

Focus on Men's Reproductive Health

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CDC is breathing new life into men's reproductive health issues – from contraception, fertility, sexual health and occupational hazards to the role they play in cancer and chronic diseases – following a first-ever conference on this topic hosted at CDC in September. Research and program staff across CDC came together with clinicians, patient advocates and other partners to discuss this often-overlooked public health issue.



CDC hosted the first-ever male reproductive health conference in September. It attracted 100 participants.

“One of the main purposes of the meeting was to discuss how to get men into care,” noted organizer Lee Warner, PhD, MPH, associate director for science, Division of Reproductive Health (DRH). “It was a good opportunity to educate and review what is known about reproductive health. Unlike other areas of men's health, reproductive health has been under-researched. There's relatively little known and that's across the board.”

What is known is alarming – 40 percent of all infertility cases are due to men's health issues, and that infertility can be an early indicator of chronic or other serious health issues, from diabetes, to heart disease to cancer. For example, men who experience erectile dysfunction often are at risk later in life for cardiovascular disease.



American Fertility Association's Ken Mosesian wants to see more outreach and education of young men earlier

Understanding Infertility as a Male Health Issue

Ken Mosesian, executive director of the [American Fertility Association](#), states, “Infertility among heterosexual couples is about 40 percent attributable to men, 40 percent attributable to women and the remaining 20 percent is a combination of both.”

Despite that reality, infertility is still widely viewed as a women's issue. It doesn't help, says Mosesian, that men don't feel comfortable going to doctors proactively to ask 'Is it me?' because tied into that question in many men's minds are issues of masculinity and issues of sexual orientation and issues of virility.”

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than what's happening today. "When you look at resources that are being spent to study men's reproductive health versus the reproductive health of women, the difference is pretty staggering. Being in an organization that helps people create families, the American Fertility Association is all about advocacy, education and support and being an organization that provides those things, we thought it was high time we drew attention to male factors in fertility but men's reproductive health in general. We hope more resources, time, energy and conversation to this area than is currently being given it."



Urologist Stan Honig focuses on things that are "treatable and reversible" in men. He worries that young men often "fall out of the medical system.

In addition, men typically lack a primary care doctor and are reluctant to seek care until they experience a problem, notes Stan Honig, MD, associate clinical professor of surgery at University of Connecticut Health Center. "We have a window when they are adolescents or college kids but once they go into the workforce or graduate school, they fall out of the medical system," he says.

A practicing urologist, Honig focuses on things that are "treatable and reversible." One treatable condition that affects infertility is varicoceles, which occur in 15 percent of all men and in 40 percent of men who visit infertility clinics. Varicoceles are dilated veins that sit near the testicles. They raise the temperature of the testes by a degree or two so they are at body temperature. Honig says procedures to fix these veins have resulted in improvement in the quality of sperm in 70 percent of men. "However, a lot of times men don't get evaluated to see if they have that problem," he adds.

The growing importance of infertility issues is evident by Congress mandating that CDC report data annually on success rates from use of assisted reproductive technologies. Since last May, Maurizio Macaluso, MD, DrPH, chief, Women's Health and Fertility Branch, DRH, also has been leading an effort to develop a National Action Plan on prevention, detection and management of infertility, including forming a number of working groups, one of which is focused exclusively on male reproductive issues. Macaluso says he expects that the plan will be finalized within the next year.

"Infertility affects a large number of people and the public health system can reduce the number of infertility cases as well as the complications of infertility treatment. Society's access to diagnosis and treatment is a "huge" challenge, largely driven by economic issues. Macaluso says minorities and other vulnerable population groups have reduced access to infertility treatment and care.

"Clearly, the public is more and more aware of infertility as an issue that affects them, their families and friends and they also are aware of the difficulty of access with the cost of treatment and with the potential adverse effects of treatment," he says.

Preserving Fertility in Cancer Patients

Preserving male fertility before cancer treatment was another hot topic. For the past eight years, Robert Brannigan, MD, associate professor of urology at Northwestern University's Feinberg School of Medicine, specializes in fertility preservation – "a high impact area" because it can have a very

Organizational Charts



Robert Brannigan specializes in fertility preservation – “a high impact area” because it can have a very positive effect on a large number of people.

positive effect on a large number of people. He notes that more than 20,000 males of childhood and reproductive age will be treated with chemotherapy and radiation therapy for cancer this year.

“The majority of these patients will live beyond the diagnosis and treatment of cancer and will be interested in having children down the road so there needs to be increasing awareness and outreach to these patients to provide services to preserve their fertility,” he says, noting that banking sperm prior to cancer therapy is akin to taking out an insurance policy to ensure these patients’ ability to father children later.

Both Brannigan and Hannah Weir, PhD, senior epidemiologist with the Epidemiology and Applied Research Branch in the Division of Cancer Prevention and Control, believe the dialogue needs to occur with not only young patients but also their parents.

“As young adults, adolescents and even children, I think when people are faced with cancer, they and their families are so concerned with getting them through the cancer. As people are living longer with cancer, preserving fertility becomes an increasingly more important issue,” she says.

“The most vulnerable of these patients are adolescents, says Brannigan.”First, these patients often don’t have easy access to fertility preservation services since pediatric hospitals are typically not equipped to process semen. Second, pediatric oncologists may be unfamiliar or uncomfortable in talking with young cancer patients and their families about fertility preservation options and procedures. The clinician must spend time very thoughtfully and delicately determining the developmental and maturity level of the patient in order to help move things forward appropriately,” Brannigan says. The American Society of Clinical Oncology offers [fertility preservation recommendations](#) to help oncologists work with their patients on options available to them.”

St. Jude’s Children’s Research Hospital’s Childhood Cancer Survivor Study of childhood cancer survivors diagnosed between 1970 and 1986, found of 6,224 survivors from age 15 to 44 years who were not surgically sterile were less likely to sire a pregnancy than their siblings. (The study includes approximately 4,000 siblings of survivors who serve as the comparison group for the study).

Lisa Richardson, MD, associate director of science, Division of Cancer Prevention and Control, says CDC does not currently have a surveillance system to measure the impact of cancer treatments on fertility. However, a study published in [Archives of Internal Medicine](#) has found a link between testicular cancer and infertility. The study claims infertile men are almost three times more likely to develop testicular cancer than those who are fertile.

In terms of other male cancers, Weir notes the worldwide incidence of testicular cancer has been

increasing, but the reasons for that increase are unknown. "There's been a lot of speculation about an environmental component to it," she says, adding, "It begs the question whether fertility and testicular cancer - are they different aspects of the same spectrum of disease?"



John Douglas is leading a CDC-wide effort to develop a broader framework for sexual health using a model focused on wellness and prevention.

CDC officials hope that the agency and its partners can provide a more coordinated, cross-cutting approach to improving male reproductive and overall health. That's a feeling echoed by John Douglas, Jr., MD, chief medical officer, NCHHSTP, and a leading authority on STD prevention.

Developing a Broader Framework for Sexual Health

"We're in the process of developing a broader framework for sexual health to include the work of divisions and centers across CDC," says Douglas. His center has been focused on how to take a more proactive role in male reproductive health as part of that broader framework – using a model that focuses on wellness and prevention.

Douglas says key to this approach is more open dialogue and "normalized" discussion around sexual health – similar to what former Surgeon General David Satcher, MD, PhD, championed in the [2001 Surgeon General's Call to](#)

[Action to Promote Sexual Health and Responsible Sexual Behavior](#). The model, followed by many other westernized nations, includes male reproductive health within a more inclusive sexual health framework that includes preventing HIV, STDs and unintended pregnancy as well as sexual violence.

"We are interested in weaving these strands together and presenting them in a health- and wellness-focused way as much as possible, as opposed to a purely disease-focused approach." Douglas notes that many other health campaigns have done this effectively – for example, talking about cardiovascular disease prevention in terms of "heart health" or immunization programs in support of "healthy children."

He believes men should play a more proactive role in reproduction planning-- "Men are unequivocally the other half of the reproductive equation," he says—an issue of major importance given the high rate of teen pregnancy in the US, which in 2006 was over 50 percent higher than the rate in the UK and over 10 times higher than the rate in The Netherlands.

NCHHSTP is leading the development of a policy paper that addresses approaches at the broader societal as well as the governmental level to improve sexual health dialogue in the country. "If we can re-frame the work we're doing in a health or wellness-based approach, we may be able to reduce the stigma associated with adverse sexual health outcomes such as HIV and STD and enhance interest in and engagement of the public. Also, if we can efficiently bundle these approaches together in a way that engages young people, parents, healthcare providers, and community leaders, we believe that we can help normalize the discussions and dialogue around this entire effort," Douglas says.

Finally, NCHHSTP is actively looking to identify surveillance gaps and needs to better understand how the nation is doing with sexual health. Key surveys that will help define our national progress in sexual health include the National Survey of Family Growth, the Behavioral Risk Factor Surveillance System and the Youth Risk Behavior Survey for in-school youth, as well as various disease surveillance systems.

Finding Occupational Hazards to Male Fertility

Steve Schrader, PhD, acting branch chief, Biomonitoring & Health Assessments in the Division of Applied Research and Technology in NIOSH, is an active voice in male reproductive health issues, serving as co-chair of the National Action Plan male reproductive health workgroup. Since joining NIOSH in 1983, he has worked diligently to establish a male reproductive health program to study the effects of chemicals and other hazards in the workplace on male reproduction. Over the last two decades, Schrader has built a team of field staff who analyze chemical exposures and semen of workers in many occupational settings.



Steve Schrader established NIOSH's male reproductive health program to study the effects of chemicals and other hazards in the workplace on male reproduction.

"We know heavy metals are very bad on male reproduction.

Pesticides are always a concern. The chemicals that really affect the male reproductive system contain hydrocarbon halogens –such as chlorine, bromine and fluoride," he says, adding that individuals working in manufacturing and agricultural jobs where they apply pesticides or handle chemicals are most vulnerable. His group has looked at pesticides in agricultural workers and US military and worker exposure to heavy metals. Schrader is pursuing a US study of workers Bisphenol A, or BPA, an organic compound commonly found in plastic water bottles, which has been found to adversely affect men's reproductive systems in studies in China. An NHANES study in 2006-2007 time frame found that BPA is detected in the urine of 93 percent of Americans.

Schrader's branch also examined sexual dysfunction in [bicycle police officers](#). The study began in 2000 at the complaint of police officers, who at that time used traditional seat saddles with a protruding nose, recalls Schrader.

"The part of the body that sits on the nose of the saddle was never meant to bear our weight and the amount of oxygen lost to the penis while sitting on the saddle can result in permanent damage," he says.

NIOSH did an initial six-month study of more than 90 police officers in five metropolitan police departments. Officers were given no-nose (noseless) bicycle saddles. The study found that a large portion of pressure to the groin compared with traditional saddles was eliminated, resulting in improvements to the officers' erectile function and feeling in the penis.

Awareness Building with Young Men Key

Both CDC's Warner and American Fertility Association's Mosesian think the momentum of bringing together consumer advocacy groups and non-profit organizations with the best and brightest physicians and scientists will help elevate men's reproductive health in all its facets. Mosesian in particular voiced support for more outreach and education of young men and adolescents earlier than what's happening today.

"We need true comprehensive, age-appropriate sex education and reproductive health education starting at the earliest ages," he says, adding that relying only on parents alone to provide this education has not been

a successful strategy.

Mosesian notes that there is some outreach targeting high school and college-age men relating to anti-doping and anti-steroid use campaigns; but he believes a huge push going forward will be creating more impactful ways to reach young men in such a way that they'll "actually hear the message and change their behavior." "We need to start to make young men aware that certain things they do can have an impact on their fertility later on in life," he says.

Looking ahead, Warner says DRH and other parts of CDC are considering whether a white paper on the topic is warranted – a step that many of the participants in the conference welcome and "a great starting point" for improving men's health outcomes long term.

"I hope a key outcome of this meeting is to increase awareness not just among men but also with their providers of the importance of male reproductive health. We need to ensure that potential reproductive health problems are identified as early as possible rather than wait until cancer and other diseases are detected," Warner says.

This *Inside Story* by Anne Wainscott-Sargent.

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