

OB/GYN Clinical [ALERT]

Evidence-based commentaries
on women's reproductive health

ABSTRACT & COMMENTARY

Contraceptive Visits Declined in the United States During the COVID-19 Pandemic

By Katherine Rivlin, MD, MSc

Associate Professor, Obstetrics and Gynecology, The Ohio State University Medical Center, Columbus

SYNOPSIS: Using a nationwide sample of insurance claims, researchers found that large declines occurred in contraceptive visits in the first month of the COVID-19 pandemic (April 2020 compared to May 2019). Although visit numbers improved over time, they remained below pre-pandemic levels through the end of 2020.

SOURCE: Steenland MW, Geiger CK, Chen L, et al. Declines in contraceptive visits in the United States during the COVID-19 pandemic. *Contraception* 2021;104:593-599.

Contraception is a necessary and commonly used preventive health service. From 2017-2019, almost half of reproductive age women in the United States used a contraceptive method that required a healthcare visit.¹ Tubal ligations and long-acting reversible contraceptives (LARCs) necessitate in-person services, and methods such as contraceptive pills, patches, and rings traditionally have warranted an in-person assessment prior to initial prescription or even to refill.

The COVID-19 pandemic caused widespread disruption to preventive care services. More than half of OB/GYNs reported seeing fewer patients between March and June 2020, which they attributed to both practice-specific restrictions and

patient avoidance of in-person services.² Although the healthcare system pivoted rapidly to telehealth provision to accommodate this disruption in care, practices varied widely. For example, although reimbursement for telehealth has expanded since the onset of the pandemic, rates vary by state.

An insurance claims study performed in Michigan demonstrated a 72% decline in LARC placement in April 2020 and a 15% to 30% decline in contraceptives obtained from pharmacies in 2020 compared to 2019.³ No similar analysis has occurred on a national level. To fill this gap, this study used data from May 1, 2019, to Dec. 31, 2020, collected from a national insurance claims database covering 280 million patients, 1.8 million

Financial Disclosure: Dr. Rebecca H. Allen (editor) reports that she receives grant/research support from Bayer and is a consultant for Bayer, Mylan, and Merck. Dr. Sarah J. Betstadt (peer reviewer) reports that she is on the speakers bureau for Merck. All of the relevant financial relationships listed for these individuals have been mitigated. None of the remaining planners or authors for this educational activity have relevant financial relationships to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

[INSIDE]

Pregnancy-Associated
Mortality: The Contribution
of Homicide
page 76

Midurethral Slings
for the Management of Stress
Urinary Incontinence
page 77

The Effects of Maternal
Cannabis Use During
Pregnancy
page 78

OB/GYN Clinical Alert (ISSN 0743-8354) is published monthly by Relias LLC, 1010 Sync St., Ste. 100, Morrisville, NC 27560-5468. Periodicals postage paid at Morrisville, NC, and additional mailing offices. POSTMASTER: Send address changes to OB/GYN Clinical Alert, Relias LLC, 1010 Sync St., Ste. 100, Morrisville, NC 27560-5468.

GST Registration Number: R128870672.

© 2022 Relias LLC. All rights reserved. No part of this newsletter may be reproduced in any form or incorporated into any information-retrieval system without the written permission of the copyright owner.

This is an educational publication designed to present scientific information and opinion to health professionals to stimulate thought and further investigation. It does not provide advice regarding medical diagnosis or treatment for any individual case. It is not intended for use by the layman.

SUBSCRIBER INFORMATION
(800) 688-2421
customerservice@reliasmmedia.com
ReliasMedia.com

Questions & Comments:
Please contact Editor Jason Schneider, at jschneider@relias.com

Back issues: \$42. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue's date.
Canada: Add 7% GST and \$30 shipping.
Elsewhere: Add \$30 shipping.

ACCREDITATION



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION
In support of improving patient care, Relias LLC is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCMCE), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

The Relias LLC designates this enduring material for a maximum of 2 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

2 ANCC contact hours will be awarded to participants who meet the criteria for successful completion.

This CME activity is intended for the OB/GYN. It is in effect for 36 months from the date of the publication.

prescribers, and 16,000 health plans. The database includes medical claims sent to commercial insurers, Medicaid managed care plans, and state Medicaid programs. The study sample includes patients ages 15 to 45 years who completed at least one contraceptive visit during the study period. It also includes a subgroup of people who gave birth during the study period.

The primary outcome of interest is the overall number of method-specific contraceptive visits. In addition, the team measured the number of method-specific visits among the postpartum cohort and the number of contraceptive telehealth visits performed (which could include pill, patch, or ring prescription). Contraceptive visits were identified using diagnosis and procedure codes, and telehealth visits were identified using digital evaluation codes. Postpartum visits had to occur within 90 days of giving birth, which included contraceptive services prior to hospital discharge. Visits for contraceptive counseling only were excluded. Because of the limitations of claims data, the study team could not explore the role of sociodemographic factors, such as race, ethnicity, income, or rurality.

The team examined immediate changes and sustained changes to contraceptive visits. Immediate change was defined as the number of visits occurring in April 2020 (when all 42 U.S. state and territory stay-at-home orders began and were in place) compared to the number of visits in May 2019 (since complete data were not available from April 2019). Sustained change was defined as visits occurring in December 2020 compared to December 2019.

For postpartum contraception visits, the team assessed individuals who gave birth in February 2020 (whose three-month postpartum time period overlapped with stay-at-home orders) compared to individuals giving birth in May 2019. To measure sustained change for the postpartum cohort, the team compared individuals who gave birth in September 2020 to those who gave birth in September 2019. Within each analysis, the team looked at differences by contraceptive method, age group (adolescents compared to adults), geographic region, and payer type.

Prior to the COVID-19 pandemic, the number of contraceptive visits varied by month, but always were within a consistent range of $\pm 10\%$. In April 2020, contraceptive visits for all methods declined dramatically. Compared to May 2019, tubal ligation visits declined by 65% (95% confidence interval [CI], -65.5%, -64.1%); LARC visits declined by 46% (95% CI, -47.0%, -45.6%); contraceptive pill, patch, and ring visits declined by 45% (95% CI, -45.8%, -44.5%); and injectable visits declined by 16% (95% CI, -17.2%, -15.4%).

Sustained declines in contraceptive visits were largest for tubal ligation, with an 18% decline (95% CI, -19.1%, -16.8%) in December 2020 compared to December 2019. Injectable contraception visits declined by 11% (95% CI, -11.4%, -9.6%); LARC visits declined by 6% (95% CI, -6.6%, -4.4%); and pill, patch, and ring visits declined by 5% (95% CI, -5.7%, -3.7%).

By region, immediate declines were greatest in the Northeast and Midwest compared to the South and the West. Sustained declines were similar across all regions. By age, immediate declines were similar between adolescents and adults, although adolescents had a smaller decline in both injectable, pill, patch, and ring visits compared to adults. Although sustained declines for LARC visits remained below December 2019 levels for adults, LARC visits for adolescents actually increased by 18% (95% CI, 14.6%, 21.6%). Similarly, pill, patch, and ring visits increased for adolescents, even as they declined for adults.

In the postpartum cohort, immediate declines were smaller than those observed in the larger sample but still present. Tubal ligation visits decreased by 16% and LARC by 22%. No changes occurred in injectable, pill, patch, or ring visits. Sustained declines remained in tubal ligation visits (9%) and in LARC visits (9%), again with no changes to injectable, pill, patch, or ring visits.

Telehealth visits were rare before March 2020. Between March and April 2020, telehealth visits for the pill, patch, and ring increased by 29.6%. Sustained rates were much lower but still 7.5% higher in December 2020 compared to December

2019. The increase in telehealth visits was similar among all insurance types, but were more sustained in Medicaid users compared to commercial insurance users.

■ COMMENTARY

This study documents substantial national decreases in contraceptive visits during the COVID-19 pandemic. The declines were most drastic in tubal ligation and LARC visits, since these methods necessitate in-person services. Additionally, tubal ligations typically require an operating room. During the most severe part of the pandemic, many “elective” procedures were delayed to preserve personal protective equipment, and tubal ligation often fell into this category. To compound this, Medicaid requires patients to sign a consent 30 days prior to tubal ligation but did not modify this requirement to allow for electronic or oral signature, thus necessitating additional in-person visits.⁴

Adolescents were more protected against these declines, and contraceptive visits in this age group even increased over the study time period. Adolescents may be more adept at transitioning to telemedicine visits or may have been more highly prioritized by clinical practices. Telemedicine requires access to an electronic device, internet, and a private space, all of which could pose barriers. Adolescents in particular may have challenges accessing a private space to discuss something as personal as reproductive health. However, these data indicate that the barriers posed by in-person services, such as transportation to a healthcare facility, may be even greater to this age group.

Regionally, immediate declines were greatest in the Northeast and Midwest, perhaps as the result of fewer restrictions around in-person services in the South, or because patients in the Northeast (initially the epicenter of the pandemic) were more likely to avoid in-person services early in the pandemic. Sustained changes were the same across all regions.

This study demonstrates the central role that telemedicine played in continuing to provide preventive services when in-person visits were limited.⁵ Although contraceptive telemedicine services increased dramatically in the first months of the pandemic, the numbers have declined since that time. This study cannot answer if this decline is the result of less telemedicine availability or a decline in patient demand for telemedicine services. Further research into patient preferences around telemedicine is necessary, and healthcare facilities should continue to adapt these services to patient needs. Additionally, payment parity for telemedicine visits is critical, including audio-only visits so that patients without internet access can continue to receive these services.

This study provides vital information to practicing clinicians not just to anticipate potential future restrictions to in-person services, but also to better meet the needs of our patients, even under “normal” circumstances. To provide our patients with the full range of contraceptive options, we must recognize and acknowledge that the pandemic simply magnified barriers to care that already existed.

[This study demonstrates the central role that telemedicine played in continuing to provide preventive services when in-person visits were limited. Although contraceptive telemedicine services increased dramatically in the first months of the pandemic, the numbers have declined since that time.]

Medicaid 30-day waiting periods restrict access to tubal ligation, even outside of a pandemic. Many patients do not need an in-person assessment for a birth control refill, and telehealth expands contraceptive access, whether or not stay-at-home orders are in place. Better understanding our patients’ needs and preferences is vital to providing contraceptive autonomy and patient-centered care. ■

REFERENCES

1. Daniels K, Abma JC. Current contraceptive status among women aged 15-49: United States, 2017-2019. *NCHS Data Brief* 2020; Oct: 1-8.
2. Weigel G, Frederiksen B, Ranji U, Salganicoff A. How OBGYNs adapted provision of sexual and reproductive health care during the COVID-19 pandemic. Kaiser Family Foundation. Published Dec. 2, 2020. <https://www.kff.org/womens-health-policy/issue-brief/how-obgyns-adapted-provision-of-sexual-and-reproductive-health-care-during-the-covid-19-pandemic/>
3. Becker NV, Moniz MH, Tipimemi R, et al. Utilization of women’s preventive health services during the COVID-19 pandemic. *JAMA Health Forum* 2021;2:e211408.
4. Evans ML, Qasba N, Shah Arora K. COVID-19 highlights the policy barriers and complexities of postpartum sterilization. *Contraception* 2021;103:3-5.
5. Weigel G, Frederiksen B, Ranji U, Salganicoff A. Telemedicine in sexual and reproductive health. Kaiser Family Foundation. Published Nov. 22, 2019. <https://www.kff.org/womens-health-policy/issue-brief/telemedicine-in-sexual-and-reproductive-health/>

Pregnancy-Associated Mortality: The Contribution of Homicide

By *Rebecca H. Allen, MD, MPH, Editor*

SYNOPSIS: In this national study, there were 3.62 homicides per 100,000 live births among females who were pregnant or within one year postpartum from 2018 to 2019. This rate was slightly higher (16%) than the rate among nonpregnant and non-postpartum females of reproductive age. Homicide was found to be a leading cause of pregnancy-associated mortality.

SOURCE: Wallace M, Gillispie-Bell V, Cruz K, et al. Homicide during pregnancy and the postpartum period in the United States, 2018-2019. *Obstet Gynecol* 2021;138:762-769.

The authors used the following definitions for the study: Pregnancy-associated mortality was defined as deaths during pregnancy and within one year postpartum from any cause, based on the Centers for Disease Control and Prevention definition; and maternal mortality was defined as deaths while pregnant or within 42 days postpartum from causes related to or aggravated by the pregnancy, based on the World Health Organization definition. By 2018, every U.S. state had added the required “pregnancy check box” to their Standard Certificate of Death, which classifies deaths as not pregnant at time of death, pregnant, within 42 days postpartum, or 43 days to one year postpartum. The authors of this study sought to use this national data to estimate the prevalence of pregnancy-associated homicide.

The investigators used data from the 2018 and 2019 mortality files from the National Center for Health Statistics, which include a death record from every person who dies in the United States. The data were restricted to females, ages 10 to 44 years, whose manner of death was homicide and a checkbox value indicated the individual was pregnant or within one year postpartum. Both pregnancy-associated mortality and direct maternal mortality were calculated. Data on race, ethnicity, mechanism of injury, and whether the death occurred within the home also were collected.

From 2018 to 2019, there were 273 homicides of pregnant women or women within one year postpartum out of 4,705 total homicides among women of reproductive age. About two-thirds of the deaths occurred in the home and 70% involved firearms. Assault by a sharp object and strangulation were the second and third most common causes of death. Compared with nonpregnant, non-postpartum victims of reproductive age, pregnant and postpartum women who were killed were more likely to be non-Hispanic Black and of younger ages. The 2018-2019 national pregnancy-associated homicide ratio was 3.62 deaths per 100,000 live births. This was 16% higher than the rate among nonpregnant,

non-postpartum reproductive-age women (3.12). Homicide mortality during pregnancy and within the first 42 days postpartum was 2.21 per 100,000 live births and exceeded all leading causes of maternal mortality, including hypertensive disorders, hemorrhage, and infection.

■ COMMENTARY

This study revealed that pregnancy and the perinatal period increases the risk of homicide. This finding is not new but this study is the first to confirm the association with national data, taking advantage of the updated U.S. Standard Certificate of Death reporting system that uses a pregnancy checkbox.¹ The analysis was not able to identify the perpetrators of the homicides or confirm intimate partner violence as the potential cause, but the authors found that two-thirds of the deaths occurred in the home. The increased risk was found especially in non-Hispanic Black women and women of younger age (10 to 24 years). The authors postulated that there may be racial inequities in the occurrence of unintended pregnancies, which has been associated with violence, as well as systemic racism that may prevent girls and women from accessing needed services both in the medical arena and also with law enforcement.

There are some limitations to this study, since it relies on a national database that depends on accurate data entry and does not contain many details regarding the circumstances of the death. There have been some concerns that the pregnancy checkbox may have both false positives and false negatives.² However, the authors thought that, most likely, the pregnancy checkbox on death certificates is not used sufficiently and these current results represent an underreporting.

I wanted to highlight this study because it is important that all women’s healthcare providers are aware of this issue. Although this investigation could not identify which homicides were associated with intimate partner violence, it is standard of care to screen pregnant women for this risk factor at the first prenatal visit, at least once per trimester, and at the postpartum visit. According to the American

College of Obstetricians and Gynecologists, “intimate partner violence is a pattern of assaultive behavior and coercive behavior that may include physical injury, psychological abuse, sexual assault, progressive isolation, stalking, deprivation, intimidation, and reproductive coercion.”¹

Intimate partner violence screening should be performed universally, privately, and with validated questions. Providers should be prepared to offer resources and support for those individuals who screen positive. Intimate partner violence during pregnancy has been associated with adverse outcomes, such as low birth weight, placental abruption, fetal injury, stillbirth, and preterm

delivery. Intimate partner violence crosses all racial, social, and economic lines. It is estimated that one in three women in the United States has experienced it at some point during their lifetime.¹ We have a unique role as providers to try to mitigate some of this violence with screening and intervention. ■

REFERENCES

1. [No authors listed]. ACOG Committee Opinion No. 518: Intimate partner violence. *Obstet Gynecol* 2012;119:412-417.
2. Catalano A, Davis NL, Petersen EE, et al. Pregnant? Validity of the pregnancy checkbox on death certificates in four states, and characteristics associated with pregnancy checkbox errors. *Am J Obstet Gynecol* 2020;222:269.e1-269.e8.

ABSTRACT & COMMENTARY

Midurethral Slings for the Management of Stress Urinary Incontinence

By *Chiara Ghetti, MD*

Associate Professor, Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Washington University School of Medicine, St. Louis

SYNOPSIS: The controversy surrounding polypropylene mesh use has confused and discouraged women from seeking surgical treatment for stress urinary incontinence. Midurethral slings remain the standard of care for the surgical treatment of stress urinary incontinence.

SOURCE: [No authors listed]. Joint position statement on midurethral slings for stress urinary incontinence. *Female Pelvic Med Reconstr Surg* 2021;27:707-710.

The purpose of this joint statement of the American Urogynecologic Society (AUGS) and Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU) is to support the use of a midurethral sling (MUS) for the surgical management of stress urinary incontinence. Following the 2011 U.S. Food and Drug Administration (FDA) notification regarding adverse events with the use of transvaginal mesh and the subsequent 2019 restriction on mesh products for transvaginal repair of pelvic organ prolapse, confusion has arisen regarding the difference between the use of transvaginal mesh for prolapse and stress urinary incontinence. Negative perceptions of MUS have discouraged women from seeking treatment despite the well-established safety and efficacy of the full-length MUS.

■ COMMENTARY

AUGS and SUFU have come together with endorsing organizations (American College of Obstetricians and Gynecologists, American Urological Association, and International Urogynecological Association) and supporting organizations (American Association of Gynecologic Laparoscopists, National Association for Continence, and Society of Gynecologic Surgeons) to recognize again the importance of the MUS in the management of stress urinary incontinence in women.

Stress urinary incontinence is the “involuntary loss of urine on effort or physical exertion (e.g., sporting activities) or on sneezing or coughing” and it is distinguished from urgency incontinence, or overactive bladder, in which leakage is associated with a strong urge to void that is difficult to defer.^{1,2} The estimated lifetime risk of stress urinary incontinence for women in the United States is 20%, and leakage is known to have a significant negative effect on a woman’s quality of life.³

The evaluation of urinary leakage is similar between stress and urge incontinence. Initial treatment options of lifestyle/behavioral modification and pelvic floor physical therapy can be employed for both types of incontinence. Subsequent treatment options diverge. There are no current pharmacotherapies for stress urinary incontinence.

The nonsurgical treatment options for stress urinary incontinence include vaginal inserts and incontinence pessaries. The MUS is the standard of care for women with documented stress urinary incontinence desiring surgical management and it provides an efficacious and durable treatment. Pelvic examination and office testing to demonstrate stress incontinence and document bladder emptying is recommended prior to performing a MUS.

The joint task force that developed this statement presents five main justifications for the position statement:

1. Polypropylene is safe and effective as a surgical implant. Polypropylene material has been used extensively in numerous surgical subspecialties and is used widely as both suture material and as knitted graft material to augment surgical repairs throughout the body. The polypropylene knitted material used for MUS is type 1, microporous, monofilament, and lightweight; studies have supported its long-term durability, safety, and efficacy up to 17 years.⁴
2. The MUS has been studied extensively and, in fact, is the most highly studied surgical treatment for stress urinary incontinence. These studies have contributed to the rigorous evidence supporting the use of MUS for the treatment of stress urinary incontinence.
3. With the publication of level 1 data, MUS has become the standard of care for the surgical treatment of stress urinary incontinence. When compared to the numerous other surgeries for stress urinary incontinence, MUS is associated with less pain, faster recovery, and reduced cost.
4. The FDA updated its 2019 statement regarding surgical mesh to include the well-established safety and efficacy of MUS. They reported vaginal mesh exposure as the most common complication, occurring at a rate of 2% in one year.
5. The Scientific Committee on Emerging and Newly Identified Health Risks concluded in 2015 that when used by trained surgeons, the MUS is an accepted procedure with proven efficacy and safety in most patients with moderate-to-severe stress urinary incontinence.

As with any surgical procedure, informed consent and joint decision-making are essential. In our practice, we review different treatment options for stress urinary incontinence and describe the procedure in its entirety. We explicitly review the indication for surgery and counsel patients to clarify and align expectations. Specifically, we review that the MUS is

performed to treat stress urinary incontinence and not to treat other urinary symptoms, such as urgency, frequency, urge incontinence, nocturia, etc. Although some of these symptoms may change, patients should not expect a resolution of these other urinary symptoms. We review the efficacy of the procedure and the risks of sling placement, including urethral, bladder, bowel, and vascular injury; the possible need for transfusion; and mesh complications. We also discuss the risk of infection, incomplete bladder emptying, and a possible increase in urgency symptoms. We discuss some of the key points the task force addressed in this statement and point out explicitly that the MUS is not the transvaginal procedure fraught with complications that they may have heard about on television or in the news.

Because of the adverse events associated with transvaginal mesh kits, many women have been reluctant to consider surgical treatment for stress urinary incontinence. The purpose of this statement is to highlight once again the important role that MUS play in the treatment of stress urinary incontinence and in improving the lives of women with stress urinary incontinence. ■

REFERENCES

1. D'Ancona C, Haylen B, Oelke M, et al. The International Continence Society (ICS) report on the terminology for adult male lower urinary tract and pelvic floor symptoms and dysfunction. *Neurourol Urodyn* 2019;38:433-477.
2. Abrams P, Andersson KE, Birder L, et al. Fourth International Consultation on Incontinence Recommendations of the International Scientific Committee: Evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. *Neurourol Urodyn* 2010;29:213-240.
3. Wu JM, Matthews CA, Conover MM, et al. Lifetime risk of stress urinary incontinence or pelvic organ prolapse surgery. *Obstet Gynecol* 2014;123:1201-1206.
4. Nilsson CG, Palva K, Aarnio R, et al. Seventeen years' follow-up of the tension-free vaginal tape procedure for female stress urinary incontinence. *Int Urogynecol J* 2013;24:1265-1269.

ABSTRACT & COMMENTARY

The Effects of Maternal Cannabis Use During Pregnancy on the Neurobehavioral Development of Children at Ages 3-6 Years

By *Rebecca B. Perkins, MD, MSc*

Associate Professor, Department of Obstetrics and Gynecology, Boston University School of Medicine/Boston Medical Center, Boston

SYNOPSIS: This study examined associations between maternal cannabis use in pregnancy and neurobehavioral problems diagnosed in children between ages 3 and 6 years. Maternal cannabis use was associated with higher cortisol levels, as well as abnormal behaviors, including anxiety, aggression, and hyperactivity. Placental analyses for a subset of children indicate a potential mechanism for neurobehavioral disorders as the result of selective gene regulation.

Recreational cannabis use has increased significantly, and many states have passed laws allowing both medical and recreational use. The marketing of marijuana as both a “natural” remedy and a medical treatment for nausea has led to a widespread misperception that consumption is safe. Recent surveys indicate that 3% to 16% of pregnant women used marijuana in the past month.^{1,2} In addition, tetrahydrocannabinol (THC) concentrations in cannabis preparations have increased steadily over the past decade, exacerbating potential harms.³ THC passes freely from mother to fetus via the placenta. Prior studies have linked maternal cannabis use to fetal growth restriction, preterm birth, and low birth weight.⁴⁻⁶ In addition, associations have been found between maternal cannabis use and autism, depression, psychosis, and drug-seeking behavior in offspring, which are thought to be mediated by reduction in dopaminergic receptors in the fetal brain.⁷⁻¹⁰

The study by Rompala et al examines the effect of maternal cannabis use on the placental transcriptome and neurocognitive development of children at ages 3-6 years in a longitudinal cohort of 322 mother-child pairs from the greater New York metropolitan area. In this cohort, maternal cannabis use was associated with younger parental age, single-mother pregnancies, maternal anxiety, depression, cigarette smoking, and African American race; these variables were controlled for in statistical analyses. Investigators examined hair samples from children ages 3-6 years for cortisol levels (a biomarker of stress), and performed heart rate variability testing, which measures parasympathetic nervous system activation and is associated with anxiety-related disorders. They also performed neurobehavioral testing for anxiety-related abnormal behavior. Among children born to mothers who used cannabis during pregnancy, they found higher cortisol levels, reductions in heart rate variability, and higher levels of clinically significant aggression, anxiety, and hyperactivity. Placental biopsies revealed reduced immune-related gene expression, with changes in both pro-inflammatory cytokines and immune cell-type markers. The authors postulated that these findings indicate a potential mechanism for the observed negative neurobehavioral effects on offspring via placental dysregulation.

■ COMMENTARY

This study adds to the body of literature indicating the substantial, long-term, negative effects of maternal cannabis use on child development. The American College of Obstetricians and Gynecologists discourages marijuana use during pregnancy and lactation because of the potential negative effects on offspring.¹¹ OB/GYNs should work actively to assess the use of marijuana during pregnancy and discuss

its harmful effects with patients, including increased aggression, anxiety, and hyperactivity during childhood. Similar to alcohol, marijuana should be avoided to prevent damage to the developing fetal brain. Patients using marijuana for medicinal purposes should be transitioned to safer medications prior to pregnancy.

In the early 2000s, opioids were heavily marketed by the pharmaceutical industry to physicians as revolutionary, non-addictive painkillers, despite evidence to the contrary.¹² This directly affected prescribing behavior.¹² For several years, physicians were required to ask all patients about pain with hard-stop electronic medical record alerts, likely leading to countless unnecessary prescriptions for narcotics.¹³ Two decades later, the pharmaceutical companies are paying damages for opioid marketing practices as the nation grapples with an unprecedented toll of drug addiction, with more than 100,000 deaths in 2020.^{14,15} The cannabis industry is following the same tactics, increasing the potency of its product combined with aggressive marketing as a health and wellness product.^{3,15} The U.S. cannabis market is expected to reach \$41.5 billion annually by 2025.^{16,17} Legalization of marijuana is associated with higher rates of driving fatalities, emergency room visits for intoxication in adults and children, and psychiatric hospitalizations.¹⁸

As physicians, it is crucial that we provide our patients with information about the harms of legal drugs during pregnancy. There are no data to support safe consumption levels for alcohol or marijuana. ■

REFERENCES

1. Volkow ND, Han B, Compton WM, McCance-Katz E. Self-reported medical and nonmedical cannabis use among pregnant women in the United States. *JAMA* 2019;322:167-169.
2. Brown QL, Sarvet AL, Shmulewitz D, et al. Trends in marijuana use among pregnant and nonpregnant reproductive-aged women, 2002-2014. *JAMA* 2017;317:207-209.
3. Chandra S, Radwan MM, Majumdar CG, et al. New trends in cannabis potency in USA and Europe during the last decade (2008-2017). *Eur Arch Psychiatry Clin Neurosci* 2019;269:5-15.
4. Hurd YL, Wang X, Anderson V, et al. Marijuana impairs growth in mid-gestation fetuses. *Neurotoxicol Teratol* 2005;27:221-229.
5. Fried PA, Watkinson B, Gray R. Growth from birth to early adolescence in offspring prenatally exposed to cigarettes and marijuana. *Neurotoxicol Teratol* 1999;21:513-525.
6. Corsi DJ, Walsh L, Weiss D, et al. Association between self-reported prenatal cannabis use and maternal, perinatal, and neonatal outcomes. *JAMA* 2019;322:145-152.
7. Wang X, Dow-Edwards D, Anderson V, et al. In utero marijuana exposure associated with abnormal amygdala dopamine D2 gene expression in the human fetus. *Biol Psychiatry* 2004;56:909-915.
8. Corsi DJ, Donelle J, Sucha E, et al. Maternal cannabis use in pregnancy and child neurodevelopmental outcomes. *Nat Med* 2020;26:1536-1540.

EDITOR
Jason Schneider

EXECUTIVE EDITOR
Shelly Mark

EDITORIAL GROUP
MANAGER
Leslie G. Coplin

EDITOR
Rebecca H. Allen, MD, MPH
Associate Professor, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Women & Infants Hospital, Providence, RI

ASSOCIATE EDITORS
Nicole H. Cirino, MD, CST, IF
Reproductive Psychiatrist, Associate Professor, Department of OB/GYN and Department of Psychiatry, Oregon Health & Science University, Portland

Ahizechukwu Eke, MD, MPH
Associate Professor in Maternal Fetal Medicine, Division of Maternal Fetal Medicine, Department of Gynecology & Obstetrics, Johns Hopkins University School of Medicine, Baltimore

Maria F. Gallo, PhD
Professor, Chair, and Associate Dean of Research, College of Public Health, Division of Epidemiology, The Ohio State University, Columbus

Chiara Ghetti, MD
Associate Professor, Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Washington University School of Medicine, St. Louis

Rebecca B. Perkins, MD, MSc
Associate Professor of Obstetrics and Gynecology, Boston University School of Medicine/Boston Medical Center, Boston

Katherine Rivlin, MD, MSc
Associate Professor, Obstetrics and Gynecology, The Ohio State University Medical Center, Columbus

PEER REVIEWER
Sarah J. Betstadt, MD, MPH
Associate Professor, Department of Obstetrics and Gynecology, URMIC Family Planning; Director, Ryan Residency Training Program, University of Rochester Medical Center, Rochester, NY

NURSE PLANNER
Jeanine Mikek, MSN, RN, CEN
Maternal Child Health Educator, Labor & Delivery, Mother Baby, Neonatal Intensive Care Unit & Pediatrics, IU Arnett Hospital, Lafayette, IN

9. Fine JD, Moreau AL, Karcher NR, et al. Association of prenatal cannabis exposure with psychosis proneness among children in the Adolescent Brain Cognitive Development (ABCD) study. *JAMA Psychiatry* 2019;76:762-764.
10. Spano MS, Ellgren M, Wang X, Hurd YL. Prenatal cannabis exposure increases heroin seeking with allostatic changes in limbic enkephalin systems in adulthood. *Biol Psychiatry* 2007;61:554-563.
11. [No authors listed]. Committee Opinion No. 722: Marijuana use during pregnancy and lactation. *Obstet Gynecol* 2017;130:e205-e209.
12. Beilfuss S, Linde S. Pharmaceutical opioid marketing and physician prescribing behavior. *Health Econ* 2021;30:3159-3185.
13. Saigh O, Triola MM, Link RN. Brief report: Failure of an electronic medical record tool to improve pain assessment documentation. *J Gen Intern Med* 2006;21:185-188.
14. Dyer O. Purdue Pharma to plead guilty and pay \$8.3bn over opioid marketing. *BMJ* 2020;371:m4103.
15. Centers for Disease Control and Prevention. Drug overdose deaths in the U.S. top 100,000 annually. Published Nov. 17, 2021. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2021/20211117.htm
16. Sprinklr. How cannabis companies market themselves in the pot boom. Published Jan. 20, 2021. <https://www.sprinklr.com/blog/cannabis-marketing-strategies/>
17. Harris N. The dos and don'ts of marketing for the cannabis industry. *New Perspective*. Published Feb. 25, 2021. <https://www.npws.net/blog/marketing-cannabis-industry/>
18. Sabet K. Lessons learned in several states eight years after states legalized marijuana. *Curr Opin Psychol* 2021;38:25-30.

CME/CE OBJECTIVES

Upon completion of this educational activity, participants should be able to:

- Explain the latest data regarding diagnosis and treatment of various diseases affecting women;
- Discuss new data concerning prenatal care, neonatal health, and complications arising in pregnancy and the perinatal period; and
- Discuss the advantages, disadvantages, and cost-effectiveness of new testing procedures in women's health.

CME/CE QUESTIONS

1. **Steenland et al demonstrated an increase in which of the following contraceptive visit types?**
 - a. Telehealth contraceptive visits in December 2020 compared to April 2020
 - b. Long-acting reversible contraceptive (LARC) visits among adolescents in December 2020 compared to December 2019
 - c. LARC visits among adults in December 2020 compared to December 2019
 - d. Tubal ligation visits among postpartum patients in December 2020 compared to December 2019
2. **In the study by Wallace et al, pregnant and postpartum victims of homicide were more likely to be which of the following compared to nonpregnant and non-postpartum victims of homicide?**
 - a. White
 - b. Older age
 - c. Victims of strangulation
 - d. Non-Hispanic Black
3. **Based on the American Urogynecologic Society and Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction Joint Position Statement on Midurethral Slings for Stress Urinary Incontinence, which of the following statements is correct?**
 - a. Polypropylene material is not safe and effective as a surgical implant.
 - b. The monofilament polypropylene mesh sling is poorly studied.
 - c. The Food and Drug Administration has stated the polypropylene sling is safe and effective in the treatment of stress urinary incontinence.
 - d. Fascial slings are the standard of care for the surgical treatment of stress urinary incontinence.
4. **Which of the following statements about the study by Rompala et al is false?**
 - a. No negative effects are seen from maternal cannabis use.
 - b. Children born to women who used cannabis during pregnancy are more likely to have hyperactivity, aggression, and anxiety at ages 3-6 years.
 - c. Marijuana use during pregnancy is associated with gene dysregulation in the placenta.
 - d. Children born to mothers who used cannabis during pregnancy are more likely to have impaired stress responses as indicated by elevated cortisol levels.

Interested in reprints or posting an article to your company's site? There are numerous opportunities for you to leverage editorial recognition for the benefit of your brand. Call us at (800) 688-2421 or email reliamedia1@gmail.com to learn more.

For pricing on group discounts, multiple copies, site licenses, or electronic distribution, please contact our Group Account Managers at: Phone: (866) 213-0844 Email: groups@reliamedia.com

To reproduce any part of Relias Media newsletters for educational purposes, please contact:

The Copyright Clearance Center for permission
Email: info@copyright.com
Phone: (978) 750-8400