Over the past year, the Zika virus has gained momentum in the medical and science communities—raising questions not only about the science behind the disease, but also on how to tactfully address it within the global public community. Spread primarily through a bite of an infected *Aedes* species mosquito, researchers also learned that Zika can spread through sexual transmission. While those infected with the virus will experience either mild to zero symptoms, the infection during pregnancy can cause microcephaly, or other severe fetal brain disorders. Questions such as, *What if I’m infected? How long can I wait to have a baby? Is my baby healthy? Should I put family-building on hold?* have dominated public concerns.

In the summer of 2016 the first known cases of Zika transmitted by the actual mosquito were found in Florida’s Miami-Dade and Broward counties. With Zika now confirmed in the U.S., scientists, researchers, doctors, government agencies, and others continue to shift their resources and manpower to obtain a firmer grasp on the science of the virus—including its causes, symptoms, molecular physiology, transmission avenues, developing a vaccine, and importantly—educating the public.

The Zika outbreak once again shows the depth of reproductive research, and its significant importance in addressing the reproductive health concerns of individuals, and their future generations.

As the global community moves into 2017, Center for Reproductive Medicine (CRM) members are actively involved in both the research and vaccine-development of the disease, as well as with easing patient concerns. Whether it’s getting tested, taking precautions, avoiding travel to certain locations, or holding off on having a baby—educating and keeping individuals abreast of the disease is what helps keep transmission numbers down.

This can also be applied in addressing issues within our local areas. In this issue of the newsletter, Dr. Peggy Smith, Director of the Baylor College of Medicine (BCM) Teen Health Clinics, points out challenges faced by at-risk youth, and the various programs and incentives her team is implementing to provide quality care to the younger generation. As with Zika, education is key to ensuring that not only teens, but all individuals can also make informed decisions, become self-sufficient, understand future opportunities, and are aware of how to lead a healthy lifestyle. As we head into 2017, it is important to remember that when we work together as a team, the better science, medicine, and programs we can deliver to all generations.
CRM NEW YEAR’S MEMBERSHIP MEETING
AND RECEPTION
January 12, 2017

CRM Director, Dr. Dolores J. Lamb, welcomed members to a new year with an overview of the CRM’s strides and accomplishments in 2016, along with College Faculty announcements. Dr. Lamb pointed out areas of which the CRM continues to build its core fundamental drive around—highlighting where the Center stands within these mission areas, and what to focus on as it moves into 2017.

Joining the meeting, members of the Reproductive Endocrinology and Infertility (REI) Division at Texas Children’s Hospital shared their current developments and research projects. Terri Woodard, M.D., Assistant Professor of Obstetrics and Gynecology, provided clinical milestones, and described the clinical oncofertility services offered. Amongst these services is a Patient Decision Aid. This tool guides individuals who have been diagnosed with cancer to help them make their decision on whether or not to seek fertility preservation (or another option) by utilizing a series of interactive questions, and providing a personalized information page.

Alongside Dr. Woodard, trainees Joie Guner, M.D., Maya Kriseman, M.D., and Jessica Rubin, M.D. shared their research projects. Here, Drs. Joie Guner and Jessica Rubin describe their works.

“Can Preimplantation Genetic Testing (PGS) be Applied to Previously Untestified Vitrified Embryos?”

JESSICA RUBIN, M.D.
Clinical Postdoctoral Fellow, Department of OB/GYN

Background: Retrospective compilation of patients undergoing autologous IVF cycles with vitrification prior to preimplantation genetic testing (PGS). Patients subsequently elected to rewarm embryos and biopsy for PGS.

Patients were subdivided into two groups, women age <35 and ≥ 35. Among all ages, 120 embryos were rewarmed following initial vitrification and 100 survived (83.3%). There was no significant difference in the rearming survival rate for PGS biopsied embryos between age groups.

Therefore, the option to rearm vitrified embryos for PGS should be considered for women with vitrified embryos and a new diagnosis of a genetically inherited condition in a parent or child, recurrent pregnancy loss, or vitrification of embryos prior to elective PGS testing.

“Expression of Tumor Suppression Gene PCDH10 in Leiomyomas & Leiomyosarcomas”

JOIE GUNER, M.D.
Medical Resident, Department of OB/GYN

Dr. Joie Guner, a third year resident in OB/GYN here at Baylor, has been studying the role of PCDH10 in uterine leiomyomas and leiomyosarcomas.

Dr. Guner, and her collaborators, Drs. Matthew Anderson, Cecilia Valdes, and William Gibbons, have found that PCDH10 is highly overexpressed in uterine smooth muscle tumors, serves as a key organizing hub for progesterone-dependent patterns of gene expression, and regulates adhesion, survival and proliferation.

Their work will be presented at the 64th Scientific Meeting of the Society for Reproductive Investigation (SRI) in March 2017 in Orlando, FL. This abstract has been recognized with the Pfizer-SRI President’s Presenter’s Award.
BAYLOR TEEN HEALTH CLINICS

Innovative approaches as a community partner to provide exemplary and compassionate quality care to at-risk youth in underserved neighborhoods

Challenged by the changing landscape of poorly compensated care in a non-Medicaid expansion state, the Baylor Teen Health Clinics (BTHC) have risen to the occasion. Building on clinical excellence, the programs have continued to expand their 45 years of innovative vision and initiatives based on evidence-based data and best practices to meet the needs of this vulnerable population. Even when a teen or young adult patient lacks insurance or legal immigration status, the clinics function as their quality medical home.

Strong partnerships with a variety of community institutions, such as University of Houston, Harris Health, Houston Independent School District (HISD), and Texas Children’s Hospital (TCH), to name a few, work together as an effective safety net collaboration for this population. Last year, the clinics provided care via 35,000 visits to patients—92% lived at 100% of the federal poverty level.

Whether a teen or young adult lives in Harris, Fort Bend, or surrounding counties, these clinics offer at little or no charge the best that the Texas Medical Center has to offer to young people who need it the most. Several of these effective interventions are described here.

PROJECT BOOTSTRAP

Project Bootstrap is one of the unique programs that BTHC is looking forward to expanding in 2017! Project Bootstrap began as a program under the State Attorney General to help young fathers establish paternity, and develop a path to employment to support their child. When the program’s funding ended in 2006, the Baylor College of Medicine Teen Health Clinics revitalized it in 2010 with a grant from the Foundation for Teen Health. Today, it continues some of the fundamentals of the original program, and has now expanded to include young women and non-parents. Project Bootstrap looks to connect teens and young adults with job training and career-related opportunities that will lead to stable, sufficient employment.

Participants in this program are usually 16 to 24 years of age at enrollment and are provided resources in the form of three “routes”: **GED preparation and testing**, completing a **vocational/technical certificate** (e.g. welding, HVAC certificate), and/or enrolling in **workshops** that address issues like career development, financial literacy, and health/wellness.

PEGGY SMITH, Ph.D.
Director, Baylor Teen Health Clinic, Professor, Department of Obstetrics and Gynecology

AND

KJERSTI AAGAARD, M.D., Ph.D.
Associate Professor, Department of Obstetrics and Gynecology

For more information:
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teenhealthclinic.org

BAYLOR TEEN HEALTH CLINIC | CONTINUED ON PAGE 4
While pursuing these “routes,” each participant may be awarded a grant up to $1,100 which may be used to subsidize any needs that they may experience while completing their goals.

Tracking the outcome of this program indicates that participants acquire useful skills that translate into meaningful employment. As seen in Figure 1, our graduates have a good chance of obtaining meaningful employment subsequent to program completion.

**Figure 1: Completion of Training & Employment**

- 55% completed training only
- 45% completed training and obtained employment

**Figure 2: Category 3 Metrics**

<table>
<thead>
<tr>
<th>Metric</th>
<th>DY3</th>
<th>DY4</th>
<th>DY5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Rate</td>
<td>4.12%</td>
<td>2.15%</td>
<td>2.45%</td>
</tr>
<tr>
<td>HPV Completion Rate</td>
<td>37.14%</td>
<td>44.33%</td>
<td>71.34%</td>
</tr>
<tr>
<td>Depression Screening</td>
<td>14.49%</td>
<td>19.40%</td>
<td>16.00%</td>
</tr>
</tbody>
</table>

**Enhancing Primary Care Through Prevention: Immunizing for Human Papillomavirus (HPV) and Meningococcal Infections**

While most community members feel that infectious diseases are issues of the past, for our clinics’ populations' knowledge of and access to such life-saving vaccines is not widespread. Our staff, across clinics, have initiated efforts to increase vaccine uptake among patients.

First, staff has provided comprehensive education to students regarding immunizations, including information on HPV and MCV4. Most students at several of our high schools are emigrating from other countries and need to start their vaccine “catch up,” which means they initially receive seven to nine shots in the first visit.
Each new student seen receives an Immtrac packet and all VIS forms to return with their original shot record. Their records are compared to the school nurse’s vaccine information for comparison.

Second, a vaccine recall system was initiated during the prior year, and continued this past school year. The vaccination records for students are reviewed at each visit, and return visits are scheduled for subsequent doses. If the return visit is missed, students are reminded by either a request for them to return to the clinic during the school day, or by a phone call asking them to bring their shot card and come to the clinic for the next dose. If they do not return after two weeks for the next dose, a reminder letter is mailed to their home. The names of students who do not return after one month are submitted to the school nurse, who sends a delinquent letter to their home explaining to the parents that the student will be expelled from their respective high school if they are non-compliant. This system assures that students will receive their required vaccinations. Third, all vaccines are provided free of charge.

This is made possible via Vaccines for Children program and Healthy Texas Women. For adult males who do not qualify for either program, vaccines are provided at no charge. The results of these three strategies have been rewarding.


In addition to the disparities associated with successful completion of our Bootstrap program described here, the clinic also focuses on risk-taking behaviors in our male patients, especially as it relates to HIV infection. This is especially relevant as over the last five years 75% (87 cases) of our positive HIV cases were among our young minority males.

A more in-depth assessment of male sexual risks was conducted in collaboration with the Center for Reproductive Medicine (CRM) where male patients were queried on their overall health, including sexual and reproductive health knowledge and needs, sexual behaviors, and testicular health practices. Although 21.6% of participants had a sexually transmitted infection (STI) in the past year, approximately 80% perceived their STI/HIV risk as very low or low. Respondents had low engagement and lack of knowledge of testicular health practices. The majority of respondents (71.1%) also reported having been in a physical fight one or more times and 18.1% reported being victims of intimate partner violence.

These findings support increasing comprehensive services to males who access family planning services that address their specific risk-related factors, as well as their adverse sexual experiences that affect their health outcomes.


Because of the continuing commitment of the Department of Obstetrics and Gynecology and by the College, the Baylor Teen Health Clinics have expanded their internal leadership and have identified additional areas of expansion to serve the community. Untapped opportunities along multiple mission lines of institutional partners provide opportunities to expand sports medicine, primary care, applied and bench research potential, and medical school training, to name a few. BTHC provides ready opportunities for expansion and collaboration with the allied departments represented in the Center for Reproductive Medicine.
SAVE THE DATE:
2017 TEXAS FORUM FOR REPRODUCTIVE SCIENCES

April 27-28, 2017
MD Anderson Onstead Auditorium | 6550 Bertner Ave.

The Texas Forum for Reproductive Sciences (TFRS) brings together all basic and clinical scientists interested in female and male reproductive systems. 2017 meeting chair Mala Mahendroo, Ph.D., and meeting organizers, Marie-Claude Hofmann, Ph.D., and Chandra Yallampalli, Ph.D., DVM, will coordinate the 23rd meeting.

Abstracts and attendees are invited from all state-wide institutions. Short talks and poster sessions will be presented by students, fellows, and junior faculty, along with two excellent plenary lectures:

“The Perinatal Microbiome”
Kjersti Aagaard, M.D., Ph.D.
Baylor College of Medicine

“Genetic Regulation of Male Sex Differentiation”
Richard Behringer, Ph.D.
University of Texas MD Anderson Cancer Center

REGISTRATION IS $50. For abstract submission, schedule, lodging, and registration: bcm.edu/reproductivemedicine/meetings/texas-forum-reproductive-sciences. For questions, contact Dr. Chandra Yallampalli at cyallamp@bcm.edu.

CRM MEMBER AWARDS
CONGRATULATIONS!

In December 2016, David Rowley, Ph.D., Professor of Molecular and Cellular Biology, received the first Faculty Senate Leadership Award. This award honored Dr. Rowley for his exceptional commitment to his colleagues and the College, including his work on developing a fully State Department-compliant J-1 Visa Applicant Process.

For more on Dr. Rowley’s work with the Faculty Senate, see his feature in the BCM Distinguished Alumni Series on page 7.

Alexander Pastuszak, M.D., Ph.D., Assistant Professor of Urology, received the 2017 Urology Care Foundation Research Scholar Award for his project, “Characterization of the Role of NELL1 in the Predisposition to Fibrosis in Peyronie’s Disease,” during the American Urological Association (AUA) 2016 meeting.

“Every year you try to do something different. I made a female reproductive sign out of vegetarian rice that had cilantro, garlic, onion, parsley, and pepper and the male reproductive sign with bacon rice that had bacon, garlic, onions, raisins, and pepper.”
- Dr. Carolina Jorgez, Assistant Professor of Urology to TMC News

ANNUAL APHRODISIAC LUNCHEON
February 14, 2017

In its 17th year, Dr. Lamb’s Laboratory for Male Reproductive Research and Testing (LMMRT) cooked up delicious aphrodisiac dishes including sesame ginger soba noodle salad, cranberry meatballs, love potion, and lemon cake with lavender cream, for their annual Aphrodisiac Luncheon.

Boasting 17 aphrodisiac ingredients the Garlic Shrimp Salad prepared by Boryana Zhelyazkova, Graduate Student, Department of Molecular & Cellular Biology won Most Aphrodisiac Ingredients; while the Best Tasting Aphrodisiac Dish went to the Strawberry Cheesecake made by Danielle Dailey, Medical Technologist, Department of Urology.

See the day in action: bit.ly/2INxFwY

Dr. Lamb talks to members of the Memorial Spring Branch Rotary on genome testing and editing on February 3, 2017.
Alongside his focus on prostate cancer research for over 30 years, Dr. David Rowley continues to be a dedicated educator and mentor to graduate and medical students, both at the bench and in the classroom. In December 2016, Dr. Rowley was awarded with the first Faculty Senate Leadership Award recognizing his exemplary service as chair. Through his dedicated research and collaborative spirit, Dr. Rowley worked with Human Resources, International Services, and the Provost’s office to develop a fully State Department-compliant J-1 visa applicant interview process. Here, Dr. Rowley describes his days as a Postdoctoral Fellow at Baylor, the significance of his research, and the future.

**Q|** How did your Fellowship training and research at Baylor prepare you for your career?

**A|** My Fellowship showed me how to think critically in reviewing my data and the literature. Most importantly, I learned how to become a better writer and communicator. I learned a great deal about how to best structure a grant application. I also learned several new techniques and experimental approaches.

**Q|** Can you describe one or two fond memories you had from your time here at Baylor?

**A|** Several Fellows worked in the cold rooms, as we were actively purifying steroid hormone receptors. This was before any of them had been cloned. I worked in the cold with many budding Fellows, one of which was Dolores Lamb, now the Director of our CRM. We all have fond memories of those days in the cold room. The great sense of community was quite remarkable. We all learned so much during our time here. BCM was the best place to train if you were interested in steroid hormone receptors and reproductive biology.

**Q|** What are some of your contributions to reproductive medicine?

**A|** My laboratory has been focused on how the tissue microenvironment alters during tumorigenesis and progression of cancer. We were the first group to define myofibroblasts as key cell types in the microenvironment. As the activation of mesenchymal stem cells to become myofibroblasts is key during wound repair and tissue homeostasis responses in most reproductive tissues, I believe this work has contributed significantly to the field.

**Q|** What advice do you have for a starting scientist or medical/science professional?

**A|** My advice would be to work closely with others in group projects, as this is one of the best ways to learn and to expand the base of your research interests. Being well trained in many areas is important today, as we all must be more flexible in our thinking and in our approaches to difficult scientific questions.

“Team science, in my opinion will be more valued and necessary in the future to make key advancements. Never stop learning.”

**Q|** Where would you like to see your research go in the future?

**A|** I would like to understand the broader context of how acute and chronic responses during changes in tissue homeostasis are regulated and coordinated. Such responses are fundamental in most disease processes, including reproductive disorders. There are clearly coordinate responses between stromal remodeling and immune function, including immune suppression in cancer. The biology of stromal cells during these changes is important to modulating the immune landscape. This is an understudied area and is where I would like to see our efforts in the future.
APHRODISIAC COCKTAIL PARTY
FOR BAYLOR PARTNERSHIP
FEBRUARY 9, 2017 | BAYLOR ST. LUKE’S MEDICAL CENTER

To segue into Valentine’s Day, the CRM hosted Sweets with my Sweetie, for the Baylor Partnership. Guests were entertained with aphrodisiac-inspired treats, including original hand-crafted centerpieces by Dr. Lamb’s Lab, savory and sweet dishes consisting of shrimp, peppers, avocado, and chocolate, and a surprising performance by the singing quartet, S.L.E.D.!

SUNDAY MORNING SCIENCE 2
FALL 2016

Over 60 students from underserved Houston-area high schools joined us during fall 2016 for a series of special lectures building upon their biology and science knowledge. Experts in reproductive medicine delivered lectures focusing on advanced concepts such as maternal high fat diets, genitourinary disorders, and polycystic ovarian syndrome (PCOS); while teaching assistants (TAs) led discussions. At the December session, students engaged in a collaborative effort to provide guidance on college admissions, financial aid, and advancing educational pathways.

UPCOMING EVENTS

CRM and MCB R&D Workshop Series
12 - 1 p.m. | DeBakey Building, M616

March 9, 2017
“Genetic and Environmental Regulation of Reproductive Strategies”
MENG WANG, Ph.D.
Associate Professor, Huffington Center on Aging

April 13, 2017
“Hedgehog Signaling Receptor Patched1 in S100a4 Cell Lineages is Critical for Fertility”
YI REN, Ph.D.
Instructor, Department of Molecular and Cellular Biology