

WOMEN ≠ TINY MEN: HOW DO WE BALANCE
THE SCALES FOR WOMEN'S HEALTH?

PRO-CARE. PRO-PATIENT.: WORKING
TOWARD REPRODUCTIVE JUSTICE

SOUL MEETS BODY: THE LIFESAVING
POWER OF GENDER-AFFIRMING CARE

Brigham

The Magazine of Brigham
and Women's Hospital

Summer 2023



**CARE FOR
EVERY BODY**

*Embracing inclusive
medicine*

Summer 2023

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A FUTURE ENCOMPASSING ALL OF US

The full rights of citizenship in the United States have always depended on where and who you are. Whether you are a longtime resident of a state or just passing through, the place and body you are in dictate the freedoms, knowledge, and decisions available to you: including access to voting, education, shelter, and appropriate healthcare.

This issue of Brigham magazine explores how sex and gender affect our health and healthcare. We thought this theme was timely when we first proposed it in 2019. We underestimated how quickly and widely reproductive and gender-affirming healthcare would be restricted and criminalized, along with people who seek it and experts who provide it. The following pages explore the Brigham's role in forging more inclusive healthcare, education, and research, and some of the many people committed to it.

While writer Audre Lorde died more than 30 years ago, the conflicts of her time—and her fiery wisdom about them—endure. In 1982, Lorde said:

“[A]ny future vision which can encompass all of us, by definition, must be complex and expanding, not easy to achieve... It means actively working for change, sometimes in the absence of any surety that change is coming... We are making the future as well as bonding to survive the enormous pressures of the present, and that is what it means to be a part of history.”

Enormous pressures of the present include new paradigms and ways of communicating. Building a more inclusive future demands our willingness to make mistakes and correct them. I'm inspired by and grateful for Brigham colleagues who model the curiosity, humility, and courage required to develop new scientific and medical knowledge. Their vision and work are foundational for a future that can encompass all of us.



Joy Howard
Managing Editor



OVERCOMING INEQUITIES IN WOMEN'S HEALTH

Guided by visionary leaders, Brigham physicians and scientists are advancing research, training, and care that is more inclusive of women.

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Sex & Gender Glossary

This gender-inclusive glossary includes some essential terms and definitions for understanding sex, gender, and well-being.

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The Brigham's Center for Transgender Health is breaking barriers and providing state-of-the-art, life-changing care for trans and gender diverse people.

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ON THE COVER

Being inclusive of all people is necessary for delivering high-quality, equitable care, and can save lives.

(Illustration by Anna Godeassi)



DON'T MISS OUR WEB EXTRAS

There's more happening inside our doors! To discover the latest buzz at the Brigham, visit brighammag.org.

JOIN THE CONVERSATION

You can read Brigham magazine wherever you go at brighammag.org, where you will find videos, quizzes, and other bonus content not available in print. Talk to us: magazine@bwh.harvard.edu



ONLINE EXCLUSIVE

LET'S TALK ABOUT SEX (HORMONES)

How do sex hormones fluctuate through the years? This gender-inclusive infographic timeline explores the links between sex-specific hormones, reproductive health, and overall well-being. brighammag.org/hormonehealth



BRIGHAM STORIES

Stopping the Bleed in Ukraine

Cancer surgeon and Ukrainian native Nelya Melnitchouk, MD, MSc, teamed up with emergency medicine physician Eric Goralnick, MD, MS, to create videos to teach Ukrainian civilians how to respond in the event of a traumatic injury. brighammag.org/ukraine

QUIZ

TEST YOUR KNOWLEDGE

Take our quiz to see if you know which ideas about sex, gender, and health are true—and which are false. brighammag.org/quiz

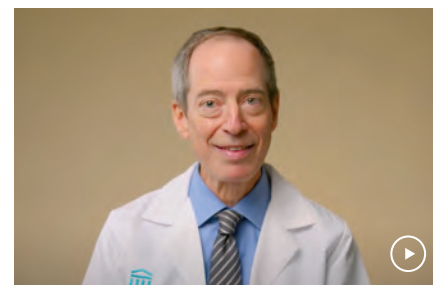
BRIGHAM STORIES



'WE FOUND A HEART FOR YOU'

After a stunning heart failure diagnosis, Michael Brennan trusted the Brigham's cardiovascular experts with giving him a replacement heart and a second chance at life. brighammag.org/brennan

HEAR FROM THE EXPERT



THE SUCCESS STORY OF HIV TREATMENT

Paul E. Sax, MD, clinical director of the Division of Infectious Diseases, walks through the history of HIV treatment and how COVID-19 research may help advance the cause of an HIV vaccine in the future. brighammag.org/hivprogress



HEAR FROM THE EXPERTS

TRAINING THE NEXT TOP DOCS

What is it like for young physicians training at the Brigham today? Current and past residents describe what makes the hospital a special place to learn the art and science of medicine.
brighammag.org/nextdocs



BRIGHAM STORIES

Twin Brothers, Different Cancers

George and Greg were each diagnosed with cancer—two different types. They credit the Dana-Farber Brigham Cancer Center for giving them highly individualized treatment when they needed it most.
brighammag.org/brothers

FEATURE UPDATE

BIAS CUT

There's more to the award-winning story from our Winter 2022 issue! Read new updates about the Brigham's efforts to eradicate race-based algorithms in clinical care.
brighammag.org/bias-cut



HEAR FROM THE EXPERT

BREAKING THE CYCLE OF ABLEISM

In her inspiring talk for TEDxBoston, sports medicine specialist Cheri Blauwet, MD, advocates for inclusion and accessibility across healthcare, athletics, and society.

brighammag.org/blauwet



TODAY'S TOPIC

WHAT SEX OR GENDER DIFFERENCES IN HEALTH HAVE YOU SEEN IN YOUR WORK BUT WEREN'T TAUGHT?

We asked thought leaders across the Brigham to share their insights and experiences.



ADD YOUR VOICE

Tell us about work that inspires you. Visit us at brighammag.org/teamboard



"For 15-plus years, I have researched sex differences in sports injuries, prevention, and recovery so we can better serve female athletes. Sex differences have been identified in bone stress injuries, ACL tears, shoulder instability, and more. Although my training didn't teach much of this, it's a privilege to teach future orthopaedic surgeons to improve musculoskeletal care for all."

Elizabeth Matzkin, MD, FAAOS,
chief, Women's Sports Medicine

"In my work with people with chronic pain, I've found women experience greater pain sensitivity and are more frequently diagnosed with chronic pain conditions. However, they consistently receive worse pain care. While this was not part of my training, this is something I examine in my research."



Samantha Meints, PhD, *psychologist,*
Center for Pain Management



"Most studies have shown that women are affected by pleural mesothelioma less frequently than men, owing to less job-related exposure to asbestos. However, women who develop this form of cancer usually live longer than men after surgery and chemotherapy. Our researchers identified biomarkers suggesting these sex differences are related to estrogen-responsive tumor pathways, which may influence cancer progression. Research into sex differences will continue to provide important clues to better understand cancer and how to best treat everyone."

Raphael Bueno, MD, *chief, Division of Thoracic Surgery; co-director, The Lung Center;*
Fredric G. Levin Distinguished Chair in Thoracic Surgery and Lung Cancer Research



“I wasn’t trained in women’s health during midlife through either medical school or residency, despite taking electives in women’s health and being interested in OB-GYN and preventive care. When I decided to do a fellowship in women’s health, I specifically looked for programs that would fill that gap and give me the teaching and clinical experience I wanted.”

Tara Iyer, MD, NCMP, lead physician,
Menopause and Midlife Clinic



“At the Brigham’s Ann Romney Center for Neurologic Diseases, we are very interested in understanding sex-specific differences in Parkinson’s and related disorders. These were thoroughly understudied when I was in training, although the epidemiologic differences were starting to be identified.”

Vikram Khurana, MD, PhD,
chief, Division of Movement Disorders

“We found that despite spending more time with patients, women primary care doctors earn less than men because they conduct fewer visits per year. Prior research shows women doctors spend extra time counseling patients and providing preventive care, which leads to better patient health. These results imply that the way we usually pay doctors doesn’t reward what patients or doctors truly value. Women doctors seem to spend that extra time, but at a personal cost.”

Ishani Ganguli, MD, MPH, general internist,
Division of General Internal Medicine and Primary Care



“During my training, there was little recognition of sex differences that may exist between female and male hearts. Some male physicians told me that women were essentially ‘little men’ and there was no true biologic plausibility to suggest sex differences. It’s now understood this is not the case. Our research is unraveling these distinguishing features, including the possible effects of sex hormones in cardiovascular disease.”

Michelle L. O’Donoghue, MD, MPH, McGillicuddy-Logue Distinguished Chair in Cardiology

Janet Rich-Edwards, ScD, MPH

Director of Lifecourse Epidemiology, Brigham and Women's Hospital

On sex, gender, and the wilderness of the scientific process

DEGREES

BA, Harvard University
MPH, University of North Carolina, Chapel Hill
ScD, Harvard School of Public Health

AWARDS AND HONORS

Best Female Scientists in the World, ranked by Research.com, 2022
Fellow, Radcliffe Institute, 2018

DESERT ISLAND DIVERSIONS

- "Adagio for Strings," Samuel Barber
- Prelude in G minor, Op. 23, No. 5, Sergei Rachmaninoff
- "Daddy Lessons," Beyoncé ("You need a good dance tune on a desert island.")

HOBBIES

Hiking, dancing, writing novels

What excites you about doing research on sex differences in health and disease?

We have learned about body systems as if they are independent of each other, and the chapter on pregnancy often got skipped because it was in the back of the textbook! As a result, pregnancy and cardiovascular disease were treated as separate silos, where OB-GYN researchers rarely interacted with cardiology researchers. But we're learning so much about the intersections between reproduction and other body systems. Exploring large databases shows that pregnancy outcomes—particularly complications such as preeclampsia or preterm delivery—are potent predictors of future risk of hypertension, diabetes, heart attack, and stroke. The siloed approach hid these important connections.

Your "Sex Differences for Skeptics" lecture mentions new evidence showing biological sex goes beyond a simple female/male binary. Can you elaborate?

We've long thought about biological sex in terms of traits conferred by genes, sex hormones, and reproductive organs. But gene expression is profoundly affected by our environment and our experiences. There's much more variability to our genes than we ever realized, and all of it affects our sex and gender experiences. We know sex chromosomes function in all cells, not just those associated with reproduction. Additionally, sex hormones change over the course of our lives, and reproductive organs can be removed. What we think of as biological sex is neither a binary nor a spectrum, but more like a ball of multicolored yarn, with variability at any point in time and across the life course.

Do you have any predictions for the near future?

I think the science of sex differences will produce a lot of findings in the coming years, stimulated by mandates from NIH [National Institutes of Health] to include all sexes in studies. As with any sudden flurry of discovery, some findings will hold up as important sex and gender differences, and some will fail to replicate. As frustrating as it is to wait for a second study to replicate an initial finding, it's a critical step we can't shortcut.

What are some questions pushing your research forward?

Understanding more about the pathways from common pregnancy complications to future cardiometabolic disease. What are the shared risk factors? What are the typical risk trajectories after pregnancy? When should we screen for cardiometabolic risk and what should we screen for? Answers to these questions and more will involve everything from statistics, to psychology, to clinical innovation.

What do you hope will be your most significant scientific legacy?

In lifecourse epidemiology, we examine how factors early in life predict health outcomes decades (sometimes even generations) later. The more research I do, the more I appreciate that the health of our children and young adults is critical to the health of our future seniors. I hope our work leads to a new focus on cultivating and protecting health in early life—including the expansion of healthcare coverage to all people who can get or are already pregnant.

What would you tell your younger self from where you are now?

Earlier in my career, I had three children under the age of four. And despite the world's best partner and good childcare, there were days when it all seemed impossible. I want to say to that young parent, "Keep going. The children are howling, your grant just got rejected, and you have to teach a course tomorrow morning. It seems impossible right now, but it will get easier. You don't have to win the race. Just keep your oar in the water for now."

Do you have a favorite quote or mantra?

There's an almost certainly spurious quote from Einstein that buoys me: "If we knew what we were doing, it wouldn't be called research." I love how it claims the wilderness of the scientific process, that it's okay to feel a bit lost. Some of the best work is born from confusion. That's where the new ideas dwell.

Who are some of your scientific heroes?

I've learned that the quality of any science is only as good as the quality of the scientists: both their knowledge and talent, and their integrity and willingness to share ideas and questions. We attract an amazing pool of talent here at the Brigham, and there are heroes all around. It's a privilege to conduct science among people who inspire me every day.



WEB EXTRA

Rich-Edwards discusses best practices to find and replicate true sex and gender differences in health in her talk "Sex Differences for Skeptics." brighammag.org/skeptics

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What we think of as biological sex is neither a binary nor a spectrum, but more like a ball of multicolored yarn, with variability at any point in time and across the life course.”



PATIENT CARE

SHIFTING SEX DIFFERENCES IN COVID-19

Early in the COVID-19 pandemic, it was widely reported that men suffered worse outcomes from infection, with men accounting for as many as 70% of severe COVID cases. Recently, however, scientists have observed that women comprise 60–70% of patients with long COVID, with symptoms like fatigue, muscle pain, migraines, and cognitive struggles that linger after recovery from initial COVID-19 infection.

Causes for this disparity remain unclear, says Bruce Levy, MD, chief of the Division of Pulmonary and Critical Care Medicine. However, Brigham clinicians and researchers are leading the way nationally in delivering personalized care to long COVID patients through the hospital's COVID Recovery Center, and better understanding the condition with research through the Greater Boston COVID Recovery Cohort.

"More research is desperately needed, but there are many patients with long COVID who would benefit from care provided at specialized centers like ours," says Levy.

Pictured below: At the Brigham's COVID Recovery Center, Ann-Marcia Tukpah, MD, MPH (center), and medical assistants Judy De Leon-Vaz and Fotine Liakopoulos care for patients who have recovered from COVID-19 infection but have lasting symptoms or treatment complications.



Dozens of Brigham faculty and staff attended a 2019 gathering sponsored by the Office for Women's Careers.

DIVERSITY

Leading Without Limits

More than 47% of Brigham clinician-scientists are women, 13 of whom were ranked as the best female scientists in the world in a 2022 Research.com survey.

While there are increasingly more women in academic medicine, female clinicians and researchers are less likely to hold senior leadership roles in medicine. More broadly, sex and gender diversity at all levels of academic medicine and health sciences have room for growth, according to the Brigham's Office for Women's Careers (OWC).

"Women have achieved parity with men in terms of medical school graduation rates, yet female faculty are less likely to pursue research careers than our male faculty," says Kathryn Rexrode, MD, MPH, chief of the Division of Women's Health and director of the Brigham Research Institute and the OWC. "Physician-scientists who are trans or gender-diverse are also significantly

underrepresented in academic medicine. We need to continue examining and erasing barriers so current and future staff can have thriving careers."

Part of the hospital's Center for Diversity and Inclusion, the OWC sponsors programs and awards offering women and gender-diverse faculty opportunities for leadership and skill development, career coaching, and mentorship. It also advocates for gender equity and supports initiatives for families and caregivers.

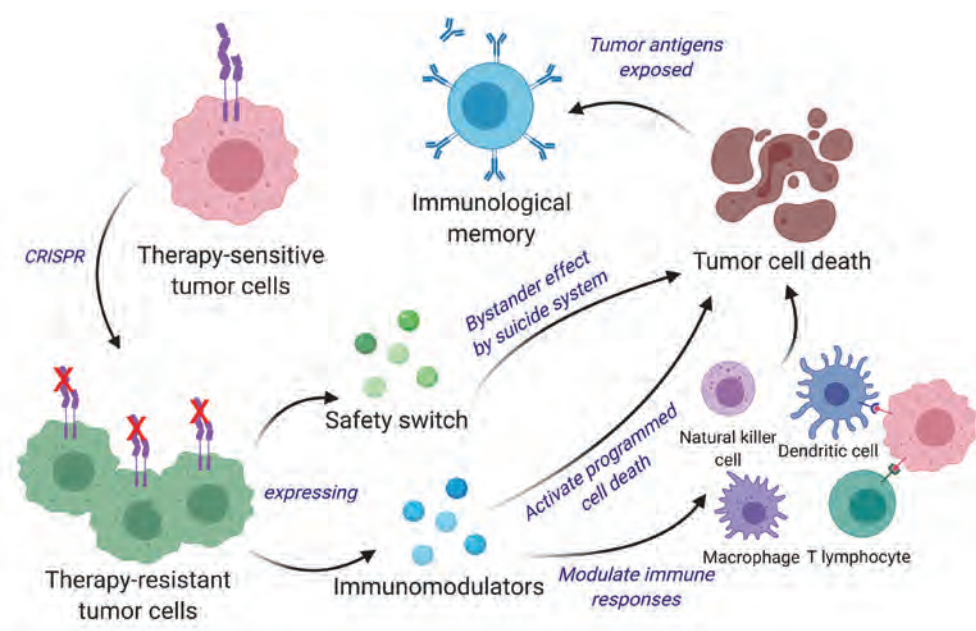
Increasing representation in medicine and science has impact beyond the workforce, Rexrode adds.

"Women and gender-diverse faculty are more likely to study sex- and gender-specific outcomes across disease areas," she says. "Their work designing, implementing, and disseminating research has wide-ranging implications for making healthcare delivery more equitable for female and gender-diverse patients."



DID YOU KNOW?

JoAnn E. Manson, MD, MPH, DrPH, chief of the Division of Preventive Medicine, is the top cited female researcher in the world. Manson has published more than 2,000 research papers and been cited more than 362,000 times in medical literature worldwide.



RESEARCH

Brigham Scientists Developing a Brain Cancer Vaccine

Scientists are harnessing a new way to turn cancer cells against themselves. Khalid Shah, MS, PhD, director of the Center for Stem Cell and Translational Immunotherapy and vice chair of research in the Department of Neurosurgery, and his colleagues have developed and tested a new cell therapy approach to eliminate established tumors and induce long-term immunity, which will train the immune system to prevent cancer from recurring.

The approach taken by Shah's lab is distinct. Instead of using inactivated tumor cells, the team repurposes living tumor cells, which possess an unusual feature: Like homing pigeons returning to roost, living tumor cells will travel

long distances across the brain to return to the site of their fellow tumor cells.

"Our team has pursued a simple idea: to take cancer cells and transform them into cancer killers and vaccines," says Shah. "Using gene engineering, we are repurposing cancer cells to develop a therapeutic that kills tumor cells and stimulates the immune system to destroy primary tumors and prevent cancer."

Pictured above: Using a CRISPR gene editing tool, Shah's lab engineered living tumor cells to become easy for the immune system to identify and remember, priming the immune system for a long-term anti-tumor response. (Graphic courtesy of Khalid Shah, MS, PhD)

RESEARCH

NEUROLOGY CARE WITH WOMEN IN MIND

Women experience some neurologic and psychiatric conditions in greater numbers than men, with different risk factors, symptoms, and drug responses. To improve treatment, the Brigham has established research and clinical care programs for women's neurologic health.

The Women's Brain Initiative conducts research to understand how sex and gender differences affect the brain, with efforts to predict patients at risk for disease and treatments that will be most effective.

On the clinical side, the Women's Neurology Program is a global leader in targeting diagnosis and treatment for neurology conditions focused on sex and gender differences, particularly hormonal and reproductive changes.

For example, if a patient with epilepsy is planning to or becomes pregnant, the expert team in women with epilepsy knows which medications to avoid and how to optimize health, says program director M. Angela O'Neal, MD.

The team also has expertise in conditions that affect women more often, such as migraine and functional neurologic disorder (FND), the second most common condition seen in the Brigham's neurology clinics after headache. FND is two to three times more prevalent in women than men. The brains of people with FND have trouble sending or receiving signals, causing a range of issues from functional seizures to abnormal movements to cognition issues.

O'Neal says, "What makes us a world leader is that we look at the spectrum of health across a woman's life, from the reproductive years to menopause and beyond."



MUST SEE

CALL JANE

Roshan Sethi, MD, of the Department of Radiation Oncology, co-wrote the screenplay for a major motion picture starring Elizabeth Banks and Sigourney Weaver. "Call Jane" is inspired by the Jane Collective—a network established in Chicago during the late 1960s to help women access abortions at a time when the procedure was outlawed and stigmatized in much of the United States.



Blazing New Trails—Together



“Together, we’re bravely navigating challenging terrain to create a place of safety and welcome for all who need our support.”

The late civil rights leader and U.S. Representative John Lewis wrote, “Take a long, hard look down the road you will have to travel once you have made a commitment to work for change. Know that this transformation will not happen right away. Change often takes time.”

While forging the road toward a more inclusive healthcare system is not an easy or immediately achievable goal, it is a vital commitment we must make. Our sense of humanity depends on it. When I reflect on the roads the Brigham has traveled to work for change, I am proud of our progress and commitment to being trailblazers—particularly in our longstanding and uncompromising excellence in women’s healthcare.

On other paths, we are still learning and growing. Slowly but surely, our leaders, our patients, our community are beginning to reflect the vibrant diversity of humankind. Together, we’re bravely navigating challenging terrain to create a place of safety and welcome for all who need our support, including those who are underserved, minority, and LGBTQ+ members of our community.

Blazing a new trail often requires finding a way out of no way. To succeed, we must stay open to new possibilities and perspectives, and help each other move forward—especially when it’s hard. I know each of us is capable of extraordinary, transformative acts of courage because I’ve already seen so much daring, determination, and resilience at the Brigham.

Thank you for being on this journey with us. I look forward to continuing to travel this road of transformation with you.

A handwritten signature in dark ink that reads "Robert S.D. Higgins". The signature is fluid and cursive, with a large, stylized 'R' and 'H'.

Robert S.D. Higgins, MD, MSHA

President, Brigham and Women’s Hospital

Executive Vice President, Mass General Brigham

Features

Sex & Gender Glossary

Essential terms for understanding sex, gender, and well-being

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Photo by Jim Rathmell, MD

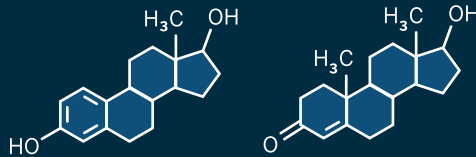


SEX & GENDER GLOSSARY



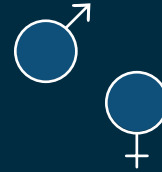
SEX

A set of biological attributes including chromosomes, gene expression, hormone levels and function, and reproductive anatomy. Sex is usually assigned at birth by observation of a baby's external genitalia, not by their internal organs, hormones, or genes.



GENDER

Socially constructed roles, behaviors, expressions, and identities. Gender is often treated, erroneously, as equivalent to sex: boy/man = male and girl/woman = female.



INTERSEX

Describes a person with one or more innate sex characteristics, including genitals, internal reproductive organs, and chromosomes, that fall outside of binary conceptions of male or female bodies. Around 1.7% of people are born intersex, comparable to the number of people born with red hair.

GENDER IDENTITY

A person's internal, deeply held knowledge of their gender.



CISGENDER

Describes a person whose gender identity matches their sex assigned at birth.

TRANSGENDER (TRANS)

Describes a person whose gender identity differs from the sex they were assigned at birth.



NONBINARY (ALSO GENDER FLUID, GENDERQUEER, AND AGENDER)

Describes a person whose experience of their gender identity and/or gender expression falls outside the binary gender categories of "man" and "woman."



GENDER EXPRESSION

External manifestations of gender, expressed through a person's name, pronouns, appearance, clothing, voice, and/or behavior.



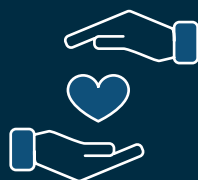
GENDER DIVERSE

An umbrella term describing any person whose gender identity, role, or expression differs from socially prescribed cisgender norms.



GENDER-AFFIRMING CARE

An umbrella term to describe surgical, hormonal, psychosocial, or other medical services provided to transgender and gender diverse people.



TRANSITIONING

The medical, legal, and/or social process a person undertakes to bring their gender expression and/or their body into alignment with their gender identity.



GENDER EUPHORIA

The comfort and joy someone experiences when their gender expression is aligned with their gender identity.



GENDER DYSPHORIA

The distress a person experiences when their gender identity does not match their sex assigned at birth.



MISGENDERING

When someone addresses or refers to another person by the wrong gender. This includes referring to a person using the wrong pronouns or honorifics such as Mr. or Ms., or by calling a trans person by their deadname—the name they used before they transitioned.



WOMEN ≠ TINY MEN

How do we balance the scales for women's health?

Much of what we know about how to diagnose and treat disease is based on years of medical research that focused almost exclusively on males. “Until recent decades, it was assumed you can study men and extrapolate that universal truth to everybody, but that doesn’t work,” says Kathryn Rexrode, MD, MPH, chief of the Division of Women’s Health at Brigham and Women’s Hospital. When women were included in research, she explains, “it often related to women’s breast health and gynecologic health—what some have called ‘bikini medicine.’”

Medicine and science now take a more

expansive view of women’s health. But earlier approaches created knowledge gaps that continue for women across all areas of medicine, from heart disease, stroke, and diabetes to life stages including menopause.

“Everyone in medicine should care about making sure sex and gender are specifically considered in research and treatment—it’s something for all scientists and clinicians to solve,” says Hadine Joffe, MD, MSc, executive director of the Mary Horrigan Connors Center for Women’s Health and Gender Biology, a research hub at the Brigham that investigates sex-specific knowledge of treatments and examines conditions that affect women differently than men.

Joffe says, “At a foundational level in healthcare, we know we need to think about children and elderly people differently, but the same expectation hasn’t been there for sex and gender.”

This oversight led to serious health disparities for women, including incorrect diagnoses, lost opportunities for treatment, and wrong doses of medications. To make care more equitable, Joffe, Rexrode, and hundreds of others at the Brigham are pushing forward research, training, and care looking explicitly at the impact of sex and gender on health. Through their example, they’re encouraging new generations of clinician-researchers and developing knowledge to benefit everybody.



Left to right, Kathryn Rexrode, MD, MPH, JoAnn Manson, MD, MPH, DrPH, and Hadine Joffe, MD, MSc, are esteemed leaders in the field of women's health.

“Until recent decades, it was assumed you can study men and extrapolate that universal truth to everybody, but that doesn’t work.”

– KATHRYN REXRODE, MD, MPH

THE NATION’S NO. 1 KILLER: NOT ‘A MAN’S DISEASE’

Cardiovascular disease has been the No. 1 killer for decades nationwide. In the 1980s, the number of men dying from it began decreasing steadily as research in men discovered better ways to manage the disease. At the same time, the medical community assumed women were mostly protected from the disease by hormones, namely estrogen.

However, as men’s death rates declined from cardiovascular disease, women’s death rates rose. In 2000, approximately 500,000 women died of the disease nationwide, compared with 440,000 men. This awareness led to public health campaigns and research including women, leading to a 21% drop in women dying from the condition by 2010.

Despite emerging evidence that cardiovascular disease looks different in women compared to men, women with the disease are still misdiagnosed, overlooked, and often undertreated, notes JoAnn Manson, MD, MPH, DrPH, chief of the Brigham’s Division of Preventive Medicine, scientific advisor of the Connors Center, and the Michael and Lee Bell Professor of Women’s Health at Harvard Medical School (HMS).

“Major knowledge gaps remain,” says Manson. Compounding the problem, she says, “is the lingering misconception even among the public that heart disease is a man’s disease. It’s extremely difficult to dispel long-held notions.”

PERSISTING AGAINST DISPARITIES

An innovator and a role model for many, Manson has led landmark studies for more than 30 years that continue to add new knowledge on a range of diseases in women. Yet she and other scientists at all stages of their careers voice frustration at continued roadblocks in research and health disparities.

“Many studies today are still not large enough to look rigorously at sex differences and come up with actual recommendations that might differ by sex or gender,” says Manson, expressing dismay. “There’s more attention to sex differences now than before,” she concedes, “but limited research funding is a problem.”

Training the next generation is one way to address the issue, says Joffe, who is the Paula A. Johnson Professor of Psychiatry in the Field of Women’s Health at HMS. She cites

a two-year educational opportunity through the Connors Center called the First.In.Women fellowship. Xiaowen “Wendy” Wang, MD, is one of two fellows focusing on women’s health and cardiovascular disease.

“Women often experience implicit bias,” says Wang. “They’re less likely to be put on medications known to reduce death after a heart attack or to get certain procedures after a heart attack. A lot of studies show women with symptoms of heart disease are still not always taken seriously when they go to a hospital.”

As Wang builds skills to evaluate and understand sex differences through the fellowship, she is already making an impact in research to improve treatment options for women.

UNSTEADY, YET GAINING GROUND

Research regulations have influenced change. Thirty years ago, Congress passed the National Institutes of Health (NIH) Revitalization Act, mandating that women and people of color be included in NIH-funded clinical research to assess new treatments, devices, and procedures.

“With huge progress in regulations,” Joffe says, “there’s more conversation and expectation for scientists to study males and females and ask if results vary by sex and gender.”

DID YOU KNOW?

Women are 50% more likely to die than men in the year after a heart attack.

But much like retrofitting a heating system in an inadequately insulated house, unintended issues can arise in study design. For example, Rexrode notes, a trial of a drug for people with cardiovascular disease may cap the age limit at 70 for logistical reasons, but this could inadvertently exclude many women since they tend to develop the disease later in life than men.

In fact, when Connors Center scientists analyzed 1,433 clinical trials conducted nationwide between 2016 and 2019, they discovered women remain underrepresented in trials for many health conditions (*see chart on page 18*).

Until recently, female animals, tissues, and cells were also largely excluded from preclinical studies, which take place before a treatment is tested in people. The Connors Center advocated for policies to change this on a national level and helped inspire the NIH to issue a requirement in 2016 that researchers include sex as a biological variable in preclinical studies.

SAFER, MORE EFFECTIVE TREATMENTS

Seizing on this momentum, Joffe and her colleagues started the First.In.Women Precision Medicine Platform at the Brigham to help ensure women are considered when new drugs and devices are developed. To finance this work and draw attention to it, the Connors Center builds and cultivates relationships with philanthropists, foundations, venture capitalists, and the biopharmaceutical community.

“There are real consequences here,” Joffe says. “If you roll out a new treatment and haven’t tested it in the population that will be using it, there could be more side effects. And we’ve seen that women of every age, young and old, have more side effects from medicines than men do.”

“Major knowledge gaps remain. [There] is the lingering misconception even among the public that heart disease is a man’s disease.”

— JOANN MANSON, MD, MPH, DRPH

BREAKTHROUGHS FOR WOMEN WITH HEART DISEASE



Wendy Wang, MD, presents at the Connors Center Annual Research Symposium in November 2022.

Xiaowen “Wendy” Wang, MD, is contributing important knowledge about sex differences through her work as a First.In.Women fellow at the Connors Center.

Passionate about helping women with heart failure achieve treatment options on par with men, Wang published a study in the journal *Circulation* in late 2022 examining sex differences.

Of the two types of heart failure affecting 6 million people across the U.S., nearly half have the type that is more common in women. The only therapy available for the female-dominant type has been water pills, which alleviate fluid buildup but do not address the underlying problem. The medical community has more knowledge of how to predict, prevent, and manage the form of heart failure that mainly

affects men, including a few medications that effectively reduce hospitalization and death.

Recently, clinical trials—including one run by the Brigham—found success in treating both the female-dominant and male-dominant forms of heart failure using medications in a class of drugs originally developed for diabetes. Wang’s study analyzed sex differences for one of these drugs in a randomized group of 11,000 trial participants and concluded the drug is equally safe and effective in women and men.

“This is exciting because we will now have therapies for the kind of heart failure that is more likely to affect women,” says Wang. “These are the first steps to having sex- and gender-specific treatment. We need to do more research to develop better understanding and teach about it in medical school to give women proper care.”

DID YOU KNOW?

The Mary Horrigan Connors Center for Women's Health and Gender Biology (established in 2003) and the Gretchen S. and Edward A. Fish Center for Women's Health (established in 2005) launched with the generosity of donors: Eileen and Jack Connors Jr. and Gretchen and the late Edward Fish. The centers are among the first at academic medical institutions nationwide to take a sex- and gender-informed approach to medicine.

The sleep aid drug Ambien offers a striking example. For 20 years, the Food and Drug Administration (FDA) received reports of severe drowsiness the morning after people took the medication. For some individuals, mostly women, the impairment led to car accidents and other dangers. In 2013, the FDA cut the recommended dosage of Ambien and related sleep medicines in half for women because of differences in how they metabolize the drug.

"An FDA-approved difference in dosing for women versus men is not the case with most medications, but probably should be for several medications in addition to sleep medicines," says Manson. For example, she says, thrombolytic drugs have posed problems. They help break up blood clots, but women are more susceptible to bleeding. In addition, women report muscle aches with cholesterol-lowering statin drugs more often than men and are more susceptible to irregular heart rhythms on certain medications.

Joffe notes that when women are considered throughout the research process, safety can be improved, and so can overall effectiveness and precision. "We have an opportunity to develop new diagnostics and therapeutics beneficial to everyone," she says.

TAILORING CARE FOR WOMEN

Caring for women more precisely based on the latest research is the premise of the Brigham's Gretchen S. and Edward A. Fish Center for Women's Health. With more than 40,000 patient visits each year, the center offers primary care and 14 specialties that focus on conditions with higher risk and prevalence in women, as well as conditions traditionally undertreated in women.

"It's unusual to have this kind of care integrated and all in one place," says Rexrode, whose division oversees its clinical operations. "That's the gift of the Fish Center."

Eve Rittenberg, MD, whose Brigham career spans three decades, is a leading primary care provider at the center. She and her colleagues treat many conditions, but every week, they hear a similar story: Patients share they recently started menopause and are having trouble sleeping.

"It's important for providers to understand the biologic component of a patient's sleep disruptions and the possible treatments," Rittenberg says. "It's also important to understand any gender-specific aspects of her symptoms. I may learn she works outside the home and is also the primary caregiver for her children and aging parents."

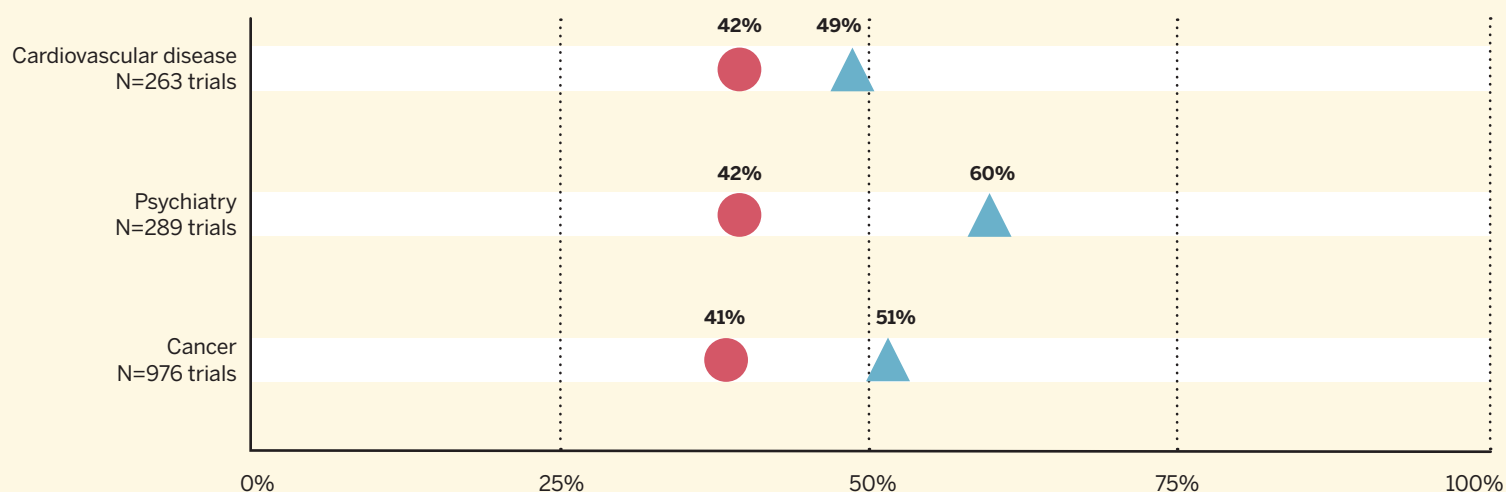
WOMEN STILL TRAIL MEN IN CLINICAL TRIALS

Connors Center scientists analyzed 1,433 clinical trials between 2016 and 2019, finding 41.2% of the 302,664 participants were female. Females were underrepresented in each of the three disease areas evaluated, meaning a lower proportion of females were studied than those expected to use the drugs or devices tested.

Source: *Contemporary Clinical Trials* journal, April 2022

- ▲ The proportion of people affected who are female
- The average proportion of female trial participants

ANALYSIS OF CLINICAL TRIALS, 2016–2019



Rittenberg uses this information to suggest a treatment plan. At times, patients need more in-depth care, so she refers them to specialty care at the center, such as endocrinology or medical social work.

“Having a wide range of specialists right here helps us offer comprehensive care for women,” she says.

To address growing demand from patients, the center added two new services between 2019 and 2020: a sleep specialist and a Menopause and Midlife Clinic.

EXPERTISE FOR A HIGHLY UNMET NEED

“Menopause and midlife have been a neglected part of clinical care,” explains Rexrode, noting few providers nationwide specialize in this area. “But every woman who lives long enough goes through menopause. Nearly 75% of women experience symptoms that last 5 to 7 years on average. That’s why we started this clinic.”

With a yearlong wait list of patients from the Boston area and out of state, the need for specialized menopause care is overwhelming. As a result, the practice is working to expand.

“Menopause is not just what people classically think of as hot flashes and night sweats, but can commonly lead to sexual dysfunction, brain fog, weight gain, cardiovascular ramifications, and more,” says Tara Iyer, MD, NCMP, lead physician of the Menopause and Midlife Clinic.

Menopause usually happens between ages 45 and 55 when the ovaries stop making estrogen and other hormones, causing menstrual periods to end. “Women don’t age the same way as men because they lose those hormones; there is a distinct difference,” Iyer says.

Erin Duralde, MD, a physician who completed fellowship training in the clinic, says, “Sometimes our patients are at their wit’s end because they’ve been struggling with symptoms and not been able to find a clinician who understands the many manifestations of this life phase and how to address them.”

Since menopause is given little—if any—attention in medical school and residency training, providers lack knowledge in counseling patients and providing appropriate treatments.

“Why don’t we learn about this in standard medical training?” Duralde says. “It sends the message that women don’t matter, and that the changes and symptoms



“Our patients are extremely grateful. We hear comments like, ‘This changed my life almost overnight,’ ‘Finally, I can sleep,’ ‘I feel like myself again.’”

— TARA IYER, MD, NCMP

Tara Iyer, MD, NCMP, is the lead physician in the Brigham’s Menopause and Midlife Clinic.

of menopause aren’t something to ask about or improve. Meanwhile, there’s a lot of good we can do to improve women’s health during this major life transition.”

Drawing on their training and knowledge, Iyer and Duralde help relieve patients’ symptoms with menopausal hormone therapy (HT) and non-hormonal treatments.

In the past, HT received a negative reputation that continues to cloud public opinion today. Just over 20 years ago, a large-scale study of women ages 50 to 79 called the Women’s Health Initiative (WHI) included a clinical trial for HT, which discovered the treatment did not help prevent cardiovascular disease as was hypothesized. In fact, the study found that health risks of the treatment outweighed the benefits for women overall when used for chronic disease prevention.

However, Manson, one of the principal investigators of the WHI and past president of the North American Menopause Society, conducted several follow-up studies examining age and risk factors that found HT is effective and safe for most women under age 60. In the past decade, with evidence



WEB EXTRA



Researchers seek to demystify hormone therapy

JoAnn Manson, MD, MPH, DrPH, helps set the record straight about the safety and appropriate use of menopausal hormone therapy. brighammag.org/hormonetherapy

BRINGING SEX AND GENDER INTO MEDICAL SCHOOL TEACHING



"In students' first year

at HMS [Harvard Medical School], they get 120 hours of learning about the brain and 80 hours of learning about the heart, and very little of it is taught through a sex and gender lens," says Deb Bartz, MD, MPH, director of education for the Connors Center at the Brigham, where HMS students acquire hands-on learning.

Determined to give students opportunities for in-depth learning about sex- and gender-informed medicine and better prepare them for their careers, Bartz and other Mass General Brigham clinician-scientists launched two new courses at HMS in 2021.

Bartz teamed with JoAnn Manson, MD, MPH, DrPH, of the Brigham and Alex Keuroghlian, MD, MPH, of Massachusetts General Hospital to develop a course on sex- and gender-informed advances in research, population health, policy, and care. With more than 40 expert speakers from several Harvard teaching hospitals, this selective teaches 25 third- and fourth-year students annually to consider sex differences, sexual orientation, gender identity, and sex development in research and to translate their learning to the clinical setting.

The second course is an advanced clinical elective co-directed by Eve Rittenberg, MD, and Kari Braaten, MD, MPH, leading physicians at the Fish Center for Women's Health. For four weeks, HMS students rotate with a variety of physicians in the clinic and complete capstone projects, ranging from the impact of pregnancy complications on cardiovascular disease to sexuality and menopause.



"This course is groundbreaking because most women's health clinical electives around the country are focused on reproductive organs and breast and pelvic health," Rittenberg says. "It's been wonderful mentoring and teaching these students to see many ways that sex and gender influence health and how they might focus their careers."

Bartz and Keuroghlian are currently working with HMS to integrate the sex- and gender-informed medicine course content into a greater portion of the full 4-year curriculum to provide a more complete picture on variations in health and disease. Bartz says, "We have to demonstrate why this education is important and advocate for it."

from these and other studies, multiple medical societies have endorsed use of HT for treatment of menopause symptoms and recommended against its use for prevention of cardiovascular disease.

Iyer sees it as her mission to educate each patient on the latest recommendations and work with them on individualized treatment plans.

"Our patients are extremely grateful," Iyer says. "We hear comments like, 'This changed my life almost overnight,' 'Finally, I can sleep,' 'I feel like myself again.'"

Beyond what can be life-altering day-to-day symptoms, menopause dramatically escalates women's risk for developing cardiovascular disease, diabetes, osteoporosis, and some cancers.

To help providers understand the full picture, Iyer teaches medical students and residents, and recently presented to colleagues at the Fish Center's monthly continuing medical education talks.

"By teaching about knowledge gaps, I hope to make a big impact locally and, in the longer run, nationally," she says. "There are new treatments on the horizon, and it's exciting being part of this work."

NEW QUESTIONS » NEW KNOWLEDGE

At the Connors Center, researchers are also looking at the effects of menopause on health. Joffe, past president of the North American Menopause Society, recently concluded a 5-year study funded by the NIH on how sleep problems affect metabolism and risk factors for heart disease during and after menopause.

"Everyone thought women gain body fat because estrogen levels go down," Joffe says. "That's true, and we're showing for the first time that sleep disruptions also contribute to body fat accumulation."

The study recruited women under age 45 to come to a sleep lab where their sleep was interrupted repeatedly by a loud alarm throughout the night for three nights, and timed when their estrogen levels were high. Then they brought the women back for a repeat study after temporarily lowering their estrogen levels to mimic menopause. After the second test, the researchers saw rapid increases in participants' triglyceride and LDL cholesterol levels.

"In both instances, we found the body shifted how it breaks down fuel and burned less fat, which means you would likely



Brigham physician Deb Bartz, MD, MPH, right, teaches with Massachusetts General Hospital physician Alex Keuroghlian, MD, MPH, in the Harvard Medical School course on sex- and gender- informed medicine.

Researchers Leilah Grant, PhD, and Shadab Rahman, PhD, conduct studies in the sleep lab, including investigations of sleep, menopause, and metabolic health.



“We need to keep asking questions and encouraging new ways of thinking. At the Brigham, we’re here with advocacy and evidence to raise awareness and improve care.”

– HADINE JOFFE, MD, MSC

gain weight unless you change your diet,” says Leilah Grant, PhD, an investigator in the Division of Sleep and Circadian Disorders who worked with Joffe on the study.

Shadab Rahman, PhD, a lead investigator in sleep and circadian disorders and collaborator on the project, conducted a small separate study of men to examine sex differences in sleep interruption. He found that for men, sleep disruption decreases appetite hormone levels tied to feelings of fullness, which could lead to more eating and weight gain. In the main study, researchers found that women with low estrogen were affected in the same way as men.

“In the sleep field, we’ve traditionally focused on how many total hours you sleep,” Rahman says. “Our study shows that even with the recommended 7.5 to 8 hours of overall sleep time, repeated waking during the night caused immediate detrimental effects on metabolic health in women and men.”

Because of menopause, Joffe explains, women’s likelihood of being naturally awakened in the night increases. “In menopause, 80% of women experience hot flashes and 50% experience a pattern of sleep interruption,” she says.

The good news is that nighttime wakeups can be minimized through behavioral sleep therapy, better sleep routines, and medications.

“Fragmented sleep might ultimately be bad for heart health,” Joffe says. “People don’t realize it’s a problem to be up multiple times a night and figure they can sleep in to compensate. There’s a particularly important public health message here for women: Make sure your sleep is as continuous as possible.”

KNOWLEDGE IMPROVES HEALTH

Studies like this provoke more questions, inspire further research, and inform care and training.

Cardiologist Jennifer Jarbeau, MD, uses everything she knows about sex and gender differences in caring for patients and educating residents and students. During patient visits one morning at the Fish Center, Jarbeau proved part detective and part coach as she poured over medical records before each visit and talked with patients. This day, an internal medicine resident shadowed her.

After examining one patient in her 80s with atrial fibrillation, an irregular heart rhythm, Jarbeau decided to adjust the patient’s medications. Back in the physicians’ workroom, she walked the resident through appropriate medication choices based on a patient’s age, sex, and body size. She advised avoiding one medication altogether because older women tend to have toxic reactions to it.

The morning continued like this with patient visits, where Jarbeau counseled patients on diet, exercise, and treatment regimens, along with teaching the resident about cardiovascular tests, female-specific risk factors, sex differences in symptoms, and more.

“I enjoy teaching physicians and patients,” says Jarbeau, a past president of the American Heart Association of Southern New England. “We need to keep raising awareness and make women feel heard, treat them, and get them healthier.”

BALANCING THE SCALES

“Even in 2023, we’re still playing catchup with women’s health,” Rexrode says. “To do well-designed research powerful enough to examine sex differences and provide evidence-based health recommendations differing by sex, we need much larger studies.”

Manson explains, “It can require four times the sample size to do a rigorous test of sex differences. There are many researchers who want to further knowledge in this area, but the reality is that the funding climate for this research is challenging.”

Balancing the scales to give all patients evidence-based care takes a gargantuan effort, and Brigham clinician-scientists have seen their efforts making a difference.

Joffe recalls physicians at academic meetings saying her studies helped them care for patients differently. “Patients ask us questions like, ‘Why did this happen?’ or, ‘What’s known about this for me?’—and we can answer those questions if we collect and report certain data,” she says.

“During my psychiatry training in the 1990s, I asked questions like, ‘Why do women have sleep problems or depression after having their ovaries removed?’ and I’d receive the response, ‘We’ve never heard anybody ask that before,’” Joffe says. “Our understanding of biology has advanced tremendously over the past 20 to 30 years. We need to keep asking questions and encouraging new ways of thinking. At the Brigham, we’re here with advocacy and evidence to raise awareness and improve care.” ❖



Written by JOY HOWARD • Illustration by ANNA GODEASSI

PRO-CARE. PRO-PATIENT.

Working toward reproductive justice

Like many people, Karen navigated challenges in her pursuit of parenthood. Over 10 years, she and her husband endured 17 rounds of IVF (in vitro fertilization) and two miscarriages.

Finally, Karen's dream of getting pregnant came true. "When I got pregnant the third time, everything was going great," Karen says. "At 10 weeks, I went for my ultrasound, and the technician saw something they didn't like. They recommended I get a 3D ultrasound."

At 13 weeks, on Christmas Eve, Karen got the more advanced scan.

"The technician started the scan and almost immediately left the room," Karen recalls. "Then a radiologist came in and asked if I'd had an accident recently. No. Have I fallen

down? No. Been in a car wreck? No. Gotten hit or kicked in the stomach? No. With each question, my heart sank a little more. By the last one, I knew it was bad."

Their longed-for baby was growing, except all its organs were outside its body.

"My husband and I had invested so much time, effort, and money in IVF to get this baby, but we didn't want the baby to suffer," she says. "To be forced to carry that baby to term would have been horrific for that poor baby and me."

Like many people, Karen and her husband decided to end the pregnancy. Fortunately, Karen had been getting her IVF and prenatal care in Boston at Brigham and Women's Hospital, making the long drive from their home in New Hampshire. Their ability to rely on the Brigham's complete array of expert reproductive healthcare is rooted in decisions made more than 50 years ago.

A TEST OF NEW LEADERSHIP

In January 1973, Kenneth J. Ryan, MD, was named chief of staff of the Boston Hospital for Women, which later evolved into Brigham and Women's Hospital. Ryan was a national leader in obstetrics and gynecology (OB-GYN), a renowned scientist and medical ethicist. He completed his residency years earlier at the Brigham's oldest predecessor, the Boston Lying-In Hospital (see *"An Enduring, Bold Vision"* below).

Three weeks after Ryan assumed his new leadership role in Boston, the U.S. Supreme Court issued the Roe v. Wade decision, legalizing abortion nationwide.

"The hospital public relations office called and insisted that I give an immediate press conference so they could deal with a barrage of calls from the news media," Ryan recalled in his 1993 President's Address to the 10th annual meeting of the American Gynecological and Obstetrical Society.

"At the conference, I welcomed the Supreme Court decision to make abortion largely a matter between a woman and her physician and hoped there would be enough

medical support in Massachusetts so that patients would not have to travel for care," Ryan said. "My short vignette on all the television channels was followed by Archbishop (later Cardinal) Humberto Medeiros of Boston asserting that abortion was nothing less than murder. It was a chilling reception to the new politics of abortion."

Facing the controversy, Ryan told the Boston Globe on January 28, 1973, that the Boston Hospital for Women was planning for as much as a 100% increase in the number of abortions it performed, the only area teaching hospital planning such an expansion.

"The Supreme Court ruling allows us to provide optimal care by putting the abortion issue where many felt it belonged in the first place—with the patient and her physician," Ryan said.

Before the year ended, Ryan established an outpatient abortion service and an abortion and family planning training rotation for OB-GYN residents. Both programs were firsts at U.S. academic medical centers and have run uninterrupted for 50 years, outlasting Roe itself.

REPRODUCTIVE JUSTICE:

"The human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities."

As defined in 1997 by SisterSong. SisterSong is the largest national multi-ethnic reproductive justice collective.

IN RYAN'S FOOTSTEPS

Robert Barbieri, MD, completed his OB-GYN residency under Ryan's leadership in the late 1970s and early 1980s. "Dr. Ryan had a great gyroscope for what was right," says Barbieri. "He was a fierce advocate for his patients, and deeply committed to the ethics of keeping medical decisions between patients and their doctors."

AN ENDURING, BOLD VISION

Benefiting from visionary department chairs who trained under and

succeeded Kenneth J. Ryan, MD—Robert Barbieri, MD, and Nawal Nour, MD, MPH—as well as generations of compassionate physicians, surgeons, nurses, residents, fellows, and support staff, the Brigham has an enduring legacy of high-quality reproductive care, education, training, and research.

Many standards of care in OB-GYN were first forged at the Brigham and two of its predecessors, the Boston Lying-In and the Boston Hospital for Women, including anesthesia during childbirth, hand-washing and rubber gloves to prevent infection, heated bassinets for premature infants, prenatal clinics, the first clinical trials of oral contraceptives, cardiovascular care during pregnancy, and preventive medicine for newborns. These advances helped steadily and dramatically reduce infant and maternal mortality nationwide over the past nearly 200 years.

The Brigham's OB-GYN department consistently ranks in the top five in the nation for its specialty in the U.S. News and World Report's annual Honor Roll of Best Hospitals. In July 2022, one month after the U.S. Supreme Court overturned Roe in the Dobbs v. Jackson Women's Health Organization, the Brigham's OB-GYN department received the No. 1 ranking from the publication.

Evolution of Brigham and Women's Hospital

- **1832:** The Boston Lying-in Hospital, one of the nation's first maternity hospitals, opens its doors to women unable to afford in-home medical care.
- **1875:** The Free Hospital for Women is founded "for poor women affected with diseases peculiar to their sex or in need of surgical aid." Each of five beds is sponsored by a different charitable group. The Free Hospital for Women also featured Boston's first cancer ward.
- **1913:** The Peter Bent Brigham Hospital opens "for the care of sick persons in indigent circumstances," with a bequest from restaurateur and real estate baron Peter Bent Brigham.
- **1914:** The Robert Breck Brigham Hospital, founded with a bequest from Peter Bent Brigham's nephew, opens to serve patients with arthritis and other debilitating joint diseases.
- **1966:** The Boston Hospital for Women is established through a merger of the Boston Lying-in Hospital and the Free Hospital for Women.
- **1980:** Brigham and Women's Hospital welcomes patients to a new, state-of-the-art facility six years after the formal affiliation of three distinguished predecessors, the Boston Hospital for Women, the Peter Bent Brigham Hospital, and the Robert Breck Brigham Hospital.

“I’ve spent my whole professional life at the Brigham, largely because of our longstanding commitment to equitable access, attention, and treatment for everyone who needs our care.”

Nawal Nour, MD, MPH



In 1993, Barbieri succeeded Ryan as chair of the Department of Obstetrics and Gynecology. One legacy of Barbieri’s leadership was establishing the Division of Family Planning as an official subspecialty within the department, on equal footing with other divisions.

Barbieri’s successor, Nawal Nour, MD, MPH, did her first rotation at the Brigham as a Harvard Medical School student just after Ryan retired. Later, she completed her residency at the Brigham.

“I’ve spent my whole professional life at the Brigham, largely because of our longstanding commitment to equitable access, attention, and treatment for everyone who needs our care,” says Nour. “I’m proud of our history as a national, even global, leader in providing the full range of reproductive healthcare services to everyone who needs them.”

ANOTHER VOICE OF EXPERIENCE

“I started my residency at the Brigham in 1976, three years after Roe,” says Laurent Delli-Bovi, MD, a longtime Brigham OB-GYN. “I was lucky to train with Dr. Ryan and his colleagues, who were paragons of providing safe abortion care because they had seen so many horrible consequences of unsafe abortions.”

After residency, Delli-Bovi was medical director of five different family planning facilities, including the Brigham’s Division of Family Planning.

Delli-Bovi recalls, “One case I’ll never forget was a 32-year-old woman, mother of two small children, 23 weeks pregnant, newly diagnosed with advanced lung cancer. She and her husband didn’t want to continue the pregnancy and risk leaving him with two kids and a premature infant.

“Our patient was so sick, we had to perform the abortion in the main operating room,” Delli-Bovi says. “I remember someone in the room asked, ‘But why did she wait so long to end the pregnancy?’ I was stunned by what seemed like a lack of empathy. I finally blurted, ‘She just got diagnosed with late-stage lung cancer!’”

In 1992, Delli-Bovi co-founded Women’s Health Services, an independent clinic providing safe, skilled, compassionate care to all seeking abortion and family planning services.

“I became an OB-GYN to provide all the care women need,” says Delli-Bovi. “For me, abortion is not a question

of choice; it’s a question of health and healthcare. Not all women, pregnancies, or fetuses are equally healthy. Not all pregnant people are dealing with the same economic, mental, and physical health issues. I believe bodily autonomy is a fundamental human right. Forcing everyone who gets pregnant to give birth is autocratic.”

AN UNSHAKABLE COMMITMENT TO CARE

This fierce commitment to patients is common among abortion and family planning practitioners.

“I feel so strongly about the need for abortion because patients need the care,” says Alisa Goldberg, MD, MPH. “When I was a resident at the Brigham, I saw how grateful the patients are. Seeing women taking control of the future they wanted and being able to help them do that was, and is, profound.”

After finishing her residency in 1998, Goldberg was among the first 10 OB-GYNs to complete the Family Planning Fellowship at the University of California, San Francisco (UCSF). The fellowship was created in 1992 by Philip Darney, MD, MSc, another trainee of Ryan’s. The fellowship provides two years of advanced training in clinical care, research, and health policy in abortion and contraception.

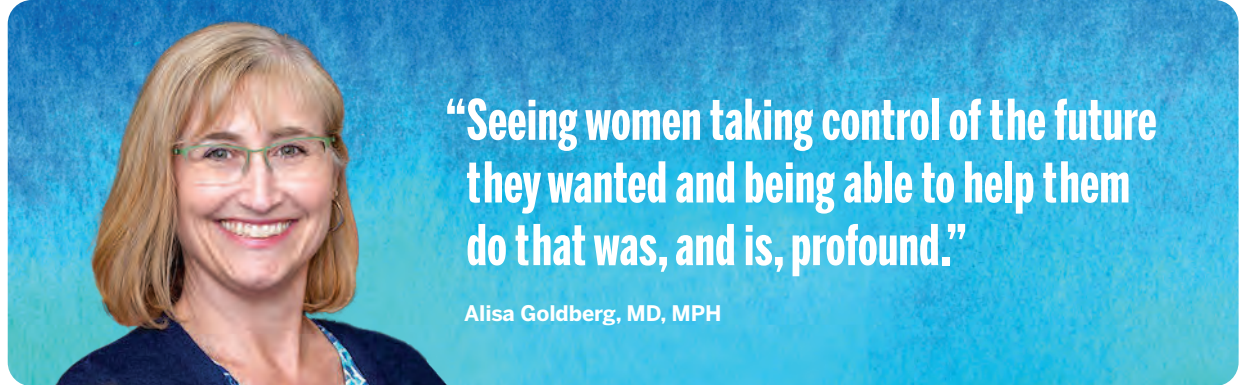
“By the 1990s, Dr. Ryan and many others who saw firsthand the deadly consequences of illegal abortion—and the dramatic decline of maternal mortality that followed Roe—were in their 60s and about to retire,” says Goldberg. “It was called ‘the graying of abortion providers.’ Amid the surge of anti-abortion violence in the 1990s, there weren’t a lot of people around willing, or able, to replace them.”

Goldberg continues, “Back then, the Family Planning Fellowship was more of an informal apprenticeship at UCSF. Over the past 30 years, it’s become a nationwide program and a formally recognized subspecialty of OB-GYN, tasked with expanding the field of experts in complex family planning and growing the next generation of leaders.”

Part of this generation herself, Goldberg returned to the Brigham in 2003 to establish the fellowship program, which she still directs. The Brigham is one of 29 academic medical centers around the country offering the Complex Family Planning Fellowship.

DID YOU KNOW?

Over the past 50 years, there have been at least 11 murders, 42 bombings, 196 arsons, and 491 assaults against abortion providers in the United States.



BUILDING A SUSTAINABLE FUTURE FOR REPRODUCTIVE HEALTHCARE

The breadth and promise of the fellowship were muted by a lack of OB-GYN residents being formally trained in abortion and contraception.

“In the years after Roe, many hospitals stopped providing abortion services, ceding the work to growing numbers of feminist community health centers,” says Goldberg. “Community-based centers provided great care, but residents and medical students largely weren’t going there to get training. So a whole generation of clinicians came out of medical school and residency without training in contraception and abortion.” (See figure below.)

In 1996, the Accreditation Council for Graduate Medical Education responded to this gap by mandating that OB-GYN residents complete a rotation in abortion and contraception. To ensure OB-GYN residencies adopted a uniform and robust curriculum to meet the requirement, the Kenneth J.

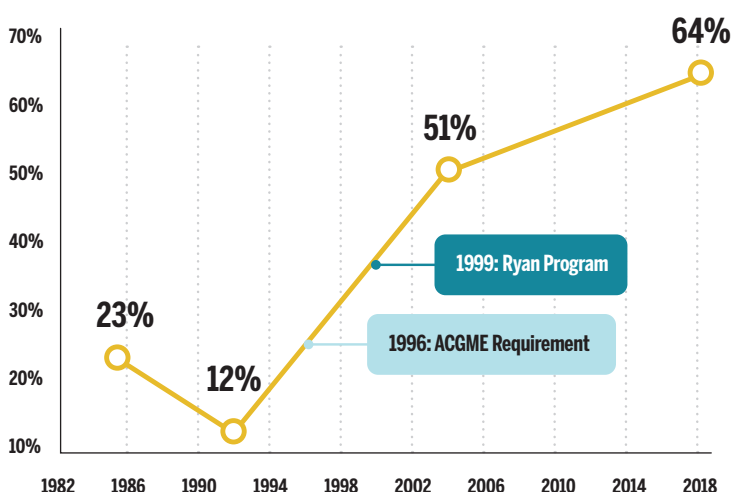
Ryan Residency Training Program in Abortion and Family Planning was created in 1999. A living tribute to Ryan’s profound legacy in the field, the Ryan program was founded by Uta Landy, PhD, a leading abortion and family planning counselor, researcher, writer, and advocate.

The Ryan Program works with OB-GYN residency programs nationwide to integrate formal training in abortion and contraception for OB-GYN residents. Ryan Programs have trained more than 7,000 residents in abortion and family planning since their inception. As of 2022, there were 109 Ryan Programs in the U.S. and Puerto Rico.

“Not every OB-GYN residency includes a Ryan Program,” Goldberg explains. “Where it does, you know those residents are getting rigorous training and education in every aspect of abortion and family planning care.”

However, future training in abortion and family planning for OB-GYN residents is at risk in the wake of the Supreme Court’s ruling in *Dobbs v. Jackson Women’s Health Organization*. Currently, *Dobbs* leaves more than 70% of U.S. medical students training in states with restrictive abortion laws or outright bans. Only 29% of the more than 129,000 medical students in the U.S. will train in protected states. That number could continue to shrink as more states enact abortion bans or restrictions.

PERCENT OF OB-GYN RESIDENCY PROGRAM DIRECTORS REPORTING ROUTINE ABORTION TRAINING



Source: The Kenneth J. Ryan Residency Training Program in Abortion & Family Planning website

CHANGING OUTLOOK

Another challenge in training a new generation of abortion and family planning leaders stems from moral or religious objections to abortion among residents. When the training is mandated, the requirement includes an opt-out clause for residents with moral or religious objections to abortion.

When Pat Doe¹, MD, began the OB-GYN residency at the Brigham, the young doctor planned to go through the family planning rotation as a partial participant, opting out of abortion care.

“I’m from a close, religious family with strict views against abortion,” Doe says. “I started just observing in the abortion clinic. But as I saw the infinite variety of circumstances of the people coming to us for abortions, I realized how essential abortion care is to my training as an OB-GYN, so I started participating.”

One unforgettable day also helped change Doe’s outlook.

“At one point in the residency, I spent the morning in the family planning clinic and the afternoon on labor and delivery,” Doe recalls. “In the clinic, I’d done a second-trimester D&E [dilation and evacuation abortion procedure]. Later that day, I walked across the hall to labor and delivery, where a patient’s membranes had ruptured at 20 weeks. That woman needed the same procedure, a D&E, as my morning patient. It was a clarifying moment of understanding abortion as basic healthcare. It’s been humbling to question the ethics I was raised with.”

Doe’s initial view of abortion as an irresponsible choice has shifted through working with the wide range of patients in the family planning clinic.

“Now, I can see abortion as a profound expression of respect for parenthood,” Doe says. “I had a patient, six weeks pregnant, using multiple substances, including cocaine and heroin, in an unsafe relationship, housing insecure—an unimaginably difficult situation. She came to us wanting an immediate termination, but there were various barriers to her abortion care, including active substance use.”

Doe continues, “We spent eight weeks getting a safe plan of accompaniment organized for her pregnancy termination. Clearly, this patient had enough respect for the responsibilities of parenthood to know she could not become a parent at this time in her life. It was a beautiful experience to support her in that decision.”

BATTLING MISINFORMATION

While education in abortion and family planning is integral to quality reproductive care, it also helps counter the misinformation and disinformation that fuel abortion bans and restrictions.

“Everybody, including medical professionals, is fed so much misinformation and disinformation about abortion,” says Deb Bartz, MD, MPH, director of the Brigham’s Ryan Program. “I have a strong desire to counter that with realities of what abortion care is, who our patients are, and what the abortion workforce looks like.”

She adds, “My mission is working with medical students and residents to inspire them to become abortion providers themselves or to at least be able to provide high-quality referrals. It’s also important that any physician, and especially an OB-GYN, be able to talk intelligently and factually about abortion when they sit on medical committees and in institutional leadership roles.”

Bartz believes the Dobbs decision is due, in part, to a lack of leadership by the medical establishment to combat the stigma associated with abortion.

“It’s on all of our shoulders that Roe fell,” she says. “Abortion care was relegated to the community in so many cases, and much of academic medicine was fine with that. We need to be very reflective about the medical community’s contribution to the Dobbs decision.”

Still, Bartz is hopeful that the Ryan Programs in places that restrict or ban abortions will be able to reach students and residents in those states.

“Most states with a medical school have at least one institution with a Ryan Program,” she says. “It’s a rigorous

WHEN MEDICINE IS MARGINALIZED



Louise Perkins King, MD, JD

The voices dominating public discussion

about abortion typically include philosophers, politicians, constitutional scholars, historians, lawyers, and religious representatives. Books and conferences often marginalize or completely exclude the abortion perspectives of physicians, surgeons, nurses, and patients.

The Harvard Radcliffe Institute held a conference in January, “The Age of Roe: The Past, Present, and Future of Abortion in America.”

Of the 25 speakers at the conference, one was a physician and one was a nurse. The physician panelist was Louise Perkins King, MD, JD, a bioethicist and surgeon in the Brigham’s Division of Minimally Invasive Gynecologic Surgery.

“So much of the abortion debate ignores or is unaware of the multitude of actual clinical scenarios where abortion is the safest possible outcome,” says King. “At the conference, every time I would bring up a clinical situation, people would invariably say, ‘Oh, I hadn’t thought about that.’ There’s this bizarre idea that any opinion about abortion should be heard, but rarely are those opinions based in clinical realities.”

King is accustomed to being in the minority regarding her views about abortion, after earning a law degree in Louisiana and completing medical school and her OB-GYN residency in Texas. She is also realistic in her goals for dialogue.

“Even though the actual clinical scenarios I can present are impossible to argue with, some people will never change their minds,” says King. “They’re locked in. So, my end goal when I’m in any discussion or panel is to get folks who start out against abortion to conclude, ‘These are my views, but I won’t impose them on others.’”

At the Harvard Radcliffe conference, King’s comments addressed the issue of the growing denial of the evidence of abortion as fundamental medical care.

“Americans devote a significant amount of money and resources to train doctors and scientists,” King said, “yet our legislators and justices seem to ignore almost completely the large body of evidence gathered through that investment when it supports abortion as essential medical care.”

King says it is up to people in states where abortion remains legal to counter denialism by highlighting a different narrative.

“Here in Massachusetts and other exceptional states that protect civil liberties, we need to show how great America can be when people’s civil liberties are protected,” she says. “We need to educate by example and continue to tell the story of what it means to respect the bodily autonomy of pregnant persons.”

DID YOU KNOW?

If all abortions in the United States were to stop:

24% more people would die from pregnancy complications and

39% more non-Hispanic Black people would die.²

2. Stevenson, Amanda J., et al. “The Maternal Mortality Consequences of Losing Abortion Access.” SocArXiv, 29 June 2022. Web.



“Abortion is not an easy decision, but it’s so important to be able to make it when you need to, without anyone judging or shaming you for doing it.”

Karen, patient

WHO GETS ABORTIONS?

1 in 4

women will have an abortion by age 45

61%

already have children

75%

are low income or poor, with limited or no access to health insurance

62%

are religiously affiliated

55%

have had a disruptive life event, such as death of a family member or close friend, job loss, termination of a relationship with a partner, or overdue rent or mortgage obligations

program with strict requirements for educational quality and presence of expertise. We have high-quality family planning specialists everywhere working hard to get the training across to residents and students in states with bans or restrictions.”

CARE CENTERED IN COMPASSION

When Karen and her husband came to the Brigham for the abortion, they were relieved by the support they received.

“It was such a warm and caring environment,” she says. “Everyone was fantastic, and I have such high regard for them. Luckily, these doctors, nurses, and counselors can help us make these difficult decisions. Abortion is not an easy decision, but it’s so important to be able to make it when you need to, without anyone judging or shaming you for doing it. I wish people were more open-minded and could discuss this without so much judgment and shame.”

Central to the Ryan Program curriculum is a values clarification process to help residents identify and overcome biases that lead many people to view abortions on a spectrum of good to bad. Likewise, ensuring each patient feels cared for and supported is vital to the mission of the Family Planning Center.

“People are so surprised to get such good treatment here,” says Colleen, a Brigham nurse in the center. “We know how scared and vulnerable our patients can feel when they come here: for their physical safety, for being judged. We’re all trained to treat and talk with people without judgment. Because there’s no one kind of person who gets an abortion. It’s everyone.”

Colleen adds, “Our patients always leave better than when they came in, which gives so much meaning to my life. This is the greatest place to work because our mission feels like a calling. I don’t want to do any other kind of work.”

Liz Janiak, ScD, MSc, MA, is a public health researcher and educator at the Brigham and Harvard University. She has seen firsthand how abortion stigma can make people feel their own abortion is unique and essential but withhold empathy for anyone else.

“The biggest surprise of my career is how abortion stigma gets internalized and comes out as judgment

toward other people in the same circumstances,” Janiak says. “It still stuns me how many patients think the only ‘good’ abortions are for rape, incest, and whatever they have going on in their own lives.”

STRIVING FOR REPRODUCTIVE JUSTICE

As a researcher and educator, Janiak believes academic medicine has a vital role in eliminating abortion stigma: for patients, providers, and in the broader public discourse.

“We are the top OB-GYN department in the country,” says Janiak. “And the Brigham and MGH [Massachusetts General Hospital] have a top OB-GYN residency in the country. There’s great power in telling the world that an essential part of being the best in the world at providing and training people in reproductive medicine is providing abortion and family planning services. I would love to see our commitment to supporting patient autonomy celebrated and elevated more, along with providing even more low- and no-cost care.”

Bartz adds, “Ken Ryan was a big, almost mythological hero to us. In the moment after Roe, he knew what was right, and he did it. That’s what we’re part of. And I think the Brigham’s example has bolstered other health systems to consider ways to be brave. The Ryan Program helps highly influential medical centers put abortion within their OB-GYN departments. Of course, family planning is part of our obstetric service. Of course, our patients need family planning.”

As an OB-GYN leader, Nour acknowledges that while Massachusetts has a generous legal system for abortion patients, there are more barriers to address.

“The Dobbs decision goes against reproductive justice, which has been our mission and inspiration going back to our previous department chairs, Ken Ryan and Bob Barbieri,” she says. “But we know from the Roe years that having a right and having access to exercise that right are two different things. Whether our patients desire pregnancies but their insurance doesn’t cover IVF or inseminations, or they have complex health issues and need contraception or want to figure out how to continue their pregnancies, or they need to end their pregnancies, we will continue to work on equity and access for all people, everywhere. It’s who we’ve been for 50 years and who we still are.” 🌟

DIFFERENT STATES, DIFFERENT STANDARDS OF CARE

Geography has always dictated the standards of care available to physicians and their pregnant patients. The Dobbs decision has deepened this divide. Physicians treating a pregnant person in any of the 24 states (as of July 1, 2023) that ban or restrict abortion have vastly different care options available to them than if they were practicing in Massachusetts or one of the other 23 states where the right to an abortion is still protected.

This doesn't only affect residents of states where abortion is banned. If a pregnant person visits one of the states that criminalize abortion and experiences a health emergency, their care will be dictated by the laws of that state, not the evidence-based standard of care available elsewhere. (See *Maternal and Infant Mortality in the U.S.* graphics below.)

A March 2023 lawsuit filed against the state of Texas by five pregnant women and two physicians documents the confusing, even life-threatening effects abortion bans have on physicians' clinical decision-making:

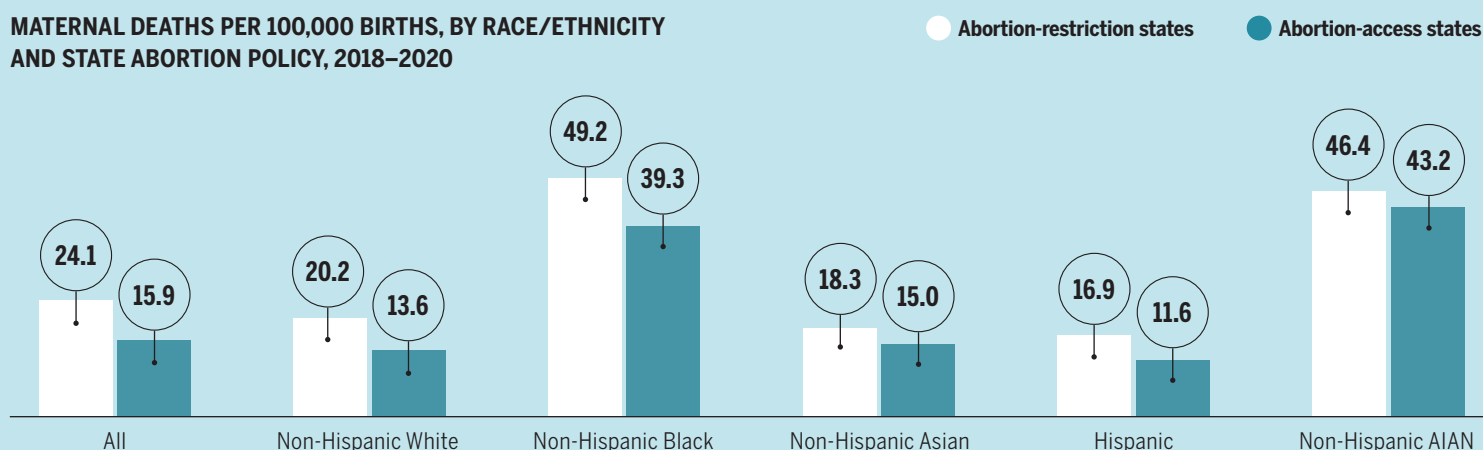
"If a pregnant patient is experiencing renal failure, does she have to be on dialysis before a physician may perform an abortion that would otherwise be prohibited by the Ban? If a pregnant patient has a cardiac lesion, does a physician have to wait until she experiences heart failure to intervene? If a pregnant patient has a clogged blood vessel, does a physician have to wait until she experiences chest pain before terminating the pregnancy to prevent pulmonary embolism?"

Another physician queried: "[I]f I and another physician judge that a woman's neurological condition is so complicated by pregnancy that she might lose entirely the ability to breathe, and I perform a procedure, could another physician look at the patient's chart after the fact and think that we overestimated the danger, or that we should have delayed the abortion to see whether the patient's condition deteriorated?"

Maternal and Infant Mortality in the U.S.

Maternal and infant mortality rates are higher in states that ban or restrict abortion. Black adults and infants are most adversely affected by abortion restrictions. Additionally, a study of maternal mortality in the U.S. from 2017–2019 found that **84% of pregnancy-related deaths were preventable**.³

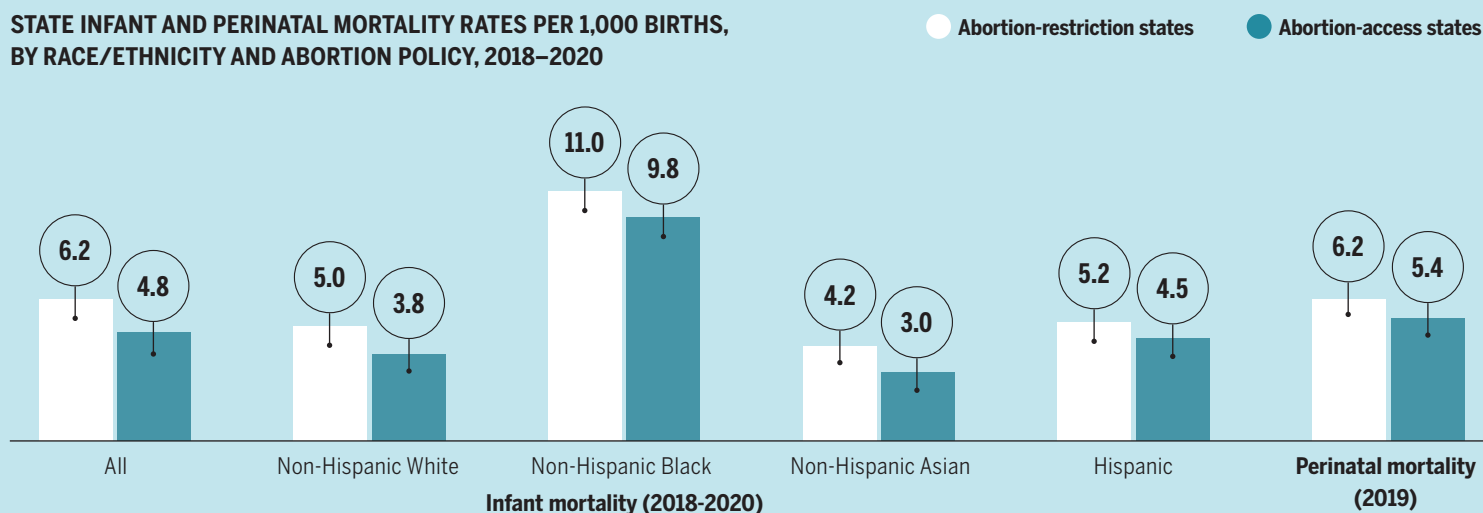
MATERNAL DEATHS PER 100,000 BIRTHS, BY RACE/ETHNICITY AND STATE ABORTION POLICY, 2018–2020



Note: AIAN = American Indian or Alaska Native

Data: Centers for Disease Control and Prevention, "National Center for Health Statistics Mortality Data on CDC WONDER," last updated Dec. 22, 2021.

STATE INFANT AND PERINATAL MORTALITY RATES PER 1,000 BIRTHS, BY RACE/ETHNICITY AND ABORTION POLICY, 2018–2020



Data: *Mortality* — Centers for Disease Control and Prevention, CDC WONDER (database). "Underlying Cause of Death, 1999–2020," accessed Sept. 30, 2022; *Perinatal mortality* — Claudia P. Valenzuela, Elizabeth C.W. Gregory, and Joyce A. Martin, *Decline in Perinatal Mortality in the United States, 2017–2019*, NCHS Data Brief no. 429 (National Center for Health Statistics, Jan. 2022).

Source: Eugene Declercq et al., *The U.S. Maternal Health Divide: The Limited Maternal Health Services and Worse Outcomes of States Proposing New Abortion Restrictions* (Commonwealth Fund, Dec. 2022). <https://doi.org/10.26099/z7dz-8211>

3. Trost SL, Beauregard J, Njie F, et al. Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017–2019. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2022.



SOUL MEETS BODY

Written by LAUREN THOMPSON

*The lifesaving power of
gender-affirming care*

When Harrison Hartman came out as trans in college, he didn't have much support at first.

"I was anxious, depressed, and often suicidal," remembers Hartman, now 31. "But I was fortunate to start therapy, and slowly, I felt safe enough to talk about it with my parents during a therapy session. They did not take it well."

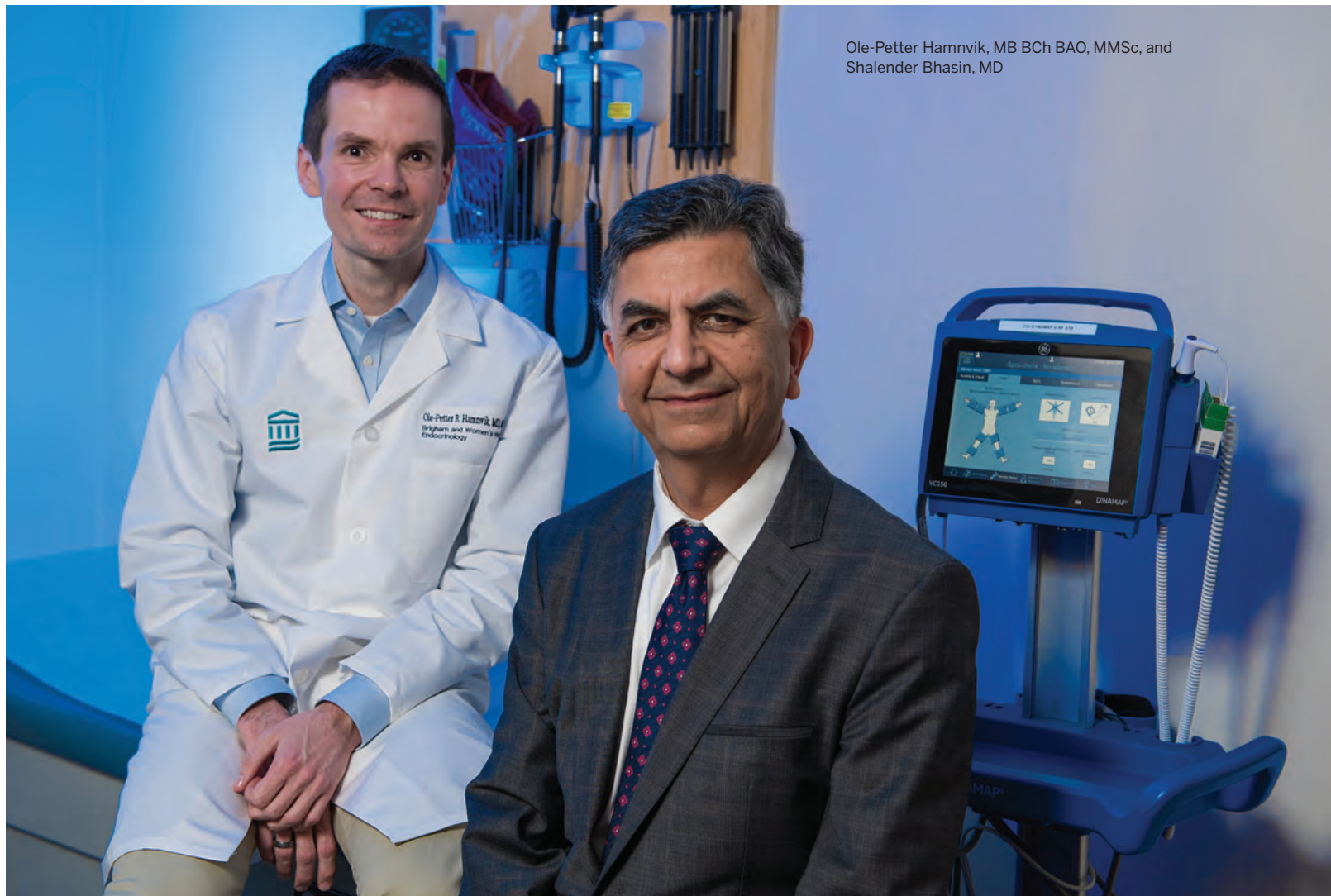
After he graduated, Hartman moved to Idaho from his home state of Pennsylvania. Combining his love of skiing with his training as an EMT, he became a ski patrol paramedic.

Hartman also hoped to begin testosterone therapy—hormone injections or medicated gels to masculinize his body. But while testosterone is commonly used for a range of conditions in cisgender men, Hartman struggled to find a provider in Idaho willing to prescribe the hormone for trans men.

"It took more than a year to be seen for the possibility of getting testosterone," Hartman says. "Thankfully, I found an OB-GYN physician with a private practice. He'd never seen a trans patient before and didn't know much about gender-affirming care. Yet he prescribed my first dose of testosterone. Later, he performed my hysterectomy. His open-mindedness and compassion were a lifeline."

Hartman was relieved to find a supportive doctor. But as a trans man, he often felt anxious receiving medical care in a traditional women's health practice.

"In the waiting room, I could tell when others were looking at me thinking, 'Why is that guy getting blood work here?'" he says. "I told my doctor I felt awkward in that situation, and he offered to open his practice early on the days I came in. His consideration of my comfort went a long way."



Ole-Petter Hamnvik, MB BCH BAO, MMSc, and
Shalender Bhasin, MD

“Society and how we think about the role of medicine in gender affirmation has all changed for the better.”

— OLE-PETTER HAMNVIK, MB BCH
BAO, MMSc

OPENING NEW DOORS TO CARE

Across the country in Boston, hospital leaders at the Brigham envisioned the benefits of a dedicated, comprehensive hub of care for patients like Hartman. In 2022, they opened the Center for Transgender Health, which coordinates a variety of gender-affirming services across plastic surgery, endocrinology, urology, gynecology, dermatology, primary care, voice therapy, physical therapy, mental health, and supportive services.

“We are fortunate to have a large group of passionate professionals in this area of medicine,” says Shalender Bhasin, MD, medical co-director of the center and an expert in gender-affirming hormone therapy. “We are all excited to see the Brigham invest in the center. It’s a wonderful time for growth and further investment in research, clinical care, and medical education and training around transgender health.”

Though the Brigham’s Center for Transgender Health is new, its team of clinicians and scientists have collectively spent decades improving care for trans and gender diverse people. They are sharing that depth of

knowledge with colleagues and trainees across the Brigham and its affiliated institutions.

This year, the Brigham’s endocrine fellowship received a record number of applications, bolstered by interest in training on gender-affirming hormone therapy. In the Division of Plastic Surgery, a new clinical fellowship is helping surgeons learn advanced gender surgery techniques. The center will also hold one-month rotations for medical students to gain broader experience in gender-affirming care.

“It’s less stigmatized for students to pursue this area of medicine today,” says Ole-Petter Hamnvik, MB BCH BAO, MMSc, an endocrinologist in the center. “For a long time, this work was concentrated in community centers and specialized LGBTQ clinics. It’s really coming into its own in academic medicine.”

OUT OF THE SHADOWS

Gender diversity may seem to some like a recent phenomenon. But ancient cultures on nearly every continent left evidence of people who embodied gender differently from their

sex at birth. Century-old medical literature describes individuals seeking treatment to alleviate gender dysphoria, the pervasive distress of living in a body that doesn't match one's internal sense of self.

In the 1940s, Harry Benjamin, MD, a German endocrinologist and sexologist, established the basics of modern transgender medicine. In his private practice in New York City, Benjamin was among the first to use hormone therapy and surgery to meaningfully improve the lives of trans patients. He recorded his findings and helped confirm scientifically that humanity has many gender expressions.

"One of my patients went through her gender affirmation under Dr. Benjamin's care, so I feel like I am one degree of separation away from the person who started this whole field," Hamnvik says.

"It's fascinating to talk with her about her experiences in the 1960s," he adds. "Because there were so few surgeons who helped trans people, she had to seek breast augmentation underground from a non-professional. And as a trans woman with a manual labor job, she was told to find work more suitable for women before her clinicians would agree to treat her. Society and how we think about the role of medicine in gender affirmation has all changed for the better."

Bhasin didn't imagine when he became an endocrinologist that he would be a leading advocate for gender-affirming care. But in too many cases over 35 years, he has seen trans patients whose health deteriorated after experiencing family rejection or intense abuse in their personal lives. Some were veterans who, once their gender identities were discovered, were discharged without honor. Others who had been in prison survived violence and neglect of their medical needs.

"For much of human history, the rigidity of binary sexuality and gender roles has proven to be grossly wrong and a source of immense cruelty to human beings who don't fit into the binary," says Bhasin. "The rates of suicide among transgender and gender diverse people are many orders higher than the general population and completely preventable."

He adds, "We've come a long way, but life today is still too hard for trans people. Our recognition of gender diversity has a way

to go in both society and science. The NIH [National Institutes of Health] can do more to advance research, care, and civil rights for trans and nonbinary patients. As a medical system, there's so much more we can and must do."

MENDING PAST HARMS

For the many trans and gender diverse individuals who don't have timely access to hormone therapy in adolescence, Hamnvik explains the path of medical gender affirmation can be challenging. The start of menstruation, breast development, facial and body hair growth, and other bodily changes of puberty can be distressing when they don't match an individual's gender identity. Later in life, it can be impossible to undo some physical changes with hormone therapy alone.

"This is when surgery becomes necessary," he says. "Some physical changes can't be reversed, which unfortunately means patients may not have all of their goals met. There's also the added complexity that the older we get, the more medical problems we must treat. It's sometimes tricky to balance health conditions with hormone therapy. We must collaborate with other specialists to maintain patients' overall health throughout the course of their lives."

Sari Reisner, ScD, the center's director of research, says the last decade has seen a vast increase in scientific literature on trans health. He and his colleagues are helping translate those findings into better clinical guidelines, particularly through the World Professional Association for Transgender Health (WPATH), a global organization that publishes guidelines for gender-affirming care.

"Developing WPATH's guidelines is a massive undertaking that required consensus-reaching around definitions, best practices, and contexts of care and where it is delivered," Reisner says. "It was an honor to be part of an effort that is improving how we care for trans and gender diverse people in every culture and community."

Though research has helped illuminate treatment paths for trans patients, Reisner acknowledges major evidence gaps persist for the larger and growing nonbinary population.

DID YOU KNOW?

1.6%

of U.S. adults (5.3 million) are transgender, nonbinary, or gender diverse

5.1%

of adults younger than 30 are trans or gender diverse, including 2% who are trans men or trans women and 3% who are gender diverse

Source: 2022 Pew Research Center report

DID YOU KNOW?

46

states have proposed

491

anti-transgender laws in 2023*, more than the previous four years combined.

*as of May 19, 2023.

Source: "Anti-trans bills have doubled since 2022. Our map shows where states stand." Shin et al. washingtonpost.com

"What are the care needs of nonbinary people?" he asks. "Right now, that's a conversation largely between individuals and their providers. But what if we have better population data to guide those conversations? That's an exciting, open area of work."

BEYOND THE BINARY

Grace McElroy-Howard, who is 26 years old and nonbinary, felt uncertain about their gender identity before their teenage years. Their stronger sense of being gay was easier to navigate than accepting they were neither a girl nor a boy.

"I always knew identifying as a gay woman was not the whole truth for me, but any other identity felt inaccessible, at least until I was older and had a chance to explore it more deeply in therapy," says McElroy-Howard. "I started to tap into the pain I felt going through puberty, what I recognize now as gender dysphoria."

McElroy-Howard started to feel grounded in their nonbinary identity through therapy and talking with their family and friends. They also had conversations with their primary care physician, Colleen Monaghan, MD. Monaghan is the medical director of Family Care Associates, one of the Brigham's primary care practices.

"As a combined medicine-pediatrics clinic, we take care of patients from birth and get to meet them in their childhood and young adult years to much older age," says Monaghan. "We are having conversations about gender identity across the lifespan, asking patients how they identify, what pronouns they use, their sexual orientation and sexual history, and not assuming they are heteronormative or straight."

"It's also important to let this conversation evolve," she adds. "If you ask a patient about their gender identity or sexual orientation just once and never again, you aren't modeling acceptance of how these identities and expressions may evolve."

Monaghan says this simple practice of asking and not assuming gender identity is new to many healthcare providers. And though asking takes mere seconds during an appointment, providers who affirm and normalize gender diversity can have an enduring impact. They build trust with patients who are trans and gender diverse and increase awareness of gender diversity for all patients who come to the clinic.

Crucially for McElroy-Howard, having space to talk openly with Monaghan about their gender identity helped clarify their long-term health goals.

"Looking back from where I am now, I wish I could tell my 16-year-old self to hang in there. It's going to be okay."

— GRACE MCELROY-HOWARD



Colleen Monaghan, MD, and Grace McElroy-Howard

"It became clearer that top surgery was a priority for me," McElroy-Howard says. "And even with so much support, it wasn't easy. We had lots of back and forth with my health insurance, which required a letter from my therapist stating the procedure was medically necessary before they would approve it."

"It took so much time and work to feel strong and confident in who I am," they say. "And yet I still felt guilt and questioned if I was worthy of this care, especially when so many others can't get it."

CLIMBING THE NEXT HILL

Hartman knew his life was changing for the better the first time he took off his shirt at the beach after top surgery.

"To feel the sun on my chest and back, to literally feel the warmth—was the most transformative, liberating moment," he says. "I can't even describe what that did for my confidence."

Galvanized by the positive changes he saw in himself, Hartman was ready to continue his medical transition. Through an online community for trans patients undergoing medical and surgical transition, Hartman learned about Devin O'Brien-Coon, MD, MS, a renowned plastic surgeon who specializes in gender-affirming phalloplasty, a complex series of procedures to give trans men a fully functioning penis.

Constructing an organ as complicated and multifunctional as a penis, on a body that didn't have one before, is a technical achievement few surgeons have perfected. One of them is O'Brien-Coon, who came to the Brigham from Johns Hopkins in 2021 to direct the Center for Transgender Health and serve as the center's surgical lead.

"As surgeons, we have our own ideas of what a successful surgical outcome looks like," says O'Brien-Coon. "With any kind of surgery, and particularly gender-affirming surgery, how a patient feels about the result has major implications for their overall health and well-being."

Hartman spent a year on a waitlist to meet with O'Brien-Coon. While out on a search-and-rescue mission in the Idaho mountains, he got the phone call that O'Brien-Coon could take his case. Hartman first saw O'Brien-Coon at Johns Hopkins and continued under his care at the Brigham.

"I trusted him with my life and my future," he says. "I had to fly cross-country for every appointment, and I would do it all over again."



Sari Reisner, ScD

LETTING THE EVIDENCE SPEAK

In the Center for Transgender Health, research encompasses every aspect of gender-affirming medicine, from exploring the underlying cellular biology of gender and developing advanced surgical techniques in wound healing, to assessing the safety of hormone therapy at every age and holding focus groups to hear patients' deeply personal experiences.

"We have an exciting volume of research happening," says Sari Reisner, ScD, the center's director of research. "Especially in the last five years, there's been more recognition of all the unmet needs of the trans and gender diverse population. There are lots of knowledge gaps still to fill, and we look for ways to improve patients' access to services and their clinical outcomes. The collaboration and community we are creating across different disciplines and perspectives is amazing and valuable, and what we do so well at the Brigham."

Reisner came to the Brigham in 2020 eager to make healthcare research more gender inclusive. As a prominent researcher in the field of transgender health, and as a trans man himself, he has the academic standing and the lived experience to do it. While Reisner directs the hospital's entire portfolio of transgender health research, his own studies focus on reducing adverse psychosocial experiences and outcomes faced by many in the trans and gender diverse community.

"Unfortunately, we see a lot of disparities, especially in mental health outcomes," he says. "That's why we are so focused on interventions. In a population where there has been a lot of mistrust and historical mistreatment, including trauma inflicted by the medical system, it's even more

important that we are careful and engage populations meaningfully."

He explains, "Just as in the clinic, we want to ask research questions in a gender-affirming way. It makes a huge difference when people come into a study and their pronouns are respected."

A major challenge in gender-affirming care is the lack of tools to help providers measure how patients feel about their treatment outcomes. In the Department of Surgery, the mission of the Patient-Reported Outcomes, Value, and Experience (PROVE) Center is to rigorously test methods for integrating patient-reported outcomes into surgical care, including in gender-affirming procedures.

Of the PROVE Center's many projects, GENDER-Q is poised to dramatically improve understanding of patients' experiences. GENDER-Q is an international study of patients in Canada, Denmark, the Netherlands, and the U.S. who participate in qualitative interviews about their treatment experiences. Informed by their responses, researchers are designing and testing a series of scales providers can use to guide treatment discussions and follow-up care.

"Because hormone treatment and gender-affirming surgery can dramatically change how the body looks and functions, patient-reported outcome measurement is an incredibly important element of improving care and delivering value to patients and healthcare systems," says Andrea Pusic, MD, MHS, FACS, chief of plastic surgery and the director of the PROVE Center.

"GENDER-Q is going to rewrite this field," adds plastic surgeon Devin O'Brien-Coon, MD, co-director of the center. "Anti-trans people say there isn't proof these interventions are positive. Implementing GENDER-Q will help us push back on the misinformation and add even more scientific rigor to what we know clinically about the benefits of gender-affirming surgery."



Michael Parisi, PA-C, Matthew Paley, RN, and Devin O'Brien-Coon, MD, MS



“My mom recognized I was the same person she raised. I wasn’t a different person; just a happier one.”

– HARRISON HARTMAN

ADVOCATES IN EVERY CORNER

Given the complexity and significance of Hartman’s procedure, the operating room was packed with specialists across plastic surgery, urology, and other disciplines, and many trainees eager to learn. Physician assistant Michael Parisi, PA-C, was with Hartman through his whole surgical journey.

“Harrison was among the first patients to interact with all members of our multidisciplinary team,” Parisi says. “In the OR, we were able to do some informal teaching with the nursing and anesthesia staff assigned to his case. On the floor, he was happy to educate the nurses about his transition experiences.

“I am new to the field of gender-affirming surgery, so it’s been an amazing learning opportunity for me,” Parisi adds. “The fact that I got to do it with Harrison as one of my first patients made it so much more comfortable.”

A standout memory for Hartman came after surgery: he had a 3D CT scan of his urethra, the first patient at the Brigham to undergo this imaging, to make sure the procedure successfully allowed him to urinate from his newly constructed penis.

“You’d think it would be this horribly awkward situation having to pee in a room full of people, in 3D,” Hartman laughs. “However,

I thought it was wonderful to help a whole group of doctors, physician assistants, and technicians learn about the plastics and microbiology used in my surgery, and how they will translate in the real world in my daily life.”

A year later, Hartman still thinks about every nurse, aide, and environmental service staff member who helped him through his week-long inpatient stay. “Each one wanted to know how they can take better care of trans people,” he remembers. “I was never misgendered. I was never thought of as a lesser patient. If anything, I was glorified.”

Of all the people who made his experience a success, Hartman says, the most meaningful were his wife and his mom. They supported him as he recovered in the hospital and in a nearby hotel room for six weeks so he could attend weekly postoperative appointments.

“Ultimately, my mom recognized I was the same person she raised,” he says. “I wasn’t a different person; just a happier one. I still thought the same things were funny, my favorite foods were the same, and I loved the same sports that I did growing up. It would have been impossible to get through this without my mom. Not just emotionally—physically, I would not have made it.”

FROM RARE TO ROUTINE

Making gender-affirming care more accessible

READY TO BE SEEN

Hartman had his final follow-up appointment with O'Brien-Coon in 2022. With his 5-year-long medical odyssey at an end, he and his wife are enjoying life in the mountains of North Carolina, where they moved to be closer to family.

Back in Boston, McElroy-Howard recently underwent their long-awaited top surgery at the Brigham.

"Some people might find it dramatic to say this care is life or death, but it is," says McElroy-Howard. "Having bodily hatred is severe and the treatment for it does not feel elective. I feel blessed to be local to Boston and to able to pursue this care without too many barriers. But I am sad that so many others in this country are struggling to access support in their own communities. It is costing lives."

Too many people experiencing gender dysphoria put their heads down and bear through it, they add. "It's respectable to want to be strong. But it's so much more important to get the care when you need it and as soon as you can. Looking back from where I am now, I wish I could tell my 16-year-old self to hang in there. It's going to be okay."

Many providers and patients don't want gender-affirming surgery or hormone therapy to be seen as medical marvels. They don't want pronouns to be a lightning rod for social and political discussion. More than anything, they want gender diversity and affirmation to be normalized.

"We need more gender-affirming support across the hospital, and not just in the Center for Transgender Health," Bhasin says. "We need to continue mainstreaming the terminology across the organization so all providers can serve our trans and nonbinary patients with competency and sensitivity."

For the thousands of trans and gender diverse people living in New England, and many more beyond, O'Brien-Coon says he and his team are committed to making the center a top program for gender-affirming care in the country.

"I have patients from states that are hostile to their healthcare," he says. "We have a limited ability to do much about the circumstances they may be facing at home. But one thing we can do at the Brigham is to be a place of welcome and an institution that is unapologetically inclusive, come what may." ❄️

To address the severe shortage of providers with expertise in gender-affirming care, a movement is underway to help trans and gender-diverse patients access care more comfortably and conveniently.

"We saw early on in the pandemic that our patients, especially those who live out of state, were more satisfied receiving the same quality of care through virtual visits without traveling to us in Boston," says endocrinologist Ole-Petter Hamnvik, MB BCh BAO, MMSc. "Hormone therapy generally relies on blood work, which can be done anywhere. So unless it's a complex case, we can provide the same level of care virtually as we can in person."

In a 2022 report, Hamnvik and colleagues at the Brigham enumerated the benefits of telehealth for trans and gender-diverse patients, especially for cost savings and privacy. He also outlines the remaining challenges, including stricter telehealth regulations that prevent patients from seeing providers outside their state.

"Another major path we are taking is helping clinicians across disciplines, particularly in primary care, to become trained in providing gender-affirming care in their own communities," Hamnvik says.

Looking for ways to serve patients closer to home, first-year resident physician Raquel Selcer, MD, and physician assistant Lise Caldara, PA-C, approached primary care leaders to ask how they could help. Their timing was perfect, says Colleen Monaghan, MD, medical director at Family Care Associates (FCA) and associate medical director of Primary Care. Monaghan had met with Hamnvik to discuss enhancing gender-affirming care across all primary care locations.

Starting at FCA and Brigham and Women's Primary Care Associates, Selcer, Caldara, and their team will evaluate the clinics' policies and procedures, multilingual signage, and employee trainings to ensure they follow best practices for gender inclusivity. With input from staff, patients, and local LGBTQ+ community members, the team will then roll out its improvements to all clinics.

"Each of our clinics is already inclusive, welcoming, and dedicated to providing high-quality care to all of our patients,"

Monaghan says. "This pilot is our way of becoming the best we can be and making sure we aren't doing unintentional harm in any patient interactions, from the front door to the exam rooms."

For Selcer, who is nonbinary, the initiative was born from personal experience. As a medical student in California, they worked in a gender-affirming clinic that was a model for integrating its services with primary care. Now at the Brigham, they are excited for the chance to bring that approach to patients and families here in Boston.

"I feel really lucky to be part of a diverse and experienced team here at the Brigham—we're all excited to get the clinics up to speed and better serve our community," says Selcer. "It can be a real barrier for trans and gender diverse patients to not have a health-care home for their routine or preventative needs. I hope this work will be a starting point for dedicating more clinical time to see new patients and folks referred to us from endocrinology and other service lines."

Monaghan believes gender affirmation is part of the mission of primary care, like any other service that helps patients achieve their goals for health and well-being.

"Specialized clinics cannot always meet the volume of need," she says. "Services like gender-affirming hormone therapy should be embedded within primary care. Especially here, where we have expert consultation from our Center for Transgender Health available at our fingertips."



COLUMN

The Man, the Myth

Grappling with Male Body Image



by Shalender Bhasin, MD, director of the Boston Claude D. Pepper Older Americans Independence Center; director of the Men's Health, Aging and Metabolism Research Unit, Division of Endocrinology, Diabetes and Hypertension; and co-director of the Center for Transgender Health

Men's health is typically associated with conditions related to urological and sexual function. But increasingly, problems with body image are among the top concerns we address in the clinic. Body image disorders are a serious public health issue, especially when linked to misuse of anabolic

androgenic steroids, a synthetic hormone resembling testosterone that promotes muscle growth. Steroid use has risen in the past decade and has significant health consequences.

Let's examine some facts and myths about male body image disorders and steroid use:

FACT

THE "IDEAL" MALE BODY TYPE MARKETING TO MEN TODAY IS UNREALISTIC AND UNHEALTHY.

Past male icons had lean, athletic bodies that average men could reasonably attain through diet and exercise. Today's action stars and other entertainers transform their musculature to cartoonish proportions. For young men bombarded with these images in popular culture and social media, the pressure to conform to this body type can contribute to body dysmorphia and self-harming behaviors, including overexercising and steroid use.

MYTH

MEN USE ANABOLIC STEROIDS TO GAIN A COMPETITIVE EDGE IN SPORTS.

Up to 70% of steroid users are non-athletes taking them solely to enhance their physical appearance. Motivating factors for taking anabolic steroids might include boosting confidence, increasing muscle mass and decreasing body fat, improving energy, and attracting a sexual partner. Worryingly, estimates suggest 4 to 8 million steroid users in the U.S. are middle and high school students.

FACT

STEROID USE CAN TAKE YEARS OFF MEN'S LIVES.

Studies have linked steroid use to premature death, particularly those caused by cardiovascular events. Indeed, anabolic steroid use is one of many contributing factors to men's overall life expectancy decreasing in recent years.

FACT

ANABOLIC STEROID USE IS A GATEWAY TO USING OTHER DRUGS, INCLUDING OPIOIDS.

Steroid use is associated with a host of side effects, including depression and other psychiatric and mood effects. Some steroid users attempt to counteract these symptoms by taking opioids, which themselves create a cascade of other life and health impacts.

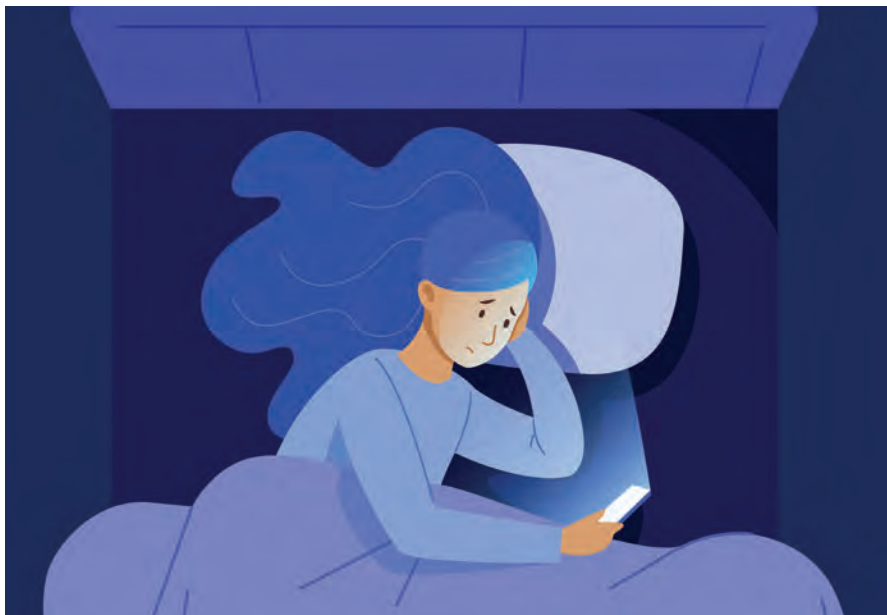
MYTH

MEN SHOULD STOP TAKING TESTOSTERONE ALTOGETHER.

There are many medically relevant reasons why some men with low testosterone might take testosterone therapy, which is different from steroids. It's important to talk with a doctor about the benefits and risks of testosterone therapy.

We have come a long way in reducing the shame and secrecy around men's sexual and physical health, but it can still be uncomfortable to discuss these topics. Please know there is no concern too embarrassing to talk about with your doctor—we are always here to help.





MISINFORMATION

Beware of Sleep Misinformation on Social Media

Brigham researchers are shedding light on the alarming amount of medical misinformation about sleep disorders on YouTube. A new study shows popular videos created by bloggers garner significantly more views than expert-led videos, and contain more misinformation and product endorsements. Results are published in the *Journal of Clinical Sleep Medicine*.

“A lot of popular YouTube videos have clickbait and appeal to shorter attention spans,” says lead study author Rebecca Robbins, PhD, an investigator in the Division of Sleep and Circadian Disorders. “People today often want

very bite-sized pieces of information. However, science is fundamentally more nuanced than a one-liner or the 280 characters in a Twitter post.”

Researchers cannot pinpoint exactly why consumers tend to seek information on sleep health from videos created by bloggers over those from sleep experts but highlight content creators’ ability to produce media that is engaging, aesthetically appealing, and relatable to viewers. The team hopes their findings will encourage YouTube and other social media platforms to continue partnering with health professionals to combat misinformation.

DID YOU KNOW?

Though 40% of Americans have obesity, just 1% of U.S. doctors are trained in obesity medicine.

MEDICINE

THE UNTAPPED PROMISE OF OBESITY MEDICATIONS

Injectable diabetes medications containing semaglutide have caught attention for helping some people lose significant weight. Caroline Apovian, MD, co-director of the Center for Weight Management and Wellness, says semaglutide and other therapies hold promise for people with obesity—if only they were more accessible.

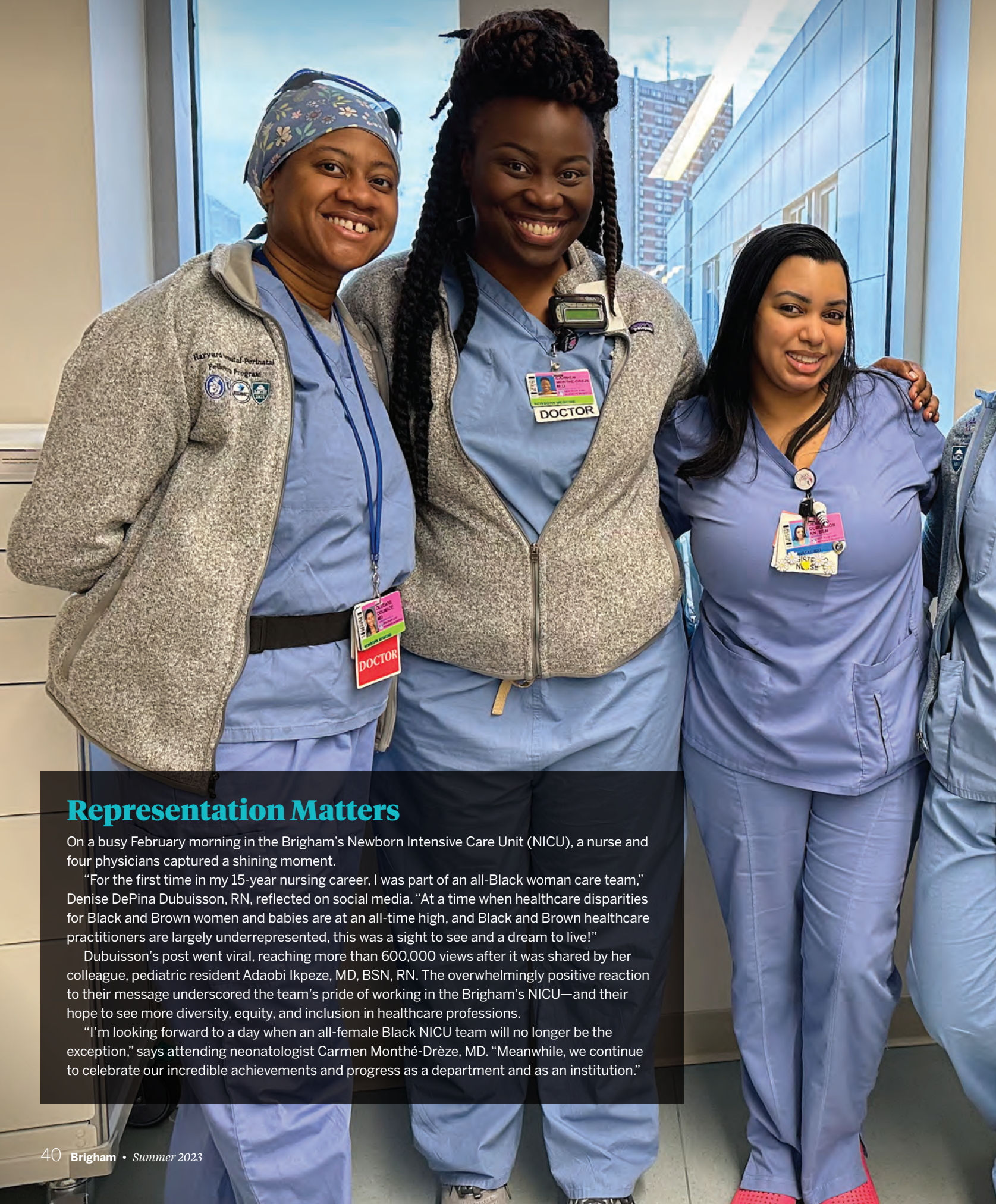
“There are side effects like nausea and vomiting, but overall this is a safe, effective medication that trials have shown helped a third of patients with obesity lose 20% of their body weight,” says Apovian. “So it’s frustrating when we can’t provide this drug to patients due to shortage issues or because their insurance won’t cover it for obesity.”

Apovian pushes back against the idea that all patients with obesity should manage it solely through diet and exercise. She says, “We would never expect that of someone with hypertension or diabetes. We can’t allow stigma to stand in the way of viable anti-obesity treatments that emerge.”



WEB EXTRA

After a lifetime of weight struggles and dieting, Maya found supportive, multidisciplinary care—and success—in the Center for Weight Management. brighammag.org/weightmgmt



Representation Matters

On a busy February morning in the Brigham's Newborn Intensive Care Unit (NICU), a nurse and four physicians captured a shining moment.

"For the first time in my 15-year nursing career, I was part of an all-Black woman care team," Denise DePina Dubuisson, RN, reflected on social media. "At a time when healthcare disparities for Black and Brown women and babies are at an all-time high, and Black and Brown healthcare practitioners are largely underrepresented, this was a sight to see and a dream to live!"

Dubuisson's post went viral, reaching more than 600,000 views after it was shared by her colleague, pediatric resident Adaobi Ikpeze, MD, BSN, RN. The overwhelmingly positive reaction to their message underscored the team's pride of working in the Brigham's NICU—and their hope to see more diversity, equity, and inclusion in healthcare professions.

"I'm looking forward to a day when an all-female Black NICU team will no longer be the exception," says attending neonatologist Carmen Monthé-Drèze, MD. "Meanwhile, we continue to celebrate our incredible achievements and progress as a department and as an institution."



Pictured (from left): Oludare Odumade, MD, PhD; Carmen Monthé-Drèze, MD; Denise DePina Dubuisson, RN; Nilse Dos Santos, MD; and Adaobi Ikpeze, MD, BSN, RN

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