

INNOVATIONS IN WOMEN'S HEALTH

A Quarterly Publication of Women's Health Research at Yale



Women's Health Research at Yale
factoring in gender

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Women's Health Research at Yale generates research findings that transform the scientific community's understanding of women's health, answer important questions, and advance knowledge to improve well-being for all.

To learn more please visit our website at:

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Foundation Support Helps Advance our Mission

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- Werth Family Foundation Renews Commitment

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New NIH-Funded Research Center to Develop Treatments to Help Women Quit Smoking



Sherry McKee, Ph.D.

Yale scientists have been awarded competitive federal funding for a new interdisciplinary research center to develop gender-sensitive treatments that aid women in quitting smoking.

Tobacco use is the leading preventable cause of illness and death. Quitting smoking is one of the single most important behavioral changes a person can make to improve health, yet women have more difficulty quitting than men.

The new center will be led by Sherry McKee, Ph.D., Associate Professor of Psychiatry, as Principal Investigator, along with our Director, Carolyn M. Mazure, Ph.D., Professor of Psychiatry and Psychology, as Scientific Director; and Marina Picciotto, Ph.D., Charles B. G. Murphy Professor of Psychiatry, Neurobiology and Pharmacology, and Kelly Cosgrove, Ph.D., Assistant Professor of Psychiatry and Diagnostic Radiology, who will lead pivotal studies within the center.

Current FDA-approved medications for smoking cessation all target the brain's nicotine receptor to some extent but this may not be the optimal approach for women. "While men are more likely to smoke for the reinforcing properties of nicotine, which coincides with the success of nicotine replacement therapies for men, women are more likely than men to smoke to regulate mood and relieve stress," McKee said. "This suggests an important difference for the development of effective smoking-cessation treatments."

The funding for this new Yale-Specialized Center of Research on Women's Health is a \$6 million, five-year grant from the National Institutes of Health Office of Research on Women's Health, and the National Institute on Drug Abuse.

This new center will have strong ties to *Women's Health Research at Yale* and the NIH-funded junior faculty training program on women and addictive behaviors, led by Dr. Mazure. Combined efforts will provide a national resource to galvanize the study of sex and gender differences in relation to smoking, Mazure said. ■

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2012 Pilot Grants to Focus on Smoking Cessation, Breast and Ovarian Cancers, and Gender Differences in Aging

Our Pilot Project Program grants for 2012 target some of the most highly relevant areas of women's health today. These include smoking cessation, which is more difficult for women than men; breast and ovarian cancers, the second and fifth leading causes of cancer deaths among American women; breast ultrasound screening, which is increasingly being used as supplemental screening in women with dense breast tissue, and neurodegenerative disorders, such as Alzheimer's disease, which are more common in women than men.

"Smoking, breast and ovarian cancers, and Alzheimer's disease exact a huge toll on the health of women. The investigations by this year's awardees, like all of our previously funded studies, are designed with the goal of translating new scientific findings in these important areas into real-world benefits for women," said Dr. Carolyn M. Mazure, Director of *Women's Health Research at Yale*.

Our center's annual pilot awards enable Yale investigators to generate previously unavailable data on important areas of women's health. These pilot results are needed for investigators to apply for and obtain larger external grants to continue their research in these areas of women's health. Since inception in 1998, our center has awarded more than \$4.4 million in these "seed" grants, and the results from our pilot studies have generated nearly \$50 million in new external grants – confirmation of the value of our research findings.

The four 2012 *Women's Health Research at Yale* pilot grant recipients are:



Gender-Specific Mechanisms for Understanding Smoking Addiction

Irina Esterlis, Ph.D.
Assistant Professor of
Psychiatry

The Surgeon General has established that smoking quit rates for women have been lower than those for men in every single year for decades. And, importantly, the most commonly used treatments to aid quitting - nicotine replacement therapies - are not as effective for women as for men. Thus, in order to improve smoking cessation therapies for women, there is a critical need to investigate whether the neurobiology of smoking in women is different from that targeted by nicotine replacement therapies that affect nicotine receptors in the brain.

By using PET neuro scanning (a technology that produces visual images of the functioning of the brain at the cellular and molecular levels), Dr. Esterlis will take the first steps in investigating whether treatments targeting different receptors - called metabotropic glutamate receptors (mGluR5) - may be a better option for helping women quit smoking. She believes these glutamate receptors are excellent candidates because evidence from animal studies suggests gender differences in the role of mGluR5 in nicotine addiction, and glutamate, a key chemical messenger across nerve cells, has been shown to be compromised in mood disorders such as depression, one of the reasons that women smoke or relapse to smoking after quitting.





Enhancing Treatment of BRCA-Deficient Breast and Ovarian Cancers

Peter M. Glazer, M.D., Ph.D.
Professor and Chair of
Therapeutic Radiology

Inherited mutations in two particular genes, BRCA1 and BRCA2, are known to increase risk for breast and ovarian cancers. In addition, many non-familial breast and ovarian cancers are associated with cell-repair defects related to mutations in these two genes. Dr. Glazer discovered that a particular antibody (a protein made by immune cells to attack disease agents such as cancer cells) can increase the vulnerability of various types of cancer cells to radiation and chemotherapy treatment. Preliminary evidence shows that this effect is greater in breast and ovarian cancers related to BRCA1 and BRCA2 gene mutations.

Dr. Glazer's pilot study will begin moving this important antibody, called 3E10, toward clinical application for improving breast and ovarian cancer treatments. The 3E10 antibody is distinguished from all other antibodies currently in use for cancer treatment by its abilities to penetrate cells and affect cell-repair. The ultimate goal is to provide new, more effective treatments for women with breast and ovarian cancers.



The Effectiveness of Breast Ultrasound Screening: Connecticut's Experience Can Inform the Nation

Regina J. Hooley, M.D.
Assistant Professor of
Diagnostic Radiology

Early detection is the best strategy to reduce breast cancer mortality. Although early detection through mammography screening can reduce breast cancer mortality, it has limited ability to

detect cancers in women with dense breast tissue. Because of this limitation, other screening methods, including breast ultrasound, have also been used to detect breast cancer. In 2009, Connecticut became the first state to adopt a law requiring radiologists to inform women with dense breast tissue that they may benefit from supplemental screening with ultrasound, after mammography. Two other states have now adopted legislation similar to that in Connecticut, yet a similar law was vetoed in California, primarily due to lack of data in the rates of false positive results, and concerns regarding rising healthcare costs.

Dr. Hooley will investigate the performance of breast ultrasound in women with dense breast tissue since the Connecticut law took effect. Through her review and analysis, Dr. Hooley and colleagues can determine the usefulness of ultrasound plus mammography in detecting tumors not revealed by mammography alone. As other states and the federal government continue to consider adoption of similar laws, the outcome of this study could inform the medical community, legislators, policymakers and women worldwide about the value and cost-effectiveness of breast ultrasound screening.



Understanding the Cellular Basis of Gender Differences in Neurodegenerative Disease

Flora M. Vaccarino, M.D.
Professor of Neurobiology and
in the Child Study Center

Compared with men, women have a greater incidence of disorders involving degeneration of brain nerve cells such as Alzheimer's disease. Although studies have examined the role of estrogen in these neurodegenerative diseases, little research has focused on the cellular mechanisms underlying gender differences in aging. Further, no research has examined the role of cells called astroglial cells in gender differences and aging, despite a clear role for

these cells in the generation and preservation of brain nerve cells, and evidence that these astroglial cells facilitate estrogen’s role in supporting healthy cells. Astroglial cells, the most abundant cells in the brain, play roles in key areas including maintenance of the blood-brain barrier, transmission of electrical signals, and repair of nerve cells.

Dr. Vaccarino will take initial steps toward understanding the cellular mechanisms that underlie gender differences in aging, and will identify genes expressed in astroglial cells involved in aging. Gene identification may enable the targeting of particular cellular genes that control growth and play roles in determining gender differences in neurodegenerative diseases and aging. Thus, this study represents first

steps at identifying new targets in developing interventions for neurodegenerative diseases, particularly those which are more common in women.

Women’s Health Research at Yale is funding the studies by Drs. Esterlis and Glazer in conjunction with the Yale Comprehensive Cancer Center. ■

The Women’s Health Research at Yale Pilot Project Program is supported in part by The Seymour L. Lustman Memorial Fund, The Seedlings Foundation, The Werth Family Foundation, and anonymous donors.

Taking Stock of the Pilot Project Program

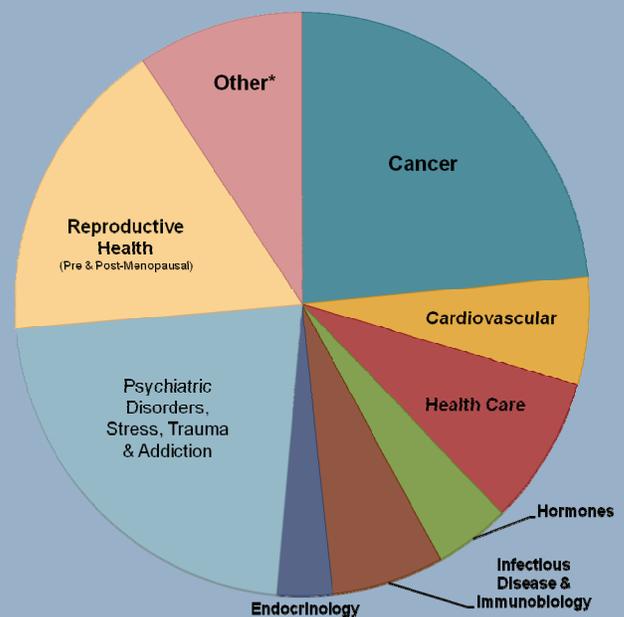
Women’s Health Research at Yale will be nearing a great milestone next year – our 15th Anniversary! As we prepare to celebrate this special event, we are looking back on the innovative and gender-specific research funded since the program’s inception in 1998. A pivotal component of the success of WHRY has been our Pilot Project Program funded through the original Donaghue Foundation grant. The Pilot Project Program, previously entitled *The Ethel F. Donaghue Women’s Health Investigator Program at Yale*, has provided seed money to innovative and promising research projects.

As we begin to take stock in our accomplishments, we’d like to share with you, our friends and supporters, some of the highlights.

Since February 1998:

- >600 applications submitted by Yale Faculty
- >\$32 million grant dollars have been requested
- >\$4.4 million has been awarded in “seed grants”
- 65 complete and active research projects to date

The research spans many key areas of women’s health. The chart depicts the many fields of study in the Pilot Project Program. ■



Other includes: Orthopedics, Neurology, Pathology, Dermatology, Ophthalmology, and Pediatrics

Hormone Therapy and Cognition: Ten Years After the Women's Health Initiative

Until a decade ago, hormone therapy with estrogen was generally thought to benefit women's cognitive functions, as the risk for older women developing dementia was attributed to lower naturally occurring estrogen levels after menopause. However, hormone therapy gained a poor reputation when the Women's Health Initiative (WHI) study of a specific combined estrogen-plus-progestin therapy was halted 10 years ago.

This clinical trial, part of a series of WHI studies sponsored by the National Institutes of Health, was designed to test whether post-menopausal combination hormone therapy prevents cardiovascular disease without increasing the risk of breast cancer. Scientists conducting this study on hormones and cardiovascular disease became concerned about data pointing to a slightly elevated risk of cardiovascular disease, stroke and breast cancer among the post-menopausal women receiving the specific treatment - Prempro.

As a result, the scientists terminated this study, earlier than planned, in July 2002, and halted an estrogen-only WHI clinical trial in 2004 based on an increased risk of stroke and no overall apparent benefit in reducing cardiovascular disease.

Ever since, millions of women have been wary of hormone therapy, or have received hormone therapy for menopausal symptoms such as hot flashes – while still wondering about the potential risks, and perhaps hoping the treatment will also help maintain cognitive functions.

A decade after the WHI trials ended, hormone therapy remains an important area of women's health research. Further evaluations of the WHI data showed that the reported cardiovascular risks found in the original study pertained mainly to women who started hormone therapy long after menopause. In addition, in 2007, follow-up analyses of the results of

the WHI estrogen-alone trial and findings from an ancillary WHI estrogen-alone study suggested that women who used these treatments in the first years after menopause may not be at risk. In fact, it was women who were older than 60 and several years since the onset of menopause when they initiated therapy who had an increased risk for cardiovascular disease.



Pauline Maki, Ph.D.

Moreover, new research suggests that hormone therapy with estrogen may still hold promise for maintaining health, perhaps even in relation to cognitive functions including memory.

What's a woman to think about this seemingly contradictory evidence?

Dr. Pauline Maki, Professor of Psychiatry and Psychology at the University of Illinois at Chicago, has spent much of her career studying the effects of estrogen on women's health, particularly in the areas of memory and cognition. Even she acknowledges the topic is extremely complicated.

Although she cautions that there is no definitive answer yet, Maki said she believes that, ultimately hormone therapy with estrogen may be shown to reduce risk for dementia/Alzheimer's disease and memory loss – but only if a woman is healthy enough and, perhaps, young enough to benefit.

Alzheimer's disease is a particularly acute concern for women. Compared with men, women have a higher risk and incidence of this neurodegenerative disorder because of a variety of gender-related risk factors which include genetics, higher rates of depression, lower exercise rates, and

factors related to menopause and hormones, Maki said.

As Director of the Women's Behavioral Health Research Division in Yale's Department of Psychiatry, our center's Director, Dr. Mazure, invited Maki to be the annual Grand Rounds visiting lecturer in May. Maki spoke about the evolving research on hormone therapy with estrogen and cognitive function in the ten years since the WHI trials ended.

According to Maki, by the time the women who participated in the WHI trials started their hormone therapy (the average age was 63), the chances of treatment benefiting these women had been minimized.

There are two hypotheses for why this may be so. The first hypothesis is that there is a critical window of opportunity – during the first six years to 10 years after menopause – for healthy women to benefit from hormone therapy with estrogen.

The second hypothesis is that women with healthy nerve cells in the brain will benefit from hormone therapy with estrogen, while women with unhealthy cells will not. This is known as the healthy cell bias hypothesis, put forth in 2005 by Dr. Roberta Diaz Brinton of the University of Southern California.

Put simply, if initiated when a woman is transitioning to menopause, estrogen therapy will have a beneficial effect only if neurological decline has not occurred. Once nerve cells are unhealthy, as in neurodegenerative disorders such as dementia/Alzheimer's disease, these cells will not benefit from estrogen exposure. Estrogen may actually worsen neural deterioration.

"This may explain why women who are earlier in the transition may benefit from hormone therapy," Maki said. These women tend to be younger and are more likely to be healthy. Moreover, "cognitively intact women early in the transition may be the ones who could benefit the most," she said.

There were clues to support the healthy cell bias hypothesis even in the results of the WHI trials that were terminated, Maki said.

As noted earlier, the WHI studies on hormone therapy and cardiovascular disease included two clinical trials: a conjugated estrogen-plus-progestin (Prempro) study of more than 16,000 women with a uterus, and a conjugated estrogen-alone (Premarin) study of more than 10,000 women who previously had a hysterectomy. In each trial, women were randomly assigned to either the hormone therapy or to placebo.

As part of the overall WHI studies, researchers also enrolled subgroups of the women in the hormone therapy trials in an ancillary study of hormone therapy's effects on dementia risk and cognitive impairment. All of the women in this WHI Memory Study (WHIMS) were 65 or older when the trials began; more than half were at least 70.

The women in the WHI Memory Study treated with combination hormone therapy showed a substantial increase in dementia/Alzheimer's disease. The women treated with estrogen-only therapy, however, did not show a substantial increase in dementia/Alzheimer's disease, according to Maki. "One finding that has emerged since the WHI is that when certain forms of synthetic progesterone are given in combination with estrogen, the effect on cognition is negative regardless of the woman's age or health," she said.

The two arms of the WHI Memory Study were also terminated in 2002 and 2004. A close look at the results, Maki said, shows that the women who accounted for the increase in dementia fared poorly on cognitive ability scores *at the start of the study*. "What the WHI data clearly showed us," Maki said, "is that these are the women we should avoid giving estrogen."

Maki said the healthy cell bias hypothesis is now increasingly supported by emerging evidence.

The key support, according to Maki, is a 2009 study, by Dr. Mary C. Tierney at the University of Toronto, of the effects of hormone therapy with estrogen on delayed verbal recall – a key measure of working memory. (The ability to acquire and recall





After Grand Rounds, the scientific discussion continued over lunch. Standing L-R are faculty: Drs. Mehmet Sofuoglu, Ariadna Forray, Kimberly Yonkers, guest speaker Pauline Maki, Carolyn Mazure, Andrea Weinberger, and Irina Esterlis. Seated L-R are junior faculty (BIRCWH scholars): Drs. Tomoko Udo, Elise DeVito and Azure Thompson.

new verbal information, according to Maki, may be among the best predictors of risk for Alzheimer's disease).

Dr. Tierney enrolled 142 women volunteers, aged 61 to 87, in a randomized two-year trial in which half the women received estradiol and norethindrone (a progesterone), or placebo. Overall, she found the hormone therapy had no negative effect on delayed verbal recall. However, the women who had good verbal memory and cognition at the start of the study showed significant improvement in these areas after hormone therapy.

"These findings," according to the study published in the journal *Psychoneuroendocrinology*, "support the hypothesis that estrogen exposure will have a more beneficial effect in women with healthy neurons, as it is unlikely that a woman would have significant neurodegenerative changes with a normal score or better."

More recently, a study published this July in the journal *Neurobiology of Aging* suggests that the beneficial effects of estrogen therapy on cognitive functions may be blunted by stress. This study, by Dr. Laura D. Baker at the University of Washington, was also a randomized trial, in which 39 healthy postmenopausal women received estradiol, by skin patch, or placebo over eight weeks. In the last four days of

the trial, the volunteers also received placebo, or oral hydrocortisone to induce high levels of the stress hormone cortisol.

Women who received the hormone therapy showed improvement in memory and attention, but the improvement was blocked by the administration of the cortisol. Although the sample size was small and the study duration was short, these findings suggest that beneficial effects of estrogen can be modified by stress.

In Maki's view, the key point from these two recent studies is that memory improved with the administration of estrogen in *healthy* postmenopausal women. "What did those women who benefited have in common? They had good verbal memory, good cognitive ability, at the start of the studies," she said.

There remains an urgent need for answers on the safety and efficacy of hormone therapy with estrogen in relation to cognition, Maki said, as women facing menopause seek information and society looks for ways to address a looming dementia/Alzheimer's disease epidemic. The prevalence of Alzheimer's is expected to triple by 2050, and the cumulative cost is expected to top \$20 trillion, according to estimates Maki cited in her presentation.

"I argue that one of the biggest questions left to be answered is what can a woman with menopausal symptoms take for her hot flashes – with either neutral or beneficial effects for cognition and memory?" Maki said in a recent interview. "Probably there is not one answer for all women." ■

The Women's Health Initiative also included clinical trials with postmenopausal women to test:

- whether calcium and vitamin D supplements reduce the risk for colorectal cancer and the frequency of hip and other bone fractures.
- The effects of a low-fat diet on the prevention of breast and colorectal cancer, and heart disease.

For more information, visit www.nhlbi.nih.gov/whi/background.htm

Mary W. Harriman Foundation Continues 13-Year Partnership

Women's Health Research at Yale has been extremely fortunate to have the Mary W. Harriman Foundation as a continuing partner since 1999.

This year, the foundation renewed its commitment with a gift to support the overall operations of our center.

Since shortly after our center's inception, the Mary W. Harriman Foundation has helped enable us to advance biomedical discovery in almost every area of women's health.

"We express our sincere appreciation for the continuing generosity of the Mary W. Harriman Foundation," said our Director, Dr. Carolyn M. Mazure. "We have taken important steps together and look forward to more research progress in the future."

Werth Family Foundation Renews Commitment

The Werth Family Foundation began a partnership with *Women's Health Research at Yale* six years ago, by helping sponsor our 2006 benefit concert featuring Judy Collins.

The harmony between our organizations has grown stronger ever since, with repeated gifts over the years. This year the Werth Family Foundation provided a special gift - in addition to an initial commitment to support our center's ongoing operating needs.

The additional gift will help fund a new study in our interdisciplinary Research Core on Women and Trauma - an investigation of gender differences in pain in military veterans who are seeking treatment for Post-Traumatic Stress Disorder (PTSD).

"We are grateful for this truly important partnership with the Werth Family Foundation," said Dr. Mazure. "These generous commitments are fueling our major initiatives and making a difference in women's lives." ■

Annual Appeal 2012: A Strong Finish for *WHRY*

Thanks to donors who continued to support our center - individuals, foundations and community organizations - and new donors who have stepped forward while the economy is still recovering, we have raised our highest-ever totals in the past two annual appeals.



Patti Russo, Chair
Philanthropy & Communications

As we neared our June 30th finish for the 2011 Annual Appeal, an anonymous donor offered to match every dollar raised, up to \$10,000, and your 11th hour gifts more than met this challenge - helping to inspire all of our efforts as we look to our 2012 appeal.

So please join us to celebrate our success.

Thanks to all of your generosity we will be able to continue to push the boundaries of scientific inquiry in areas of the utmost concern to women today - breast cancer, breast ultrasound screening and Alzheimer's disease among them.

As we approach *Women's Health Research at Yale's* 15th anniversary, look to the future knowing we have built a strong foundation, based on a stellar reputation for advancing knowledge to enhance the well-being of women.

Please spread the word about the vital work we do, and join us again to support new research on women's health and gender differences. Your gifts mean so much. Thank you! ■

The "Muscle" of a Matching Gift
A match has the power of multiplying each donation!

For information on any aspect of making gifts please call or email Ramona Gregg.

ramona.gregg@yale.edu ♦ (203) 764-6600

Women's Health Research at Yale is a program within Yale University School of Medicine. Yale University is a 501(c)(3) non-profit organization.

Council News...

Kevin McCann is Probate Judge Candidate

Advisory Council member Kevin McCann, J.D., is running for election as Probate Judge in Connecticut's 4th District, which includes Windsor, South Windsor and East Windsor. A South Windsor resident, Kevin is a partner in the law firm of Hinckley, Allen & Snyder and has practiced in the area of trust, estate and probate law for more than two decades. He is the Republican candidate for Probate Judge in his district, seeking to complete the term of Judge Brian Griffin, who passed away suddenly in February. A special election is scheduled for August 21st.



Patti Russo Interviewed on WNPR–Public Radio

Patti Russo, President of the Women's Campaign School at Yale, spoke on air June 5th during a WNPR radio interview about efforts to increase the number of women in elected public offices. Patti is Chair of our Advisory Council's Philanthropy & Communications Committee. The Campaign School, which runs annual weeklong summer sessions to train women candidates, has one goal: "Getting more women running, winning and serving," Russo told interviewer Lucy Nalpathanchil. Although women make up half the U.S. population, less than 17 percent of the lawmakers in Congress are women, Russo said. The radio segment aired as 64 women from around the U.S. and the world were about to arrive at Yale for training. Russo said the sessions are bi-partisan and issue neutral.



Scientific Presentation: Finding a Way to "Switch" Off the Spread of Breast Cancer

Dr. Anthony Koleske is one of two funded investigators conducting a study to determine how to stop breast cancer cells from spreading beyond the

initial tumor. Koleske, Professor of Molecular Biophysics and Biochemistry, and Dr. Titus J. Boggon, Assistant Professor of Pharmacology, are collaborating on this important study, funded by a 2011 Pilot Project Program grant from our center. Dr. Koleske gave an update on his work in a presentation to our Advisory Council on June 4th.

Metastasis, or the spread of a primary tumor, is the greatest cause of mortality from breast cancer. And currently, there are no drugs that selectively target breast cancer metastasis, Koleske explained. His research has shown that three particular proteins – cell building blocks – combine to form a control "switch" in breast cancer cells which, when turned on, enables the cells to invade surrounding tissues and develop secondary tumors. Drs. Koleske and Boggon are investigating ways to keep this switch from forming – with the goal of developing drugs to limit the spread of breast cancer cells.

In thanking *WHRY* for his pilot grant, Dr. Koleske offered that scientists "simply cannot find funding to test important proof of principle studies, and *WHRY* funding is allowing us to develop and test new hypotheses so we can attract longer-term support from the National Institutes of Health or the National Science Foundation." ■

Press Notes...

A Lot to Cheer for Women in Affordable Care Act

The political fight over the Patient Protection and Affordable Care Act undoubtedly will continue. But the landmark legislation, now deemed valid under the Constitution by the U.S. Supreme Court, is squarely the law of the land.

When it comes to the law's effects on the lives of women, perhaps no act of Congress has held more promise since the 19th Amendment to the Constitution granted women the right to vote more than 90 years ago.

Beginning this August, the new health care law



Daniel P. Jones



requires that new health insurance plans must cover preventive health services that specifically help women stay healthy – without charging an insurance co-payment or deductible. These services include mammograms, well-woman visits, contraception and domestic violence screening.

Most importantly, beginning in 2014, the law will prohibit insurers from charging women more than men for health insurance, and insurers will no longer be allowed to deny coverage to anyone with a pre-existing condition. Prior to the law, companies selling individual policies could deny coverage to women due to pre-existing conditions, such as cancer or having been pregnant.

Finally, by the time the law is fully implemented over the next few years, an estimated 15 million women now without health insurance are expected to gain coverage.

Beyond the political squabbling, what's actually included in the law matters – especially when it comes to the well-being of women. ■

In the News...

WHRY a Partner at “Convening: for Women”

Approximately 500 women and girls gathered June 19th to hear highlights of the first ever report on the status of women in New Haven, and to pledge to advance the cause of women in numerous ways.

The need for gender-specific health research was a key theme of this Community Fund for Women & Girls event at the Omni Hotel, called “Convening: for Women.”

Our center was a sponsoring partner of the event, and our Director, Carolyn M. Mazure, was co-chair of the report on the status of women and girls in New Haven. Among the data: New Haven women working full-time earn 88 percent of the income of their male counterparts in similar jobs; single women head nearly one in four households, and a clear need was found for gender-specific health information. The report is expected to provide strategic direction for stakeholders and residents who care about women and girls.

Investigator Wins External Grant to Further Research on Hypoparathyroidism

Dr. Julie Ann Sosa, Associate Professor of Surgery and of Medicine, and one of our funded investigators, was awarded a \$200,000 state grant from the Connecticut Stem Cell Fund. This external grant will allow her to continue the work she started through a Pilot Project Program grant our center awarded her in 2010 to develop parathyroid cells from stem cells – for treatment of hypoparathyroidism, a debilitating condition more prevalent in women than men.



In women more than men, the parathyroid glands can become inactive or must be removed or are injured during surgery to remove a cancerous thyroid – causing serious illness and calcium imbalance that requires treatment with frequent oral calcium replacements.

Dr. Sosa is working to turn human embryonic stem cells into parathyroid cells that would replace a patient's parathyroid hormone. If successful, the replacement cells would provide for the needed calcium balance and negate the need for supplements.

“The study by Dr. Sosa and her colleagues, Drs. Sanziana Roman, Diane Krause, and Betty Lawton, is a great example of our pilot grant program allowing investigators to delve into a key women's health concern and generate the feasibility results needed to apply for larger, long-term funding to further the research,” said our Director, Dr. Carolyn M. Mazure.

Dr. Sosa joins scores of our pilot-funded investigators who, in total, have obtained nearly \$50 million in external grants since *Women's Health Research at Yale* was founded in 1998. ■

Our Investigators are on YouTube!



Hear from scientists, like Dr. Julie Ann Sosa, who are making great strides in advancing gender-specific science with the hopes of translating their findings to clinical practice and treatment.

Also available on WHRY's website, www.yalewhr.org!



Women's Health Research at Yale

factoring in gender

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Send your email address to
whresearch@yale.edu to receive updates,
news and announcements.

Quitting Smoking & Your Health

Our new “Your Health” page provides information, resources, and tips on how you can quit, or help another woman quit.



Visit the Community section of our website.

www.yalewhr.org

Yale