

'21-'22

# ANNUAL REPORT

OBGYN Department



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# Message from the Chair



**Eva K. Pressman, MD**

## Henry A. Thiede Professor and Chair Department of Obstetrics- Gynecology

This academic year has certainly had its ups and downs. July 2021 started with the spread of COVID-19 Delta Variant. While case numbers increased rapidly over the summer months, the benefits of vaccination became more evident as, despite the increase in cases, the incidence of severe illness and death did not mirror the number of cases for the first time. But it was also clear that vaccination did not prevent spread and the hope that widespread vaccination would eliminate the need for masking and distancing proved not to be correct. Vaccination was more likely to protect the vaccinated individual than the community but it was still important. Less severe illness meant less burden on the health care system and that did protect the community indirectly, since deferred elective medical procedures had already led to increased morbidity and mortality from non-COVID conditions.

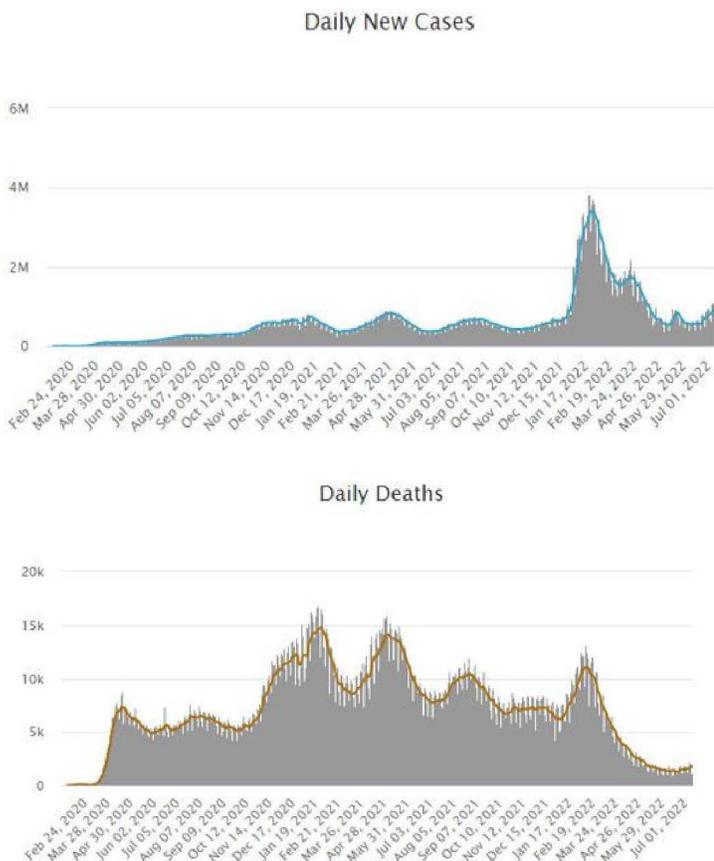
Unfortunately, less COVID burden on the health care system did not lead to big improvements in patient flow. Staff were still intermittently out with COVID infections, the pandemic led many health care workers to reevaluate what was important in their own lives and more people left health care than ever in the past. Staffing shortages in skilled nursing care facilities also meant that patients who needed placement after hospitalization often remained in acute care beds for weeks after they were stable for discharge. Nursing shortages in particular led to a vicious cycle of nurses being recruited to higher paying travel positions, which only exacerbated the nursing shortages virtually everywhere and created increased financial burden for health care systems.

The Fall of 2021 brought even greater challenges. Protesters gathered weekly in front of our hospitals to protest vaccine mandates for health care workers. Hurricanes and wildfires caused destruction in many parts of the nation. Texas enacted the first near total ban on abortion, a harbinger of things to come. The US withdrew chaotically from Afghanistan, leaving the Taliban in control and great concerns for women's rights.

As a department, we supported each other through these challenging times. By October some of the ORs were fully open and providing more elective care. Colleges and primary schools were back in session in person. We received approval for new fellowships in Gyn Oncology and Reproductive Endocrinology and Infertility and matched our first fellows to start in July 2022. In November, COVID vaccines for children aged 5-11 were approved, bringing hope to those with young children.

Unfortunately, at about the same time, COVID cases again started to rise, in what would become the biggest surge of the pandemic – the Omicron Variant. Initially, the ICU admissions and deaths stayed very low but over the winter months, the sheer volume of cases again lead to an increase in hospitalizations and deaths. By spring, we began to see improvement in COVID cases but staffing shortages and burn out led to some necessary changes. At Strong we moved all labor and delivery to 3-1600, converting 3-1400 to the OB Emergency Department and PACU. This allowed more efficient use of nursing staff and a more cohesive and supportive patient care team. At Noyes, Jones and St. James Hospitals, eRecord went live, allowing better flow of patient centered information throughout the URM system. Fetal monitoring changed to a new OBIX platform, to allow better integration into the eRecord system. Despite these challenges, the Highland Hospital Family Maternity Center has earned The Joint Commission’s Gold Seal of Approval® for Perinatal Care Certification.

By spring we also began to see more in person events. Match Day for the Class of 2022 was held in person for the first time in 2 years, ACOG met in person in San Diego and OB/Gyn Resident Graduation went back to Casa Larga. These important steps forward in the impact of the pandemic were overshadowed in part by the racist motivated mass shooting in Buffalo and the Dobbs decision by the Supreme Court to overturned Roe v. Wade and leave decisions on abortion care to the states. Again, our department joined together to support reproductive rights and speak out against gun violence. The articles and data that follow in this annual report highlight all of the wonderful accomplishments of our department. Despite all of the challenges we continue to be “ever better” – **Meliora!**



Match Day



Resident Graduation

## Undergraduate Medical Education

The 2021-2022 academic year marked the first full year of a selective-based structure for the Ob/Gyn clerkship. After strong positive feedback from medical students, trainees, and faculty in its first six months of operation, students again entered into self-selected immersion in specific service lines and subspecialties within the department, allowing for greater opportunities for longitudinal clinical growth and reception of high-quality feedback. The first major data report evaluating the first six months of this major clerkship programmatic change, the 2022 AAMC Graduation Questionnaire, was released. Compared with other medical school Ob/Gyn clerkships nationally, the UR clerkship was rated at the 81.4%ile. This demonstrated a major improvement in student-rated clerkship quality, with the average clerkship quality rated at 62.6% over the previous five years.

A new cohort of second year Maternal-Fetal Medicine fellows engaged with the process of longitudinally developing their teaching skills through helping the Obstetric Educational Session didactic learning day for third year clerkship students.

## Residents as Educators

Residents engaged in case-based learning to develop their skills as educators:

Setting & reassessing expectations in the learning environment

Evaluating performance & giving feedback

Writing high-quality evaluations that avoid stereotypes & bias

Managing multiple learners at different levels

Supporting & providing constructive feedback to struggling students

After receiving individualized and group mentorship over the course of a competitive residency application and interview season, five URSMD senior medical students successfully matched in Ob/Gyn.



**Julia MacCallum, MD, MPH**

Assistant Professor of Obstetrics and Gynecology  
Obstetrics and Gynecology Clerkship Director  
Obstetrics and Gynecology Medical Student Education Director

# Division Highlights - Residency

## OBGYN Residency



### Simulation Program

The OB/GYN Residency continued to strengthen the Simulation Curriculum as part of the Thursday morning didactics under the leadership of **Dr. Kristen Burhans**. Summer 2021 saw the return of the residents to the physical classroom and expansion of the faculty development simulation-planning sessions. Simulation didactics occur monthly and are focused on a core OB/GYN topic; faculty volunteer to work together to plan an enriching session. They collaborate to brainstorm possible learning objectives based on apparent knowledge, skill, or experience gaps of our residents.

Together with the Department Education Specialists and Simulation Director, faculty generate ideas for specific experiential learning methods to accomplish their focused educational goals. Core topics still included obstetric hemorrhage, Laparoscopic Olympics, and ultrasound technical skills, but new (to simulation) topics were also introduced including: cervical cancer precursors, pelvic organ prolapse, sexual assault and a combination breastfeeding and health equity-focused session. The structure of each simulation session varied, and each conference integrated wide-ranging multimodal simulation activities.



**Dr. Kristen Burhans**  
Simulation Director  
Residency Assistant Program Director

During the breastfeeding simulation session, local lactation consultants, midwives, and postpartum doulas led a gallery walk sharing benefits, birth-experience effects, cultural and emotional barriers, red flags, and myths. The residents were then provided with the opportunity to interview and counsel standardized patients, to practice using a variety of breast pumps and lactation-support tools and use resources to determine safety profile of breastfeeding with certain medical conditions or prescription medications. Survey data collected revealed significant improvement of breastfeeding knowledge and confidence addressing breastfeeding concerns based on a Likert scale.

### Resident Research and Scholarly Activity

While OB/GYN resident research has been in existence for many years, the program recently expanded to incorporate a variety of forms of scholarly activity. This change is based on updates in the ACGME language as well as the understanding that research can exist in many formats. Scholarly activity incorporates quality improvement (QI) science, health advocacy as well as the more traditional hypothesis-driven research.

In 2019, **Dr. Wendy Vitek** was named the Associate Program Director for Resident Research and Scholarly Activity. She revamped the curriculum to an asynchronous learning structure. This allowed the resident protected didactic time to focus on core clinical teaching. In addition, Dr. Vitek outlined a detailed structure for residents to follow to ensure that the projects were completed on an appropriate timeline.



**Dr. Wendy Vitek**  
Associate Program Director for Resident  
Research and Scholarly Activity

The fellows and faculty members in OB/GYN have continued to be supportive mentors to the residents completing scholarly activity projects. Resident Research Day is held in May of each year. This continues to be a highlight of the residency program and is well attended by faculty and staff in the department. We attract invited speakers from around the country who are leaders in our field. In 2022, Dr. Elizabeth Howell, Chair of the Department of OB/GYN at the University of Pennsylvania spoke about an evidence-based approach to evaluating and addressing perinatal healthcare disparities.

## 2021-2022

13

ABSTRACTS  
presented!

11

MANUSCRIPTS  
published!



The number of regional and national resident presentations and manuscripts remains robust. In 2021-2022, there were 13 abstracts presented and 11 manuscripts published. **Dr. Stefanie Hollenbach** recently joined the leadership of the Research and Scholarly Activity program. We look forward to continued resident scholarly success.



**Courtney Olson-Chen, MD, MSCI**  
Assistant Professor of Obstetrics & Gynecology  
Division of Maternal-Fetal Medicine  
Ob/Gyn Residency Program Director

# Division Highlights - FPMRS/MIGS

## Female Pelvic Medicine And Reconstructive Surgery & Minimally Invasive Gynecologic Surgery

The FPMRS Division welcomed the MIGS group to form a single surgery-oriented division. This has increased case collaboration, shared educational & development opportunities for trainees and faculty, initiated collaborative research, and helped streamline access to care.

We recruited **Dr. Megan Kennedy Burns** to join the MIGS group. Dr. Burns received her medical degree from The Ohio State University College of Medicine in 2012, completed her OB-GYN residency training at Good Samaritan Hospital in Cincinnati, Ohio in 2017, and completed a Society of Laparoscopic and Robotic Surgeons Fellowship under the tutelage of Dr. Camran Nezhat. She is now leading the OB-GYN Residency Fundamentals of Laparoscopic Surgery course and pursuing research in endometriosis, advanced laparoscopy, and gender-affirming surgery.



Dr. Megan Burns



Dr. Diego Hernandez-Aranda

We also recruited our most recent FPMRS Fellowship graduate, **Dr. Diego Hernandez-Aranda**, a graduate of the University of Puerto Rico School of Medicine in 2015. He completed his residency in Obstetrics and Gynecology at St. Francis Hospital and Medical Center and his fellowship here at URMC.



**Erin Duecy, MD**

Associate Professor Obstetrics, Gynecology & Urology  
Division Director Female Pelvic Medicine & Reconstructive Surgery  
Associate Chair for Academic Affairs Obstetrics & Gynecology

# Division Highlights - Generalists

## The Generalist Division continues to march on!

To help deal with the continuing rise of acuity in the care of the laboring patient, we are proud to have instituted an OB hospitalist program starting in the Fall of 2021. This process started with the hiring of **Dr. Jane Van Dis**, a nationally prominent hospitalist with years of experience and then continued with the transition of **Dr. Julia MacCallum** to a hospitalist role as well. With these two providers becoming established in their new roles, in conjunction with the MFM Division, we were able to increase our in house staffing to allow for two in-hospital labor and delivery attendings every night, increasing the safety of our patient care and supervision of our residents.

**Dr. Sarah Betstadt** was awarded the prestigious George W Corner Dean's Teaching Fellowship (2022-2024) to work on her project entitled: Development and Evaluation of a Family Planning and Contraception Curriculum for Neurology Residents to Prevent Unplanned Pregnancies Among People with Neurological Disorders.

As part of a continuing comprehensive effort to promote inclusivity, our large safety net practice located at 125 Lattimore Road (formerly Women's Health Practice) was formally re-named UR Medicine: Gender, Wellness Obstetrics and Gynecology in November 2021!

Following years of successful leadership of the OB/GYN Residency Program, **Dr. Amy Harrington** transitioned the role to **Dr. Courtney Olson-Chen** in the Spring of 2022. With this shift, **Dr. Kristen Burhans** became the new Assistant Residency Director, further expanding her educational duties for the department.

We also welcomed **Dr. Alex Samborski** to the Generalist provider team. Her flexibility in being able to provide care in a true well rounded fashion allowed her to take on a super-utility player role, which provided much relief to our hard working attendings. At the end of the year, we regrettably had to say good-bye to her as she left to go with her husband to the West Coast for his fellowship program.

After a thorough evaluation of the residency curriculum, a gap analysis showed our residents could use some bolstering of their vulvar detective skills. To help remedy this, a dedicated lower genital tract diseases clinic was established in the faculty generalist practice, under the direction of Dr. Linder, where the residents would rotate to see more rare vulvovaginal issues and conditions.

To help support our Primary Care colleagues and to expedite consult questions, both the Generalist and the MFM Divisions joined the URM E-Consults program, allowing Primary Care providers to ask questions to specialists and avoiding waits for in person visits.



This year we also transitioned to a new Division Director. **Dr. Mitch Linder** was officially named as the Division Director in the Fall of 2021. He brings to the role his experience from private practice as well as his clinical informatics background.

**Mitchell Linder, MD**

Associate Professor Obstetrics & Gynecology  
Ambulatory Medical Director, Department of Obstetrics & Gynecology  
Director of the Division of General Obstetrics & Gynecology  
Director of Informatics, Information Systems Division  
OB/GYN Department Compliance Officer  
Associate Chair for Clinical Affairs, Department of OB/GYN

## URMC researchers using modern data analytics to improve recognition of maternal deaths

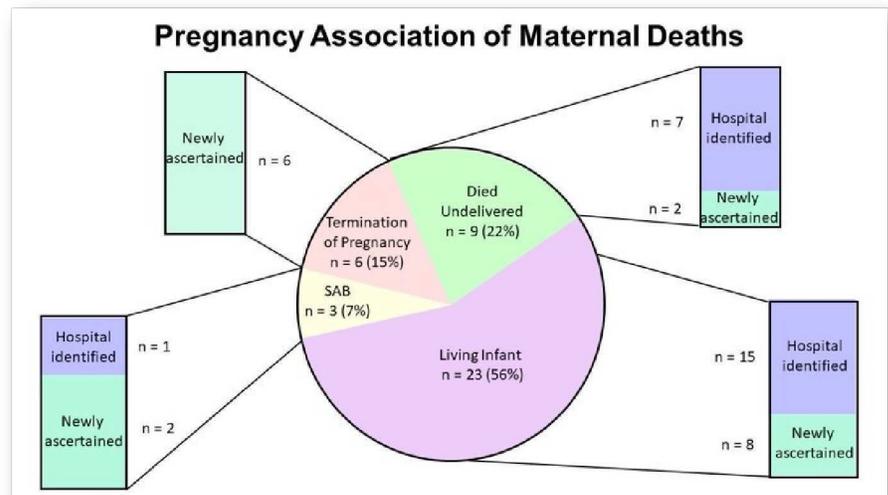
Maternal mortality - defined as death during pregnancy or the first year post-delivery - is on the rise in the United States, with increasing numbers of birthing people dying due to pregnancy-related complications. Unfortunate as these events are, it is critical that every death is reviewed, and that researchers find each of these events so we can improve care and make every death count in improving outcomes. However, many databases on maternal/pregnancy mortality fail to count deaths that occur outside the hospital setting, or in another hospital from the birth admission. Examples include people that die after delivery from car accidents, suicides and health events at home. These missing losses does not allow researchers to fully understand the scope of the problem, or to address the full range of issues that pregnant people are facing.

Researchers in the Maternal-Fetal Medicine Division at URMCs Dept of Ob/GYN want to assure that we make every one of these tragic loses count as we attempt to improve outcomes for birthing people. Recently, URMC Maternal-Fetal Medicine physician **Dr. Stefanie Hollenbach** developed and applied a unique data fusion approach to assure that no one is missed in these statistics.

Data fusion works like this– using a combination of all death certificates, these are back tracked to look for a pregnancy event anywhere in the electronic health records from the region in the last year. Doing this Dr. Hollenbach and her team were able to find almost 20 additional deaths that would have otherwise been missed! This unique data fusion process resulted in the identification of 78% more maternal deaths, the majority of which were related to cardiac causes or other medical comorbidities, and occurred outside the hospital setting.

Based on the excellence of this work, Dr. Hollenbach presented this at the Society for Maternal Fetal Medicine international meeting, as well as the full data was recently published in the leading American Ob/Gyn journal, affectionately known as the "Green Journal." (Obstet Gynecol. 2021 May 1;137(5):772-778.)

As we continue to combat maternal mortality in the United States, improved characterization of maternal death will help the medical community advocate for clinical care strategies, community support structures, and economic development plans that address the full spectrum of maternal death. Dr. Hollenbach's team is well on their way to making sure that we count every death, so we can make every death count as we endeavor to improve safety for pregnant and birthing people.

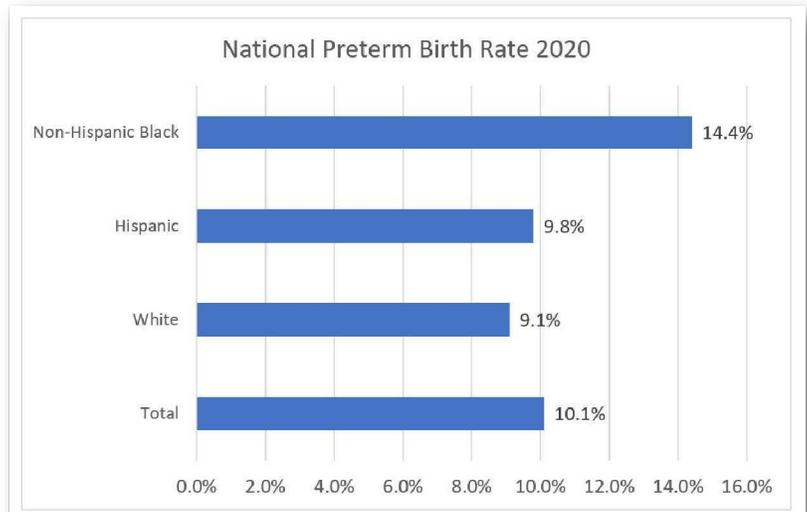


**Lorelei Thornburg, MD**  
James R. Woods, Jr. Professor of Obstetrics & Gynecology  
Director- Division of Maternal Fetal Medicine  
Program Director- Maternal Fetal Medicine Fellowship

## Rochester's historical racism roots continue to echo through modern birth outcomes

Despite much higher health care expenditure than comparable countries, striking racial and ethnic disparities exist in obstetric outcomes in the United States. While there are many things that affect these disparities, it is important to consider both modern, and historical influences that are still echoing through our society today. As researchers work toward multifaceted exploration of the factors influencing these disparities, including the legacy of structural racism, is important to improve health outcomes for all.

Preterm birth (birth less than 37 weeks of pregnancy) is one of the areas that is markedly different across racial and ethnic groups in the US. Being born early is a serious risk for long- and short-term health issues. In 2019 about 17% of infant deaths were related to being born early (preterm) or having a low birth weight (CDC.org). While in recent years the preterm birth risk has declined, the risk of having an early baby is still far higher in black people. Non-Hispanic Black women experiencing a preterm birth rate at least 50% higher than non-Hispanic White women.



CDC.gov - <https://www.cdc.gov/reproductivehealth/features/premature-birth/index.html>



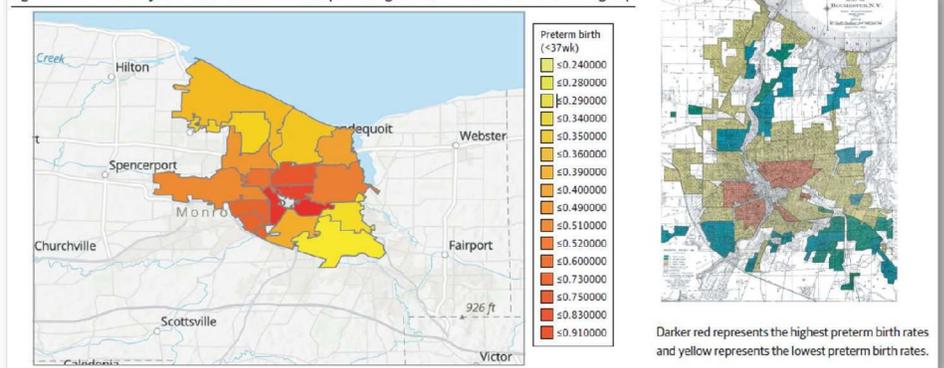
Dr. Stefanie Hollenbach

As researchers in the Maternal-Fetal Medicine Division at URMCs Dept of Ob/GYN work to improve birth outcomes and help prevent prematurity- they looked at the historical echoes in our own community that could be affecting these events. **Dr. Stefanie Hollenbach** and her team recently merged the obstetric birth system data with publicly available community data from the US Census Bureau, and the overlaid these geospatially distributions on the historic redlining maps for the city of Rochester.

These data revealed that there remains current association with preterm and periviable (less than 22 weeks) birth in the historically redlined zip codes in Rochester. This work was recently featured in Journal American Medicine Association (JAMA), (JAMA Netw Open. 2021 Sep 1;4(9):e2126707.)

The linkage of historic and modern community data sets with an obstetric data set offered the opportunity to characterize modern obstetric disparities associated with a system of historic inequity. The persistence of these findings after correcting for contemporary community socioeconomic characteristics suggest potential influences of a system of profound structural inequity that ripple forward in time, with impacts that extend beyond measurable socioeconomic inequity.

Figure 2. Incidence of Any Preterm Birth in the Modern Zip Code Regions Overlaid on the Historic Redlining Map



# Division Highlights - Midwifery

## Midwifery

- In an effort to address racial microaggressions and unconscious bias, the Midwifery group participated in a five session training series via the Office of Equity and Inclusion.
- Together with Generalists and MFM, the Midwifery group collaborated on the revision and expansion of Midwifery Guidelines to strengthen interdisciplinary relationships.
- Provided midwifery coverage to OBGYN partners at Noyes Hospital and the Geneseo and Dansville outpatient offices and at Noyes Hospital.
- Developed a concise educational curriculum for the interns on the Birth Center; facilitating joint education sessions with midwife, generalist, and MFM.
- The University Midwifery Group continues to provide 1:1 support for first year interns during the first quarter of their academic year.



The University of Rochester Medical Center has offered midwifery services since 1975. The Midwifery Group, has been in existence since 1992.

### In the News

*With Spotlight on Black Maternal Health Crisis, Efforts Underway to Eliminate Disparities*  
Tracy Webber, D.N.P, M.P.A., discussed Black maternal health in [WXXI's article](#).



**Tracy R. Webber, D.N.P., M.P.A.**  
Assistant Professor - Obstetrics and Gynecology  
Midwifery Division Director

## Reproductive Endocrinology and Infertility

The REI division successfully initiated its first fellowship application! **Dr. Adam Evans** was recruited as our first fellow from our own residency program in July 2022. The division has increased its clinical volume each year since the start of the pandemic and continues to grow. We have added additional volume to the multidisciplinary PCOS clinic, a unique program in the area, and a national standard for PCOS care with the addition of **Dr. Snigdha Alur-Gupta**. Our IVF lab developed a mentorship/development program for junior embryologists under the auspices of **Dr. Erin Scott** to train additional hands in the embryology lab.



Introduction of a new fellowship model of care with a separate fellow's clinic.



Began a team model approach to clinical care with addition of a 4th APP so that MD, APP and RN support each patient interaction and follow up care.

## Faculty Awards & Honors

### Snigdha Alur-Gupta

- Appointed as a CREST fellow for ASRM

### Kathleen Hoeger

- President of the Androgen Excess and PCOS Society, an international organization of researchers, clinicians focused in PCOS care.
- Appointed member of the International Guideline Development Group in Diagnosis and Management of PCOS, Monash University, Melbourne Australia

### Erin Masaba

- Appointed as Vice President of the Recurrent Pregnancy Loss Special Interest Group of ASRM

### Wendy Vitek

- Appointed President of the Androgen Excess Special Interest Group for ASRM



**Kathleen M. Hoeger, M.D., M.P.H**  
Professor of Obstetrics & Gynecology  
Division Director Reproductive Endocrinology and Infertility

# Division Highlights - Research

## Can't stop, won't stop: The Levandowski Lab continues to cruise along on a path towards increased health equity

**Dr. Brooke A. Levandowski**, PhD, MPA, has run the [Levandowski Lab](#) for the past four years, focused on stigmatized populations and social determinants of health within the context of reproductive and sexual health. The lab is filled with a brilliant cast of women and transgender gender non-conforming non-binary folx, many of whom join Dr. Levandowski as a member of the LGBTQ+ community. The majority of the lab works on the [LGBTQ+ Health Initiative](#): a project focused on increasing organizational equity in terms of race, ethnicity, sexual orientation, and gender identity among 35+ health and human service organizations in NYS. We developed an organizational equity survey which we rolled out in 2020 and will redistribute in December 2022. Based on survey results, we create or contract out technical assistance and capacity building opportunities prioritized by the organizations.



Dr. Brooke A. Levandowski

### Outstanding offerings in 2021/2022 included:

[Antiracism Listening and Learning Series](#), a guided book club of popular antiracist texts with separate spaces for BIPOC and white people, which has reached 144 participants.

[Creating and Sustaining Equity Committee Momentum](#) with [Rebellious Root Collective](#), an opportunity to understand and actualize the power of equity committees within organizations, which has reached 57 participants.

[Feedback Learning Labs](#) with the [M.K. Gandhi Institute for Nonviolence](#), an opportunity to practice giving and receiving feedback, which reached 26 participants.

In 2021/2022, the Levandowski Lab spread our learnings far and wide at local and national conferences and in peer-reviewed publications. We received additional state funding and continue to explore, measure, and evaluate the impacts of organizational equity, cultural competency, and tokenism on marginalized communities.

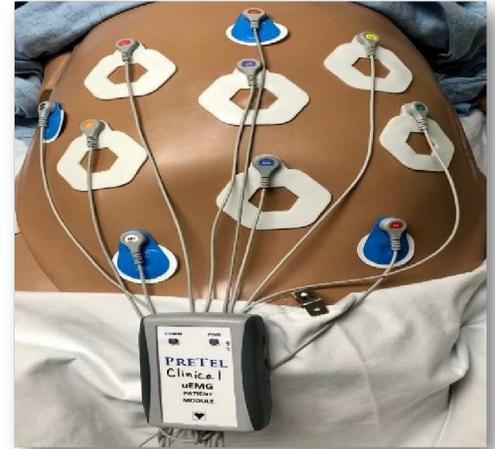
Conference Presentations	Paper and Abstract Publications	Grant Funding	Current Research Projects
SYNChronicity 2021: The 8 <sup>th</sup> Annual National Conference for HIV, HCV, STI, & LGBTQ Health	PLoS Medicine	Assessing cultural competency at NYSDOH AIDS Institute funded organizations	Evaluating CEI Health Equity Initiatives
GLMA: Health Professionals Advancing LGBTQ Equality	Family Medicine	Enhancement to LGBTQ+ Health Initiative	Investigating how tokenism operates in NYS organizations serving the LGBTQ+ community
New York State Department of Health AIDS Institute Ending the Epidemic Summit	PLoS One		Measuring organizational change in terms of race, ethnicity, sexual orientation, and gender identity equity
Early Childhood Alliance. Syracuse, NY	Annals of Epidemiology		Comparing organizational and client perspectives on delivery of LGBTQ+ culturally competent services

## Partnering with industry to advance the understanding of labor

Be willing to work with every student, you never know when you will meet again! Thanks to a medical student research project more than 20 years ago, the University of Rochester MFM group has been collaborating with a leading industry partner—PreTeL—to help advance the understanding of what makes labor “go” using uterine electromyography (uEMG).

Uterine EMG is an emerging technology for non-invasively assessing uterine bioelectrical activity—or looking at the electronic signals in the muscles of the uterus—to help evaluate the labor process.

PreTeL was founded by Dr. Roger Young with the goal of developing technology to improve outcomes by integrating delivery management and fetal health information. PreTeL along with **Drs. Neil Seligman** and **Ponnila Marinescu** have been collaborating on clinical trials since 2015.



Novel PreTeL uEMG directional Area Sensors allow researchers to record and evaluate the electrical activity of the uterine muscles

Together, they have developed new techniques for recording and interpreting uterine activity during pregnancy. These studies have significantly advanced the fundamental understanding of labor, as well as contributed to development of a medical device that will help clinicians diagnose preterm labor with much greater accuracy. The relationship between PreTeL and URMC can be traced back to a medical student research project more than 20 years ago.

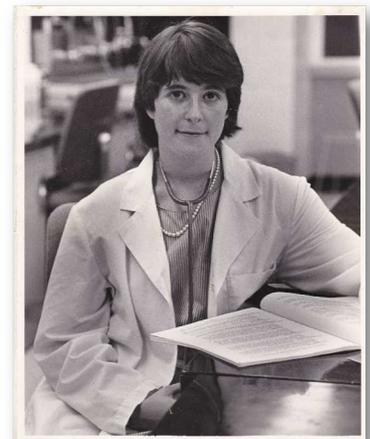
As a medical student, **Dr. Eva Pressman** (the current Chair of Obstetrics and Gynecology), was seeking a project related to pregnancy when she met Dr. Young—who mentored her through successful completion of that project. A short 26 years later, Dr. Young founded PreTeL and seeing that Dr. Pressman had continued a career in academic medicine, turned to her and URMC for clinical trial support.



Dr. Neil Seligman & Dr. Ponnila Marinescu

The collaboration between URMC and PreTeL has been fruitful- resulting in 14 abstracts, including an oral presentation at the main plenary of the 2022 Annual Meeting of the Society of Maternal-Fetal Medicine, and a peer-reviewed manuscript published in the American Journal of Obstetrics and Gynecology—with more on the way! The investigators also have had the support of two NIH grants, with a third selected for funding starting in January 2023, providing support for critical clinical trials that hopefully will lead to FDA approval of PreTeL’s device.

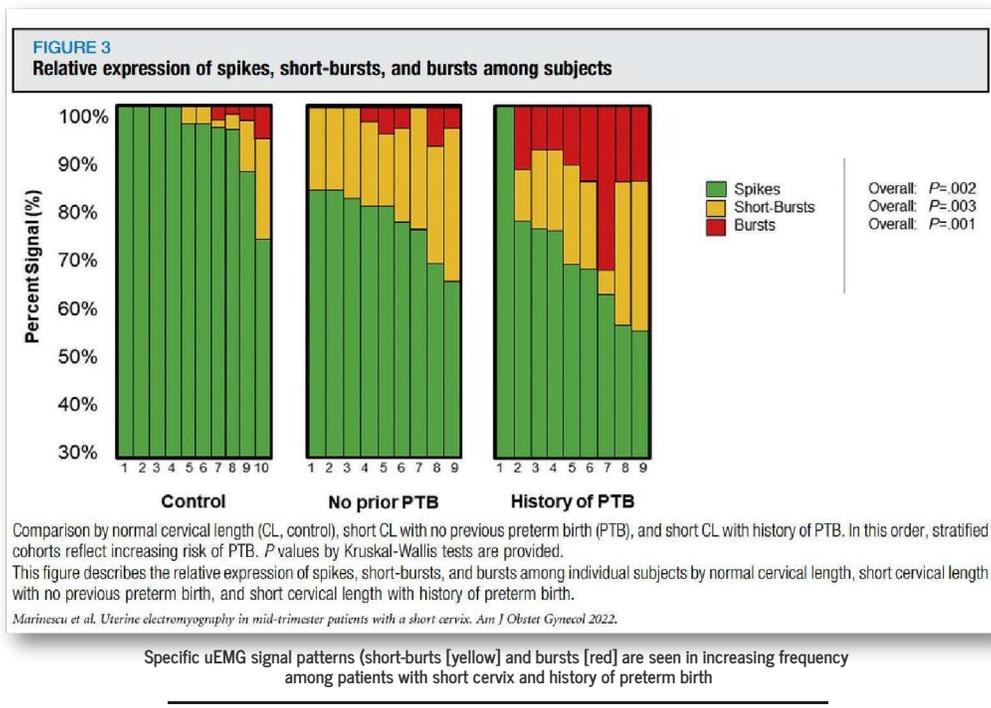
The clinical work with PreTeL to this point has been focused on bioelectrical signaling during labor. Breakthrough findings include the development of novel “Area Sensors” (uEMG sensors) (pictured), characterization of uterine signaling patterns, and development of the uterine stimulation index which may ultimately prove superior to traditional methods for titrating medications during labor.



Dr. Eva Pressman, OB/GYN Chair at URMC, as a medical student

Additionally, PreTeL has also provided financial support and other resources for studies initiated by Dr. Seligman and Dr. Marinescu to determine the role of uterine contractile activity in mid-trimester cervical shortening, an important predictor of preterm birth. Preterm birth (birth less than 37 weeks of pregnancy) is the largest single cause of infant death in the United States. In 2019, approximately 17% of infant deaths were related to being born early (preterm) or having a low birth weight (CDC.org).

Drs. Marinescu, Young, and Seligman are the first to demonstrate that specific uterine signaling patterns may influence pathological cervical shortening and may contribute to the increased risk of preterm delivery, especially in those patients with a history of preterm birth (see Figure). Preterm birth will be one of the major focuses going forward with this collaboration—with a goal to predict and, ultimately, to prevent preterm birth. Dr. Marinescu, Dr. Seligman and Dr. Young will use the data from their current collaborations, as well as the research beginning this next year, as critical next steps towards helping patients with threatened preterm labor.



The interesting history between PreTeL’s founder and the URMG chair of Ob/Gyn ignited this relationship between a major medical center and technology start-up company. Continuing efforts from Dr. Pressman and the Maternal-Fetal Medicine faculty sustains the successes and offers a model for academic and corporate cooperation.



*“Working with the team at UR has been a productive, fulfilling and pleasant experience. I believe that the key to the success of this academic-corporate relationship has been our common interest – to improve maternal and fetal outcomes in pregnancies complicated by abnormal labor, while simultaneously advancing knowledge in one of the most complex and puzzling areas of obstetrics.”*

Dr. Young  
PreTeL Founder



## Published and presented projects from URMC-PreTel Collaboration

### 2017:

- Directional EMG sensors for recording uterine contractions
- EMG of Uterine Tachysystole; Redefining Hyperstimulation
- Global Uterine Signaling During Labor is Not Progressive Propagation

### 2018

- Onset of Labor is Preceded by an Abrupt Increase in Uterine Bioelectrical Activity

### 2019

- Global Contractions as a Composite of Regional Contractions in Term Labor
- Uterine bioelectrical activity in pregnant women with a short cervix in the mid-trimester

### 2020

- Uterine Fasciculation-Like Signals: A novel pattern of uterine bioelectric activity

### 2021

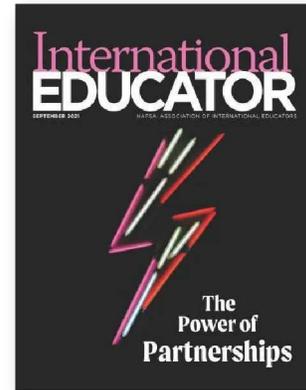
- Distinguishing true from false labor with a novel labor test
- Novel Gold Electromyographic Area Sensors Detect Uterine Bioelectric Activity As Well As Standard Hydrogel-Silver Area Sensors
- Uterine Electromyography: Novel Uterine Bioelectrical Signaling Patterns Lead To Advances In Understanding of Uterine Contractile Activity
- Uterine Simulation Index: A Promising Technique for the Personalized Use of Oxytocin
- Contraction Synchronization Predicts the Onset of "True" Labor

### 2022

- Directional uterine EMG sensors identify bioelectrical activity in obese patients.
- EMG provides insights into preterm birth: Mid-Trimester cervical shortening is associated with abnormal myometrial activation
- Mid-trimester uterine electromyography in patients with a short cervix

## Additional Research Highlights!

- The Dye Lab's NIH-funded grant working with deaf language deprivation in the Dominican Republic was featured prominently in International Educator's cover story on the Power of Partnerships in the September 2021 issue.
- **Drs. Linder, Pressman, Stodgell, and Wood** implemented olfactory sensitivity testing during the height of the pandemic, resulting in a patent application and preprint publication.
- The Falsetta lab's NIH-funded work focusing on the mechanisms of vulvar pain was recognized at several international meetings with an award for Best Abstract at the 2022 International Society for the Study of Women's Health Meeting, an award for Best Member/Fellow Abstract at the 2022 International Society for the Study of Vulvovaginal Disease World Congress, and the top prize of Eicosanoid Research Foundation Young Investigator Award at the 2022 Bioactive Lipids in Cancer, Inflammation, and Related Diseases Conference.
- **Shazia Siddiqi MD MPH** completed her NIH-funded post-doctoral study with the Dye Lab and transitioned into a new Staff Scientist role focused on global deaf and women's health.



**Timothy Dye, PhD**  
Professor - Department of Obstetrics and Gynecology  
Associate Chair, Research - Department of Obstetrics and Gynecology

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