women’s Health Research at Yale

In Honor of...

Natalie Ain
Mary B. Arnesen
Alice Berg
Daniel P. Cunningham
Doran Family
Dorsey Family
Elba S. Dorfer
Danielle Rothman Ezra
Jillian Rothman Ezra
Hilda G. Foreman
Simia Gottfinkel
Sophie House & Hillary Wadson
Sharon Karp, MD
Dolores Lachman
Ruth Lusnner
Sally Marchesi
Carolyn Mazure, PhD
Roslyn Meyer
Wendy Nussair
Darryl Pollock
Barbara Riley
Frances Rosenbluth
Carol F. Ross
Nancy Schapiro
Ann Schupack
Diane Sherer, MD
Carolyn W. Sluyman
Florence Sabun Stern
Anne Stewart
James Clifton Wellebourne
Richard N. Wolf

Carol F. Ross

Moving Forward (Continued from front cover)

importance of research, the value of research on studying women, the influence of biology and social factors that differentially affect the health of women and men, community outreach, diversity, equity, and more.

Dr. Mazure:

You have spent your professional life in academic medicine and have had the chance to see how academic health centers contribute to the greater good. In your view, what role do academic health centers like Yale School of Medicine play in advancing research to improve the health of our nation?

Dean Brown:

Academic health centers and schools of medicine are the engines for discovery that drive improvements in health. Our scientists strive to discover new ways to think about pressing health concerns and compete for funding based on the innovation of the proposed research in shedding light on a critical health problem and the potential impact of the findings. In a medical school, clinical observations may inform research, enhancing its impact. Additionally, academic health centers offer the community early access to the application of discoveries into new therapies and diagnostics. Scientists from different fields can cross disciplines and work together to solve problems that cannot be solved by expertise in a single field. In addition, faculty collaborate across laboratory, clinical, and community research to provide multiple platforms for understanding the biological and social mechanisms that promote health and underlie disease.

Dr. Mazure:

As you know firsthand, to affect these outcomes. In my own view, community in its vision, WHRY has inspired research questions that might not have been considered. WHRY also contributes essential functions as a conduit for health information to medical and public communities and as a source for mentoring students and junior faculty members so they are prepared for their careers and embrace lifelong learning.

Dr. Mazure:

We know both biological and social factors, such as gender and race, influence health. Is the future of research to study both?

Dean Brown:

We need to understand the impact of sex and gender on diseases and conditions that cause significant morbidity and mortality. These include cancer, cardiovascular disease, diabetes and obesity, and disorders in behavioral health. We also need to study reproductive health broadly, for example, in understanding that the health of a mother influences the health of the next generation. In the future, what would you say are the most urgent health concerns for women that research needs to address?

Dean Brown:

For those who might be less familiar with the current scientific landscape, what would you say are the most urgent health concerns for women that research needs to address?

Dean Brown:

As WHRY approaches its 25th anniversary, why do you think it is important to have a center within Yale School of Medicine focusing on how sex and gender influence health?

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Centers such as WHRY serve as a model, a catalyst, and an academic home for the pursuit of knowledge covering a wide area of interests. By bringing investigators together, offering funding and guidance, and involving the community in its vision, WHRY has inspired research questions that might not have been considered. WHRY also contributes essential functions as a conduit for health information to medical and public communities and as a source for mentoring students and junior faculty members so they are prepared for their careers and embrace lifelong learning.

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Priming the Pump

Dr. Akiko Iwasaki understands how persistence and reliance on a sound strategy can pay off years or even decades later. As one of the world’s foremost experts on SARS-CoV-2, the rapidly mutating virus driving the COVID-19 pandemic, Dr. Iwasaki is now leading efforts to create a nasal spray vaccine that generates an effective immune response at the location in which the airborne virus typically enters the body. But this technique, which promises to help tamp down the current crisis and prepare for the next one, did not appear in a flash or by accident. It evolved from deliberate progress based on work first sponsored by Women’s Health Research at Yale almost two decades ago.

“Thank you Dean Brown for this opportunity to speak with you. Dr. Mazure: Yes, this is a key point. At WHRY we often say that difference does not mean better or worse but that we need — without judgment — to account for how disease can affect people differently. I sense that would help us understand the mechanisms of disease and develop better prevention and treatment strategies for both women and men.

Dr. Mazure: The medical school has incorporated language into its mission statement to promote “an inclusive environment enriched by diversity.” You have called for YSM to be a place “where women and underrepresented in medicine (URiM) faculty, staff, and students thrive, and where diversity and excellence are inextricably linked.” What are some of the next steps in building diversity, equity, inclusion, and belonging (DEIB)?

Dean Brown: Under the leadership of Dr. Darin Latimore, our deputy dean for diversity and inclusion, the YSM community has been engaged in self-examination and strategic planning. We understand that we must not only focus on recruiting a diverse student body, faculty, and staff but also on mentoring, sponsoring, and promoting those who are here as we continue to build an inclusive community. An important component of our strategic plan is measurement of our progress.

Dr. Mazure: How do you see WHRY advancing this work?

Dean Brown: Since early on, WHRY aligned with the individuals and groups advancing the tenets of DEIB at Yale School of Medicine. Most recently WHRY has been collaborating with the Office for Health Equity Research under the leadership of Dr. Marcella Nunez-Smith.

Dr. Mazure: Thank you Dean Brown for this opportunity to speak with you.
The Brain and the Heart

Understanding How to Prevent and Treat Alzheimer’s Disease

Raised Risks for Some Women

Before leaving her faculty position at the Mayo Clinic in March, Dr. Mielke was the senior author of a study published in the journal Neurology, finding that the link between cardiovascular conditions, risk factors for cardiovascular disease (CVD), and cognitive decline in mid-life was stronger for women than for men. This was true even though men generally have more heart conditions and cardiovascular risk factors in mid-life, such as high blood pressure, diabetes, and obesity.

“There is still a lot of work to be done about the mechanistic, biological underpinnings of Alzheimer’s disease,” Mielke said. “But what our study and prior research are telling us is that what’s good for the heart is good for the brain. And this might be even more true for women.”

Reasons for this difference could include the influence of sex hormones on heart health and cognition, as well as social differences that often vary between women and men, such as exercise and education. Women are also more likely than men to have types of CVD that decrease small vessel blood flow to the heart without a co-occurring cholesterol blockage in the larger arteries. Such sex differences in the biology underlying CVD might affect cognition differently for women and men.

Dr. Mielke said the data increasingly point toward a need to treat cardiovascular-related conditions early and to more closely follow women with these conditions over time to optimize both heart and brain health. For example, women with preeclampsia, a condition of high blood pressure in pregnancy that can damage organs and perceive hormonal fluctuations across the lifespan.

“One way to prevent women from being at unnecessary risk for cardiovascular disease, maybe the cognitive issues can be prevented.”

The Role of Hormones

Similarly, Dr. Mielke’s team has demonstrated how the surgical removal of a woman’s ovaries—and thus the hormones they produce—before natural menopause is associated with poorer cognition and dementia.

She cautioned against the unnecessary removal of ovaries for women without ovarian cancer or who are not at high risk of developing the disease. She also pointed to a larger lesson about how to perceive hormonal fluctuations across the lifespan.

“We need to understand a lot more about how sex makes a difference in disease prevention and treatment.”
INNOVATIONS IN WOMEN'S HEALTH

“Alzheimer’s disease affects the brains of women and men. For example, the women who develop AD experience higher neurodegeneration, a condition in which brain cells become damaged or die at accelerating rates. Dr. Mielke also stresses the importance of discussing how environment and experience filtered through gender contribute to disease.”

“A 2019 study from UCLA found that mothers between the ages of 60 and 70 who never participated in the wage-wage labor force showed far more rapid declines in memory than women who worked. This was true for married women and single women who experienced a prolonged period without paid employment.”

“Experts have long focused on proteins called beta-amyloids that can collect between brain cells. The techniques used, collectively called single-cell analysis, generate tremendous amounts of genetic data that offer opportunities to learn how different cell types and processes interact within the cell to cause disease.”

“People want to know the final answer when the current answer is always just the best answer available with the information we have at the moment.”

“With a grant from WHRY, Dr. Le Zhang and Dr. Stephen Strittmatter, chair of the Department of Neuroscience and director of the Yale Alzheimer’s Disease Research Center (ADRC), studied, for the first time, sex specific differences in the origins of Alzheimer’s disease by examining individual brain cells.”

“Instead, Mielke likens menopause to the “stress test” in which evidence is starting to show that women with more severe menopause symptoms, such as intense hot flashes, are more susceptible to developing cardiovascular disease and potentially at a higher risk for AD or vascular dementia.”

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Research has identified differences in the way Alzheimer’s disease affects the brains of women and men. For example, the women who develop AD experience higher neurodegeneration, a condition in which brain cells become damaged or die at accelerating rates. Dr. Mielke also stresses the importance of discussing how environment and experience filtered through gender contribute to disease.”

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Studying Small Differences Can Have Large Benefits

By Rick Harrison

Can we talk?

As we navigate the current conversations about sex and gender in society and science, I feel like we need to lower the heat a bit. We could all try to connect more effectively with people who might not immediately see things our way. We need to listen, embrace compassion, and instill trust.

I reach for these principles when reacting to headlines and opinion pieces that — intentionally or otherwise — can misrepresent something as basic as the importance of studying differences between and among women and men that affect health and disease.

For example, someone might ask, “Why point out our differences, when we are so much the same?”

In silent response, I find myself wondering why we would ignore the significant differences that do exist or refuse to look for others, even if they are subtle or outnumbered by so many similarities.

But with an open mind, it is not hard to understand the source of such concerns. Differences have historically been used to control and marginalize groups of people, often based on superficial or made-up categories. Racism and misogyny continue to inflict real pain across the world and inhibit humanity’s capacity to thrive.

So how can we answer a legitimate question about the need to research how our differences might affect health? Maybe like this:

Differences that affect health and well-being, established through sensitively conducted peer-reviewed research, are not value judgments about character. They are not measurements to obstruct fairness and an equal opportunity to succeed. They are pieces of data with potential significance for improving health and, consequently, enhancing fairness and an equal opportunity to succeed.

At Women’s Health Research at Yale, we are changing science to study the influence of sex, gender, race, and ethnicity on health so we may learn the best path for everyone’s individual, optimally targeted health needs.

Research has established that biological differences exist between individuals and groups of people based on their genes and how genes express themselves throughout life. Similarly, social constructions like gender, race, and the shared culture of ethnicity can affect how people are treated, and this treatment can in turn affect health outcomes.

Too often, well-intentioned people can talk past each other. Before we talk, it’s good to listen and be respectful. Better medical research and practice, as advanced by WHRY, will incorporate the consequential differences between and among us to improve everyone’s lives. But only if we look for them and listen to what they are telling us about ourselves.

Let’s Make Some News (and a Better Future) by Supporting Women’s Health Research

Have you seen any of these headlines?

“Health-Related Quality of Life Varies Between Men, Women with Advanced Kidney Disease”

“Sex Differences in Smoking Risk Following Heart Attack”

“Cervical Cancer Kills Black Women at a Disproportionately Higher Rate Than Whites”

These recent headlines have in common the fact that health disparities — inequities — continue to compromise and even determine health outcomes for many.

They remind us that women continue to be at elevated risk for many diseases and conditions and that, often, women of color are at even higher risk for adverse health outcomes.

But these stories, for me, summon resolve and hope for the future. Because, after decades in which research too often did not include women or failed to consider sex-and-gender differences, we are starting to make real progress. We now know about the significant ways in which sex — as a biological variable — and gender, race, and ethnicity — as social variables — affect health. And more investigators are following the lead blazed by Women’s Health Research at Yale nearly 25 years ago.

We cannot turn back. And to ensure that we maintain and accelerate this progress, we need your help.

WHRY relies on the generosity of people like you to invest in the health of women. Your donations allow WHRY to fund essential studies on women and sex-and-gender differences in health. Each year, WHRY assembles committees comprised of leading medical practitioners and researchers whose job it is to evaluate and recommend for funding studies from among dozens of competitive applications.

The process continues beyond the initial research, as WHRY staff work with the researchers to hone their methods and leverage their results to secure larger external grants. Over the years, WHRY researchers have taken their data and used it to generate 20 times more funding than the initial WHRY pilot grant.

These scientists then invest in their labs and clinical research settings, establishing research programs dedicated to solving the practical health problems women continue to face.

The center also brings experts together across disciplines so that their combined skills and experience can examine and address complex and difficult health problems, from cancer and cardiovascular disease to Alzheimer’s disease and mental health disorders.

Importantly, WHRY finds new and innovative ways to share the results of its studies — and those of others — with the public and the medical community. The result is that the base of knowledge guiding medical care continues to expand.

The center also has made strides in refocusing the content of what is taught in medical school. The objective here is to enable students to understand the latest findings on sex and gender as they embark on their careers and influence their colleagues. Through mentoring efforts, WHRY directly teaches students and junior faculty members to lead the next generation of researchers and health care providers in inclusive science and medicine.

WHRY has also joined with the Yale School of Public Health’s policy lab Elevate in order to provide data-based solutions, in collaboration with our communities, that assist women and families in difficult circumstances and help women advance their lives to end the cycle of poverty.

With your support, these efforts will write tomorrow’s headlines.

Sincerely,

Barbara M. Riley
Philanthropy Chair
Women’s Health Research at Yale
is changing the landscape of medical research and practice by ensuring the study of women and examining health differences between and among women and men to improve the lives of everyone.

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