

AUGUST 2019 ■ Volume 221, Number 2

## EDITORIAL

### 83 Successful treatment of intraamniotic infection/inflammation: a paradigm shift

Michael G. Gravett

➤ Related articles, pages 140, 142 and 159

## EXPERT REVIEWS

### 86 Assessing research gaps and unmet needs in endometriosis

Sawsan As-Sanie; Rebecca Black; Linda C. Giudice; Tanika Gray Valbrun; Jhumka Gupta; Brittany Jones; Marc R. Laufer; Alexandra T. Milspaw; Stacey A. Missmer; Abby Norman; Robert N. Taylor; Kedra Wallace; Zev Williams; Paul J. Yong; Rebecca A. Nebel

A Society for Women's Health Research working group reviews the latest research on endometriosis and identifies areas of need to improve diagnosis, treatment, and access to quality care.

## SYSTEMATIC REVIEWS

### 95 Two-dose versus single-dose methotrexate for treatment of ectopic pregnancy: a meta-analysis

Snigdha Alur-Gupta; Laura G. Cooney; Suneeta Senapati; Mary D. Sammel; Kurt T. Barnhart

The two-dose methotrexate protocol is superior to the single-dose protocol in the treatment of ectopic pregnancy, including in patients with high human chorionic gonadotropin (hCG) values or large adnexal mass.

(continued)

Original research articles, whose abstracts appear in this issue, are posted in full at [ajog.org](http://ajog.org)

## AJOG EPONYMS

### Pap smear: 1941

Developing improved diagnostic tools for uterine cancer, especially in early stages, was imperative, noted George N. Papanicolaou, MD, and Herbert F. Traut, MD, at a March 1941 presentation to the New York Obstetrical Society, published in *AJOG* that August.<sup>1</sup>

At Cornell University Medical College and New York Hospital, New York, NY, the authors had examined hundreds of vaginal smears from women with and without gynecologic disease. They concluded that "cells pathognomonic of cervical and fundal carcinoma can be definitely recognized" via tissue biopsy, praising their method's simplicity, convenience, and ability to track disease progress after surgery or x-ray.

Interpreting the smear posed a new challenge, requiring "the services of a careful and discriminating cytologist" with related experience. "Few persons can be depended upon for this work at the present time," they wrote; "however, if the method proves to be worthy of further development, as we expect it to be, then it will be possible in a relatively short time to provide the necessary facilities for instruction."

The full article is posted among "AJOG Eponyms" under the "Collections" tab at [ajog.org](http://ajog.org). Illustrations include photographs of the original equipment.

### REFERENCE

1. Papanicolaou GN, Traut HF. The diagnostic value of vaginal smears in carcinoma of the uterus. *Am J Obstet Gynecol* 1941;42:193-206.

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Society for Obstetrics  
and Gynecology

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## Glossary of Symbols

### Editors' Choice



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### IDSOG papers



Articles from the Infectious Diseases Society for Obstetrics and Gynecology

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## CLINICAL OPINION

### 109 Evidence in support of the International Association of Diabetes in Pregnancy study groups' criteria for diagnosing gestational diabetes mellitus worldwide in 2019



Moshe Hod; Anil Kapur; H. David McIntyre; for the FIGO Working Group on Hyperglycemia in Pregnancy and the FIGO Pregnancy and Prevention of early NCD Committee

Recent data from the Hyperglycemia and Adverse Pregnancy Outcome Follow Up study demonstrate clear long-term adverse maternal and offspring effects from mild hyperglycemia in pregnancy.

## CALL TO ACTION

### 117 Better late than never: why obstetricians must implement enhanced recovery after cesarean



Alex Friedman Peahl; Roger Smith; Timothy R. B. Johnson; Daniel M. Morgan; Mark D. Pearlman

Enhanced protocols for recovery after cesarean improve care for women undergoing cesarean delivery and should be implemented to address current needs in obstetrics to improve perioperative care.

## VIEWPOINT

### 123 Addressing the impact of opioids on women and children

Diana W. Bianchi; Matthew W. Gillman

Coordinated research efforts at NIH promise to help turn the tide against the opioid crisis by providing the necessary evidence to improve care for women and children.

## ORIGINAL RESEARCH

Articles abstracted in this issue appear in full at [ajog.org](http://ajog.org)

### GYNECOLOGY

### 126 Neonatal and maternal outcome after frozen embryo transfer: Increased risks in programmed cycles

Erica Ginström Ernstad; Ulla-Britt Wennerholm; Ali Khatibi; Max Petzold; Christina Bergh

This registry study shows that pregnancies in programmed frozen embryo cycles present higher rates of macrosomia, hypertensive disorders in pregnancy, and postpartum hemorrhage.

### 128 Long-acting reversible contraceptive utilization after policy change increasing device reimbursement to wholesale acquisition cost in Louisiana

Melissa Goldin Evans; Stephanie Broyles; Brittini Frederiksen; Rebekah E. Gee; Stephen Phillippi; Melinda Sothern; Katherine P. Theall; Joan Wightkin

This study demonstrated that long-acting reversible contraceptive uptake increased at the same time a provider's financial barrier to LARC provision was removed.

(continued on page 9A)

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## ORIGINAL RESEARCH (continued from page 6A)

**130** Uncovering changes in proteomic signature of rat pelvic floor muscles in pregnancy

Lindsey A. Burnett; Francesca Sesillo Boscolo; Louise C. Laurent; Michelle Wong; Marianna Alperin

Pregnancy alters protein expression in rat pelvic floor muscles, potentially increasing regenerative potential and changing muscle metabolism.

**132** Delayed recognition of lower urinary tract injuries following hysterectomy for benign indications: A NSQIP-based study

C. Emi Bretschneider; Viviana Casas-Puig; David Sheyn; Adonis Hijaz; Cecile A. Ferrando

Delayed recognition of lower urinary tract complications following hysterectomy may be higher in black patients and in patients with prior abdominal surgery or endometriosis.

**134** Comparing the diagnostic accuracy of 3 ultrasound modalities for diagnosing obstetric anal sphincter injuries

Annika Taithongchai; Isabelle M. A. van Gruting; Ingrid Volløyhaug; Linda P. Arendsen; Abdul H. Sultan; Raneer Thakar

Endoanal ultrasound imaging remains the reference standard for the diagnosis of sphincter defects; however, 3-dimensional introital or transperineal ultrasound imaging can screen for an intact sphincter when advice is being given about the mode of delivery in a subsequent pregnancy after obstetric sphincter injury.

**136** Total and out-of-pocket costs of different primary management strategies in ovarian cancer

Rudy S. Suidan; Weiguo He; Charlotte C. Sun; Hui Zhao; Jose Alejandro Rauh-Hain; Nicole D. Fleming; Karen H. Lu; Sharon H. Giordano; Larissa A. Meyer

Costs of initial care in ovarian cancer vary across different treatment strategies, and patients bear a significant out-of-pocket burden, especially those enrolled in high-deductible plans.

**138** Influence of metabolic syndrome on female fertility and in vitro fertilization outcomes in PCOS women

Yaqiong He; Yao Lu; Qinling Zhu; Yuan Wang; Steven R. Lindheim; Jia Qi; Xiaoxue Li; Ying Ding; Yuhua Shi; Daimin Wei; Zi-jiang Chen; Yun Sun

Metabolic syndrome had adverse effects on female fertility and was negatively associated with cumulative live birth rate during in vitro fertilization treatment in women with polycystic ovary syndrome.

## OBSTETRICS

**140** Evidence that antibiotic administration is effective in the treatment of a subset of patients with intra-amniotic infection/inflammation presenting with cervical insufficiency

Kyung Joon Oh; Roberto Romero; Jee Yoon Park; JoonHo Lee; Agustin Conde-Agudelo; Joon-Seok Hong; Bo Hyun Yoon

In patients presenting with cervical insufficiency and intra-amniotic infection/inflammation, antibiotic administration can eradicate the inflammatory process and be associated with improved pregnancy outcome.

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**ORIGINAL RESEARCH** (continued)

**142** Antibiotic administration can eradicate intra-amniotic infection or intra-amniotic inflammation in a subset of patients with preterm labor and intact membranes



Bo Hyun Yoon; Roberto Romero; Jee Yoon Park; Kyung Joon Oh; JoonHo Lee; Agustin Conde-Agudelo; Joon-Seok Hong

Antibiotics can eradicate intra-amniotic infection/inflammation in preterm labor.

➤ Related editorial, page 83

**144** Azithromycin vs erythromycin for the management of preterm premature rupture of membranes

Reshama Navathe; Corina N. Schoen; Paniz Heidari; Sophia Bachilova; Andrew Ward; Jared Tepper; Paul Visintainer; Matthew K. Hoffman; Stephen Smith; Vincenzo Berghella; Amanda Roman

Latency from preterm rupture of membranes to delivery is similar for antibiotic regimens including either azithromycin or erythromycin.

**146** Visualization of microbes by 16S in situ hybridization in term and preterm placentas without intraamniotic infection



Maxim D. Seferovic; Ryan M. Pace; Matthew Carroll; Benjamin Belfort; Angela M. Major; Derrick M. Chu; Diana A. Racusin; Eumenia C. C. Castro; Kenneth L. Muldrew; James Versalovic; Kjersti M. Aagaard

Microbes are enumerated and visualized within the placental microanatomy by 16S in situ hybridization, and consistently localized to the villi and chorion. This report serves as the initial morphologic evidence demonstrating low-biomass microbial communities in the placental villous tree.

**150** Is maternal lipid profile in early pregnancy associated with pregnancy complications and blood pressure in pregnancy and long term postpartum?

Maria C. Adank; Laura Benschop; Kelly R. Peterbroers; Anna M. Smak Gregoor; Alet W. Kors; Monique T. Mulder; Sarah Schalekamp-Timmermans; Jeanine E. Roeters Van Lennepe; Eric A. P. Steegers

An atherogenic lipid profile in early pregnancy is independently associated with preeclampsia and blood pressure throughout pregnancy but also with sustained hypertension long term postpartum.

**152** Effect of antenatal dietary interventions in maternal obesity on pregnancy weight-gain and birthweight: Healthy Mums and Babies (HUMBA) randomized trial



Karaponi A. M. Okesene-Gafa; Minglan Li; Christopher J. D. McKinlay; Rennae S. Taylor; Elaine C. Rush; Clare R. Wall; Jess Wilson; Rinki Murphy; Rachael Taylor; John M. D. Thompson; Caroline A. Crowther; Lesley M. E. McCowan

In multiethnic, predominantly low socioeconomic pregnant women with obesity, a tailored dietary intervention and or probiotic capsules did not reduce excessive gestational weight gain or birthweight.

ORIGINAL RESEARCH *(continued)*

- 154 Neonatal developmental and behavioral outcomes of immediate delivery versus expectant monitoring in mild hypertensive disorders of pregnancy: 2-year outcomes of the HYPITAT-II trial**  
Eva F. Zwertbroek; Maureen T. M. Franssen; Kim Broekhuijsen; Josje Langenveld; Henk Bremer; Wessel Ganzevoort; Aren J. van Loon; Maria G. van Pampus; Robbert J. P. Rijnders; Marko J. Sikkema; Sicco A. Scherjon; Mallory D. Woiski; Ben W. J. Mol; Anneloes L. van Baar; Henk Groen; for the HYPITAT-II Study Group  
Early delivery is associated with poorer neurodevelopment at age 2 years.

## EDUCATION

- 156 Sources of support for and resistance to abortion training in obstetrics and gynecology residency programs**  
Jema K. Turk; Uta Landy; Jessie Chien; Jody E. Steinauer  
Significant barriers to integrating abortion training into residents' schedules continue to exist after mandated training in 1995 for the majority of obstetrics and gynecology residency programs.

## IMAGES IN OBSTETRICS AND GYNECOLOGY

- 158 Red plaques and tumors on the vulva**  
Chao Wu  
A woman presented with asymptomatic progressive red plaques and tumors on the vulva. A diagnosis of langerhans cell histiocytosis was established after histopathological examination.
- 159 Resolution of intra-amniotic sludge after antibiotic administration in a patient with short cervix and recurrent mid-trimester loss**  
 Cheryl Dinglas; Martin Chavez; Anthony Vintzileos  
 Antibiotic administration after cerclage resolved intra-amniotic sludge and allowed a term delivery.  
 Related editorial, page 83

## SURGEON'S CORNER

- 160 The Latzko: A high-value, versatile vesicovaginal fistula repair**  
 Caroline Kieserman-Shmokler; Anne G. Sammarco; Emily M. English; Carolyn W. Swenson; John O. DeLancey  
The Latzko transvaginal vesicovaginal fistula repair is a high-value procedure that minimizes pain, morbidity, and cost, even in cases of complex fistulae.

## RESEARCH LETTERS

- 162 High prevalence of precocious menarche in Puerto Barrios, Guatemala**  
Edmundo Torres-González; Griselda López; Britton Trabert; Victor Argueta; Eduardo Gharzouzi; Michael Dean; Roberto Orozco
- 163 Prediction of mode of delivery using the first ultrasound-based "intrapartum app"**  
Sana Usman; Birgitte Heiberg Kahrs; Charlotte Wilhelm-Benartzi; Wassim A. Hassan; Helen Barton; Kjell A. Salvesen; Torbjorn Moe Eggebø; Christoph Lees

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- 171** Bacterial vaginosis and the risk of human papillomavirus and cervical cancer  
Makella Coudray; Sandra Kiplagat  
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Nele Brusselaers; Hans Verstraelen

**SOCIETY FOR MATERNAL-FETAL MEDICINE**

- B2** SMFM Special Statement: State of the science on multifetal gestations: unique considerations and importance  
 SMFM Research Committee; Katherine L. Grantz; Tetsuya Kawakita; Ya-Ling Lu; Roger Newman; Vincenzo Berghella; Aaron Caughey  
The state of the science for research on multifetal gestations includes (1) an estimation of how often multiple gestations are excluded from studies, (2) whether findings from studies of singleton gestations can be translated to multiple gestations in which data gaps exist, (3) unique aspects of performing research on multiple gestations, and (4) a call for future research.
- B13** SMFM Special Statement: The Affordable Care Act's foundation of coverage: essential health benefits are essential  
 Sindhu K. Srinivas; on behalf of the SMFM Health Policy and Advocacy Committee  
Maternal and newborn essential health benefits and no-cost preventive care services mandated by the Affordable Care Act (ACA) have been shown to improve the long-term health of women and children in the United States and reduce overall health-care costs; however, these benefits are now threatened by calls to repeal or revise the ACA unless specific action is taken to preserve their essential designation.

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- 15A** Classified advertising