Gynecologic ultrasound
How not to miss the diagnosis
Beryl R. Benacerraf, MD

Digital OB/GYN
Imaging the obese gravida
Asherman's syndrome
Prevention and treatment

Test your knowledge
Vulvar pruritis, pain, fissures
IN THIS ISSUE

June 2019

VOLUME 64 | NUMBER 06

Dr. Lockwood’s Take
09 The high cost of drugs
Dr. Lockwood examines why drugs are so expensive in America in this first part of a two-part feature.

Special Report
20 Measles
Rachael Zimlich, RN, BSN
As the incidence of measles rises, we examine what ob/gyns need to know about measles vaccines and boosters.

Test Your Knowledge
25 Vulvar conditions
Rosalyn E. Maben-Feaster, MD, MPH, John O. Delancey, MD, and Hope K. Haefner, MD
A patient presents with pain, pruritis, and fissures - what’s your diagnosis?

Peer-Reviewed
29 Asherman’s syndrome
James K. Robinson III, MD, MS, and Nicholas D. Hazen, MD
Experts discuss uterine adhesions and approaches to treatment and prevention.

Digital OB/GYN
34 Imaging the obese gravida
Christina S. Han, MD, and Kerry Holliman, MD
Tips and techniques to help optimize your approach to these challenging patients.

In Addition
22 Bench to Bedside
38 Residents Corner
40 Practice Matters
42 Practice Matters
Unhappy in your job?
49 Legally Speaking

Corrections
In the article “Why I chose a MIGS fellowship,” which appeared in our May, 2019 issue, it was reported that the “American Board of Medical Specialties approved AAGL’s application for a focused practice in minimally invasive gynecology.” This was not AAGL’s application, but a program by the American Board of Obstetrics and Gynecology; therefore, “The American Board of Medical Specialties approved the American Board of Obstetrics and Gynecology’s application for a Focused Practice Designation in Minimally Invasive Gynecologic Surgery.” The editors apologize for this error.

Let us know what you think. Email us at COGEeditorial@mmhgroup.com

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Indication

EXPAREL is indicated for single-dose infiltration in adults to produce postsurgical local analgesia and as an interscalene brachial plexus nerve block to produce postsurgical regional analgesia. Safety and efficacy have not been established in other nerve blocks.

Important Safety Information

EXPAREL is contraindicated in obstetrical paracervical block anesthesia. Adverse reactions reported with an incidence greater than or equal to 10% following EXPAREL administration via infiltration were nausea, constipation, and vomiting; adverse reactions reported with an incidence greater than or equal to 10% following EXPAREL administration via interscalene brachial plexus nerve block were nausea, pyrexia, and constipation. If EXPAREL and other non-bupivacaine local anesthetics, including lidocaine, are administered at the same site, there may be an immediate release of bupivacaine from EXPAREL. Therefore, EXPAREL may be administered to the same site 20 minutes after injecting lidocaine. EXPAREL is not recommended to be used in the following patient population: patients <18 years old and/or pregnant patients. Because amide-type local anesthetics, such as bupivacaine, are metabolized by the liver, EXPAREL should be used cautiously in patients with hepatic disease.

Warnings and Precautions Specific to EXPAREL:

Avoid additional use of local anesthetics within 96 hours following administration of EXPAREL. EXPAREL is not recommended for the following types or routes of administration: epidural, intrathecal, regional nerve blocks other than interscalene brachial plexus nerve block, or intravascular or intra-articular use. The potential sensory and/or motor loss with EXPAREL is temporary and varies in degree and duration depending on the site of injection and dosage administered and may last for up to 5 days, as seen in clinical trials.

Warnings and Precautions for Bupivacaine-Containing Products

Central Nervous System (CNS) Reactions: There have been reports of adverse neurologic reactions with the use of local anesthetics. These include persistent anesthesia and paresthesia. CNS reactions are characterized by excitation and/or depression. Cardiovascular System Reactions: Toxic blood concentrations depress cardiac conductivity and excitability which may lead to dysrhythmias, sometimes leading to death. Allergic Reactions: Allergic-type reactions (eg, anaphylaxis and angioedema) are rare and may occur as a result of hypersensitivity to the local anesthetic or to other formulation ingredients. Chondrolysis: There have been reports of chondrolysis (mostly in the shoulder joint) following intra-articular infusion of local anesthetics, which is an unapproved use. Methemoglobinemia: Cases of methemoglobinemia have been reported with local anesthetic use.

Please refer to brief summary of full Prescribing Information on adjacent page.

FOR MORE INFORMATION, PLEASE VISIT WWW.EXPAREL.COM OR CALL 1-855-RX-EXPAREL (793-9727).

Other than bupivacaine as noted above, EXPAREL should not be admixed with other drugs prior to administration.

Water and Electrolytes
Do not dilute EXPAREL with water or other hypotonic agents, as it will result in dispersion of the suspended particles.

USE IN SPECIFIC POPULATIONS

Pregnancy
Risk Summary
There are no studies conducted with EXPAREL in pregnant women. In animal reproduction studies, EXPAREL has been administered to rabbits during organogenesis at a dose equivalent to 0.1, 0.4, and 1.5 times the maximum recommended human dose (MRHD) of 266 mg. Subcutaneous administration of bupivacaine to rats from implantation through weaning produced decreased pup survival at a dose equivalent to 1.5 times the MRHD.

The possible effects from exposure of the potential for a fetus to the risks of a drug are not known. Studies have not been conducted to determine whether EXPAREL can cause fetal harm when administered to a pregnant woman. In animal reproduction studies, EXPAREL was not teratogenic in rats or rabbits at doses up to 1.3, 5.8, and 22.2 mg/kg/day (equivalent to 0.1, 0.4, and 2 times the MRHD, respectively, based on the BSA comparisons and a 60 kg human weight) and is not mutagenic or cytotoxic. Bupivacaine administered to rats at the doses noted caused an increase in the incidence of fetal resorptions and spontaneous abortions, and a decrease in the number of live-born fetuses. Bupivacaine is known to be substantially excreted by the kidney, and the risk of toxicity from EXPAREL in a renally impaired patient may be substantially higher than normal. EXPAREL should be administered with caution to patients with renal impairment.

The potential sensory and/or motor loss with EXPAREL is temporary and varies in degree and duration depending on the site of injection and dosage administered and may last for up to 3 days as seen in clinical trials.

OVERDOSAGE

Bupivacaine administered together with EXPAREL may impact the pharmacokinetic and/or physicochemical properties of EXPAREL, and this effect is concentration dependent. Therefore, EXPAREL should not be admixed with drugs other than bupivacaine HCl prior to administration.

Admixing EXPAREL with drugs other than bupivacaine HCl prior to administration is not recommended.

Non-bupivacaine based local anesthetics, including lidocaine, may cause an immediate release of bupivacaine from EXPAREL if administered together locally. The administration of lidocaine should not precede the administration of EXPAREL. The administration of lidocaine should be performed by visualizing the anal sphincter as a clock face and slowly infusing each to the end of each of the even numbers to produce a field block.

Regional anesthesia for brachial plexus nerve block
The recommended dose of EXPAREL for interscalene brachial plexus nerve block in adults is 133 mg (10 mL), and is based on one study of patients undergoing either total shoulder arthroplasty or rotator cuff repair.

Compliance Considerations

Different formulations of bupivacaine are bioequivalent even if the milligram dosage is the same. Therefore, it is not possible to convert dosing from one another total shoulder arthroplasty or rotator cuff surgery.

CLINICAL PHARMACOLOGY
Pharmacokinetics

The plasma levels of bupivacaine associated with toxicity can vary. Although concentrations of 2.500 to 4.000 ng/mL have been reported to elicit early subjective CNS symptoms, and concentrations of 4.000 to 6.000 ng/mL have been reported to elicit toxicity at levels as low as 800 ng/mL.

Management of Local Anesthetic Overdose

At the first sign of toxicity, EXPAREL should be administered.

The first step in the management of convulsions, as well as underventilation or apnea, consists of immediate attention to the maintenance of a patent airway and assisted or controlled ventilation with oxygen and a BIS delivery system capable of permitting immediate positive airway pressure by mask. Immediately after the airway is secured, the adequacy of the circulation should be evaluated: keeping in mind that drugs used to treat convulsions sometimes cause respiratory depression or apnea. Should such convulsions persist despite adequate respiratory support, and if the status of the circulation permits, small increments of an ultra-short acting barbiturate (such as thiopental or thiamylal) or a benzodiazepine (such as diazepam) may be administered intravenously. The clinician should be familiar, prior to the use of anesthetics, with the signs of CNS depression and the signs of drugs. Safe treatment of circulatory depression may require administration of intravenous fluids and, when appropriate, a vasopressor dictated by the clinical situation (such as ephedrine to enhance myocardial contractile force).

If not treated immediately, both convulsions and cardiovascular depression can result in hypoxia, acidosis, bradycardia, arrhythmias and cardiac arrest. If cardiac arrest should occur, standard cardiopulmonary resuscitative measures should be instituted.

Endotracheal intubation, employing drugs and techniques familiar to the anesthesiologist, may be indicated, after resuscitative measures are started or if difficulty is encountered in the maintenance of a patent airway if or if prolonged ventricular fibrillation (which is not otherwise controlled) is indicated.

DOSEAGE AND ADMINISTRATION

Important Dosage and Administration Information

• EXPAREL is intended for single-dose administration only.
• Do not use EXPAREL for a single-dose administration even if the milligram strength is the same. Therefore, it is not possible to convert dosing from one another total shoulder arthroplasty or rotator cuff surgery.
• DO NOT dilute EXPAREL with water for injection or any other hypotonic agents, as it will result in dispersion of theisonic particles.
• Use only the EXPAREL diluted with preservative-free normal (0.9%) saline for injection or lactated Ringer's solution within 4 hours of preparation in a syringe.
• Do not administer EXPAREL if it is suspected that the vial has been frozen or exposed to high temperature (greater than 40°C or 104°F) for more than 14 days.
• Inspect EXPAREL visually for particulate matter and discoloration prior to administration, whenever solution and container permit. Do not administer any vial if particulate matter or discoloration is noted.

Recommended Dosing in Adults

Local Anesthesia via Infiltration

The recommended dose of EXPAREL for local infiltration in adults is up to a maximum dose of 266mg (20 mL), and is based on the following factors:

• Size of the surgical site
• Volume required to cover the area
• Individual patient factors that may impact the safety of an amide local anesthetic

As general guidance in selecting the proper dosage, two examples of infiltration dosing are provided:

• In patients undergoing bunionectomy, a total of 106 mg (8 mL) of EXPAREL was administered with 7 mL infiltrated into the tissues surrounding the bunion, and 1 mL infiltrated into the subcutaneous tissue.
• In patients undergoing rotator cuff repair, a total of 266 mg (20 mL) of EXPAREL was diluted with 10 mL of saline, for a total of 30 mL, divided into six 5 mL aliquots, injected by visualizing the anal sphincter as a clock face and slowly infusing each to the end of each of the even numbers to produce a field block.

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Ensuring medications are more affordable without stifling innovation

By now you have likely seen advertisements by the pharmaceutical industry criticizing Trump administration proposals to reduce the high cost of prescription drugs using various strategies that include linking the price that Medicare pays for drugs to that paid by other industrialized countries.¹ In my own state, a modest proposal by the Governor to permit importation of Canadian medications has been met by grim commercials claiming this action would open a floodgate of deadly “contaminated” Chinese drugs. Many of these attack ads remind me of those used to try to block the Obama administration’s Affordable Care Act. When an industry attacks both liberal and conservative policy proposals aimed at restraining health care costs, it is worth carefully examining the issues.

The US pharmaceutical industry is responsible for bringing to market many truly extraordinary drugs that are revolutionizing treatment of common and rare (so-called orphan) diseases but the cost of prescription drugs is bankrupting families and threatening the solvency of both public and private health care financing systems. The first half of this two-part editorial looks at the challenges posed by the high cost of brand-name drugs and the reasons for those numbers. Part two, in a future issue, will review market-based solutions and improved regulatory policies that can make prescription drugs more affordable without stifling innovation.

Economic burden of high medication costs

In 2017, US health care spending was $3.5 trillion or $10,739 per person and consumed 17.9% of our Gross Domestic Product (GDP).² That is twice as much as the average of the next nine highest-spending nations.¹ To place this into context, if we could reduce health care expenditures to 10% of GDP, we would recoup enough money to pay for the country’s entire primary and secondary education system, twice our current defense budget or three times what we spend on public transportation and highways.³ Annual expenditures on pharmaceuticals now account for $500 billion or about 16.7% of total US health care spending and costs for branded drugs are increasing at an unsustainable 15% per year.³ Among the 11 highest income nations, the United States has the highest pharmaceutical spending per capita at $1443 compared with a mean of $749 for all 11 countries, with brand medications accounting for almost all our excess spending.³ In the United States, brand medications represent about 10% of prescriptions but 75% of costs.³ A recent Kaiser Foundation survey reported that 62% of respon-
dents took at least one prescription drug and 24% took four or more. Of the latter, 29% had either not filled prescriptions, skipped doses or taken an over-the-counter drug instead of a prescribed one because of cost and 58% spent more than $100 per month for prescriptions. And although manufacturers of brand and generic drugs are in a high-risk business, their net profit margins are 28% and 18%, respectively, placing them second and fourth in profitability, respectively, among 26 major industrial sectors.

Why are drug costs so high?
Normally the market for commercial products operates in a predictable manner with price reflecting supply and demand curves and intense competition enhancing the value of products. Moreover, consumers generally have access to accurate, understandable, and readily available information about product quality and price. In efficient markets, rational price equilibria are established among producers, wholesalers, retailers, and consumers. But medications are not a rational market (Figure 1). In contrast to traditional markets, in which consumers are the primary decision-makers, patients have little say over prescription drug purchases. Physicians generally determine which drugs are prescribed bound only by the occasional and appealable payor formulary. But most physicians have de minimus knowledge of what a patient will actually pay for a drug.

Next, supply chain intermediaries (i.e., wholesale and retail pharmacies, pharmacy benefit managers, and payers) engage in a complex set of opaque transactions with manufacturers and/or among themselves to set prices. Resultant rebates and discounts permit skimming of profits that together account for 41% of medication costs. Pharmacy benefit managers (PBMs) are supposed to negotiate prices and establish formularies to reduce costs for private insurers and self-insured large employers. But many PBMs operate their own mail-order and retail pharmacies and receive rebates from manufacturers that are not passed on to insurers, employers or patients. Worse, PBM payment algorithms are often linked to the dollar value of the drugs provided (i.e., the higher the price, the more the profit). While PBMs now cover 85% of patients with prescription drug insurance coverage, three PBMs have 73% market

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**FIGURE 1**

Representation of the current private-sector retail market for prescription drugs

Abbreviations: PBM = pharmacy benefit manager

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AFFORDABLE MEDICATION

share, which allows them to extract greater discounts from manufacturers while retaining more of the savings.3

Direct-to-consumer (DTC) marketing also drives up the cost of brand drugs. Because of the complexity of pharmacokinetics, drug interactions, etc., most nations do not permit DTC marketing of drugs. In fact, the United States is one of only two nations in the world (New Zealand is the other) that permits DTC drug advertising.3 In 2015, $5.2 billion was spent on DTC advertising of prescription drugs, the majority on television ads and all of it tax deductible as a business expense.3 Another marketing ploy is the common use of manufacturer rebates or co-pay coupons to encourage patients to accept, request, and occasionally demand high-priced specialty drugs rather than cheaper generics. These coupons selectively increase brand drug sales by 60%.3 Pharmaceutical advertisements and drug representative “detailing” in physician offices are designed to influence physician prescribing patterns. Currently nine out of 10 drug companies spend more on marketing than on research and development.3

Also unique among other nations, US drug makers are free to set the price of their drugs way include an additional 7 years of exclusivity, expedited processing, reduced clinical trial size, and tax credits for development. Despite these advantages or perhaps because of them, the average orphan drug price is 5.5-fold higher than other agents and by 2020, orphan drugs will account for 21% of brand drug sales or $209 billion. Among the top 100 US drugs, orphan drug costs per year were $140,443 vs. $27,756 for non-orphan drugs.3

It is important to bear in mind that many of these orphan drugs are generics that are simply repurposed. Obstetricians will recall that in 2011, the US Food and Drug Administration (FDA) approved exclusive manufacture of 17-hydroxyprogesterone caproate by K-V Pharmaceuticals for 7 years under the Orphan Drug Act and while the compounded version cost $200 per pregnancy, the company initially priced their version at $11,000 per pregnancy.8 Yet another well-meaning but pervasively applied regulation is the 2006 FDA Unapproved Drug Initiative, designed to bring grandfathered medications (i.e., those that entered the market before the FDA’s 1938 enabling legislation) in line with modern standards. Gynecologists may recall that in 2014, the FDA approved vasopressin for hypotension using this law and Par Pharmaceuticals was given exclusive rights to manufacture this 100-year-old drug. Its price quickly soared from $4 to $138 per vial, a 3,141% increase, triggering acute shortages.9 Other drugs with prices and availability similarly adversely impacted by this Act include epinephrine, ephedrine, colchicine, potassium chloride, and

**Also unique among other nations, US drug makers are free to set the price of their drugs**
neostigmine. The latter an 80-year-old drug saw its price increase from $3.25 to $80.50 per vial!

Absence of regulation also poses a challenge. Other nations directly negotiate with drug makers to lower costs. In contrast, Medicare makes coverage determinations based on whether a drug is “necessary and reasonable” not on its costs for Parts A & B, which account for about 40% of Medicare drug costs. While Medicare Part D plans can negotiate prices, they use PBMs and have only 20% lower costs.3 Worse yet, because other nations aggressively negotiate drug prices, many US drug makers sell products outside this country at variable cost but charge Americans a premium to cover fixed, variable, and other costs and to generate hefty profits. Allowing drug imports would create a global market instead of compelling US consumers to subsidize other nations’ drug costs. While the Health and Human Services Secretary has had discretion to allow certain imports since 2000, this has never been done. But permitting drug imports is not a panacea because other countries might limit exports to subsidize other nations’ drug costs. While the Health and Human Services Secretary has had discretion to allow certain imports since 2000, this has never been done. But permitting drug imports is not a panacea because other countries might limit exports to subsidize other nations’ drug costs.

Suppression of generic competition and generic market distortions

The ability of generic drug manufacturers to compete with brand drug makers can have a dramatic effect on drug prices. On average, the transition to generic status reduces a drug’s cost by 70%.3 However, while generics represent 90% of prescriptions, they account for only 25% of drug costs. Brand drug makers seek to delay the transition to generics by engaging in “product hopping,” the practice of slightly modifying existing drug formulas to obtain new patents and then “ever-greening,” extending exclusivity by removing the original drug from the market. For example, since the 1980s, drug makers have tweaked versions of insulin that act for either a short or long duration, patenting these innovations along the way such that there are no current generic versions.10 This strategy has led to high prices, large profits, and acute shortages of insulin.

Brand drug makers can also deny potential generic competitors access to their patented drugs for comparison studies required by the FDA to establish equivalence. Some brand drug makers pay potential generic drug makers to delay production, so called “pay-to-delay” or, as noted, incentivize patients to buy higher-priced brand drugs instead of generics through co-pay coupons.

But even after a brand drug goes off-patent and generic competition begins, distortions in the market can lead to price gouging. FDA backlogs and high regulatory costs can delay and/or limit other generic drug competitors from entering the market, creating monopolies and drug shortages. The Government Accounting Office (GAO) reports that more than 50% of generic drugs are now produced by a single company.3 Where competition exists, price fixing may occur with the GAO reporting 315 instances of generic drug price increases of more than 100%, and 48 of 1,411 drugs increasing price

While generics represent 90% of prescriptions they account for only 25% of drug costs.
March for Moms holds third national rally

Marking its third anniversary of working to improve the wellbeing of American mothers, March for Moms rallied on the National Mall in Washington, DC, on May 11. Contemporary OB/GYN was there as speaker after speaker underscored how much work is needed to address the rising maternal mortality rate in the United States.

As noted by the rally organizers, the United States has the highest maternal mortality rate of any industrialized country and more than 50% of maternal deaths are preventable. Poor access to care, inadequate prenatal care, maternal comorbidities, and racism all contribute to these outcomes.

For more information about the event, please go to contemporaryobgyn.net/MarchforMoms

Charles S. Johnson IV speaks about his late wife, Kira. For more about their story, visit contemporaryobgyn.net/NewNormal

In this month’s Medical News Minute, Dr. Bobby Lazzara discusses the associations between ranges of gestational weight gain and maternal and infant outcomes.

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MIGS services that can take an ob/gyn practice to the next level

Is HPV co-testing really the best screening option?

Antibiotic use and CVD risk

How popular are e-cigarettes with pregnant women?
Gynecologic ultrasound primer
How not to miss the diagnosis

An expert in ultrasonography offers a five-step approach to using imaging effectively to deliver high-quality patient care.

by BERYL R. BENACERRAF, MD

The combination of imaging, history, and physical examination that comes from direct interaction can minimize the probability of missing clinically important findings. Unfortunately, usual practice patterns in the United States can fail to take advantage of these opportunities.1-3 Gynecological ultrasound often involves a remote encounter with images read out of context by someone who did not speak to or examine the patient and possesses scant case-specific clinical information. In addition, despite attempts to standardize gynecologic ultrasound, the images obtained depend highly on the person who actually performed the scan.4 This consideration renders gynecological ultrasound much more operator-dependent than computed tomographic or magnetic resonance imaging studies.

Beyond the ability to combine history and physical exam with imaging, many exciting new (and old) features of the ultrasound apparatus discussed here should be implemented on each and every scan but are frequently omitted or forgotten. This article will show, step by step, how to perform a comprehensive ultrasound examination that focuses on the patient’s clinical problem, to optimize the ability to arrive at the best diagnosis. Interpreting images in isolation from the patient, as is done in many centers, can limit the ability to make the correct diagnosis.

DR. BENACERRAF is clinical professor of obstetrics, gynecology, and radiology at Brigham and Women’s Hospital, Harvard Medical School, Boston, Massachusetts.
STEP 1
Talk to the patient
Ask the patient to describe her symptoms.
Little if any relevant information is typically provided on ultrasound orders. Many patients imaged because of pelvic pain can provide so much more information when interviewed. How long ago did the pain start? Is it intermittent, cyclical, sharp, dull, crampy, what brings it on or makes it better? Is the patient on hormones? What is her menopausal status, obstetrical history, past surgery and medical histories, etc? If the issue is abnormal bleeding, the same sort of questions apply, in addition to timing and duration of bleeding, possibility of pregnancy, and associated cramping.

STEP 2
Perform the exam in real time
Do not miss the opportunity to combine imaging and physical exam
Armed with the information from interviewing and listening to the patient, the practitioner can perform imaging with a focus on the patient’s clinical problem. The ability to do a real-time examination both by palpation and imaging is one of the most important innovations in modern pelvic ultrasound. The transvaginal scan is the mainstay of the ultrasound examination and always includes photographing the components predicated by American Institute of Ultrasound in Medicine (AIUM) guidelines.

Most of the exam should then be tailored to the patient’s symptoms, providing a simultaneous physical examination and imaging of the pelvis. Supplemental views obtained transabdominally may also reveal “high-riding” pedunculated fibroids or masses. If the patient presents with pain, sliding the pelvic organs past each other with gentle palpation is essential to diagnose adhesions in the cul de sac or endometriosis restricting mobility of the organs. Tenderness-guided ultrasound is a very effective way to localize implants of endometriosis, deep infiltrating endometriosis, and adhesions as the cause of the patient’s pain. The small nodules in the muscularis of the rectosigmoid and rectovaginal septum are easily missed without these maneuvers and yet often are the source of long-term pelvic pain (Figure 1). Ovarian endometriomas represent only a small portion of the endometriosis that causes intense pain and the small implants typically remain undetected with standard imaging.

Slight pushing on the organs (sometimes also with the free hand) can aid in deciding the etiology of a mass. A patient presented to our lab for an adnexal mass detected on ultrasound done elsewhere. By gently attempting to move the mass past the uterus or the ovary, we were able to show that the diagnosis was pedunculated fibroid tethered to the uterus and not an ovarian mass. Furthermore, once we have ascertained that the mass is uterine in origin, further effort to locate the ovary on that side is often fruitful. (Figure 2). Other examples where moving organs is key is in the detection of an ectopic pregnancy or tubal lesion separate from the ovary.
Most of the exam should be tailored to the patient’s symptoms providing a simultaneous physical examination and imaging of the pelvis.

**STEP 3**

**Leverage color in imaging**

**Combine vascular and morphologic imaging**

Ultrasound offers a unique ability to combine grey scale and vascular imaging. This combination provides information about the morphology as well as the vascularity of a mass.\(^1\),\(^2\) Many cystic adnexal masses are described as “complex masses” during standard ultrasounds. Unfortunately, the word “complex” does not provide any specific information regarding the etiology of the mass since a cancer and a hemorrhagic corpus luteum can both be labeled complex masses. Color Doppler imaging can map out the vascularity of the mass and demonstrate either circumferential ring-of-fire type flow of the corpus luteum or abundant internal vascularity as in an invasive tumor (Figures 3-5).\(^3\)

Clot in a hemorrhagic cyst is avascular as is a dermoid and an endometrioma (other than the rim). A solid mass, such as a malignancy, may have abundant blood flow or there may be a paucity of flow with linear shadowing, as in ovarian fibromas (Figure 6). Color flow mapping must be applied to any cyst or mass to prevent lost opportunities for a precise diagnosis.\(^4\) Color flow Doppler is also essential when considering the diagnosis of ovarian torsion. When evaluating the tubo-ovarian region, the “torsed” pedicle appears as a whirlpool of color between the ovary and the uterus (Figure 7).\(^4\)
STEP 4
Use 3D volume imaging
Evaluate the uterus and adnexa in a reconstructed coronal view
The best view of the uterus for evaluating the shape of the uterine cavity, the serosal surface as well as both cornu and cervix simultaneously is coronal orientation of the uterus, obtainable only upon reconstructing an image from an ultrasound volume. (Figure 8). Both computed tomography (CT) and magnetic resonance imaging (MRI) are examples of volume imaging techniques that can produce hundreds of images in multiple orientations from one volume acquisition; however, now that ultrasound has similar capabilities, there is less need for these more costly and potentially risky tests. For so long, ultrasound was relegated to imaging in 2D only, taking one photograph at a time and without the capability of displaying any reconstructed planes. This situation has changed completely and most high-end ultrasound machines now offer 3D ultrasound capability. This advance has transformed our ability to diagnose Müllerian duct anomalies, and to localize intrauterine devices (IUDs), fibroids, and polyps accurately (Figures 9 and 10). Several studies have shown that routine use of 3D in gynecologic images provides additional information to the 2D imaging in 25% to 30% of all patients undergoing pelvic sonography, especially those presenting with infertility and any endometrial or myometrial abnormality on 2D. Studies have also demonstrated that the accuracy of 3D ultrasound diagnosis of Mullerian duct anomalies exceeds 98% and is more specific compared to MRI. With the advent of IUDs for hormonal treatment, patients present frequently with pain or bleeding from displaced IUD. This situation is easily detected on the reconstructed coronal view of the uterus, but is often not seen accurately on 2D imaging.

Now that ultrasound has similar capabilities, there is less need for more costly and potentially more risky CT and MRI tests.
are confusing to diagnose accurately because only a few planes of section are available in standard 2D ultrasound. Hydrosalpinges are almost never confined to one plane, hence they are frequently mistaken for ovarian multilocular cystic masses (Figure 11). The 3D inverse view can demonstrate all the cystic portions of the volume as a cast and effectively show the tubular configuration of a hydrosalpinx using multiple imaging planes.

STEP 5 Broaden the view
Consider non-gyn diagnoses in the pelvis
When performing a pelvic ultrasound, the AIUM guidelines focus on acquiring the standard views of the uterus, cervix, adnexa, and ovaries and it is easy to overlook the other non-gynecologic structures that also localize in the pelvis, such as the appendix, the sigmoid colon and the ureters (Figures 12 to 14). It is not uncommon to be asked to provide a second opinion on the tubular fluid collection thought to be a hydrosalpinx, and to discover it is an inflamed appendix or a mega-ureter. Patients with acute pelvic pain may have diverticulitis or appendiceal abscess. The hallmark of an inflammatory process involving bowel is presence of air inside the mass and hyperechoic pericolic fat surrounding the mass (Figure 13). Asymptomatic masses in the posterior aspect of the pelvis may represent Tarlov cysts, which are perineural cysts originating from the neural foramina in the sacrum that cause a mass appearance in the lat-
eral aspects of the pelvis (Figure 15). They are often bilateral and mistaken for adnexal masses.\textsuperscript{24}

**Conclusion**

Returning to the question: Why are so many diagnoses missed by gynecological ultrasound and why the extreme variation in quality of pelvic ultrasound throughout the country? The essential part of doing a pelvic ultrasound is to combine it with the physical examination and tailor the imaging to the patient’s problem. Combining the physical exam, a thorough history, and imaging, including the mapping of blood flow and multiple planes of section, provides an unprecedented powerful opportunity to make an accurate diagnosis. No other noninvasive diagnostic imaging technique provides such a valuable chance to combine these techniques and even use the vaginal transducer itself as a probe to assess the location of pain and adhesions within the pelvis. Pelvic sonography, when performed without the assistance of these essential adjuncts, yields imaging and interpretation of images that someone else took, and in isolation from the clinical setting, falls short of providing the best possible care to our patients. ■

**DISCLOSURES** The author reports no potential conflicts of interest with regard to this article.

**FOR REFERENCES VISIT** contemporaryobgyn.net/GynecologicUltrasound

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**FIGURE 12** Appendiceal lesions (left). Tubular cystic lesion (calipers) in the right adnexa thought to represent a hydrosalpinx on an ultrasound done elsewhere. The uterus and ovaries were normal. This was an appendiceal mucocele.

Right. An ill-defined mass in the right adnexa, containing pockets of air (arrows). This patient presented with acute right lower quadrant pain and was diagnosed with an appendiceal abscess.

**FIGURE 13** Diverticulitis resulting in a tuboovarian abscess
This patient presented with acute left lower quadrant pain. The adnexal mass is solid (large arrows) but hypoechoic. There is a very echogenic rim on the side closest to the transducer (small arrow) that represents the inflamed pericolic fat often associated with bowel lesions.

**FIGURE 14** Congenital megaureter
This patient was sent for a second opinion because this tubular lesion was thought to be a hydrosalpinx. Upon observation, the lesion seemed to undergo peristalsis vigorously and the patient was discovered to have a congenital megaureter on prior history.

**FIGURE 15** Tarlov cyst
This cystic lesion was seen incidentally in the posterior aspect of the pelvis. The uterus and ovaries were normal. Note the lack of any blood flow inside the lesion. There was a similar mass on the opposite side, consistent with Tarlov perineural cysts. These are often mistaken for adnexal masses.

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*For more abnormal ultrasound images check out* contemporaryobgyn.net/GYN-US-IMAGES.
Get ready for questions on measles booster

by RACHAEL ZIMLICH, RN, BSN

As measles cases continue to climb nationwide, mainstream media outlets are raising the alarm for boosters of the measles vaccine—now a part of the measles, mumps and rubella (MMR) vaccine.

While some patients may turn to Dr. Google for advice, others will hopefully turn to their own physicians for guidance on measles vaccination and boosters.

According to the Centers for Disease Control and Prevention’s (CDC) press office, there have been no official updates to the measles management protocol since 2013. MMR was and still is recommended as a routine childhood vaccination to provide the best protection, but even in 2013 officials suggested booster doses of the vaccine for certain populations.

In terms of measles, this includes adults born after 1957 who were vaccinated with just one vaccine dose or those who were not vaccinated with the live version of the vaccine.

Individuals who received two doses of the live vaccine in childhood are protected for life and don’t require any boosters for measles immunity, CDC notes, but individuals who received just one initial vaccine or a killed formulation should receive a second dose unless they have evidence of immunity.

So far this year, 839 cases of measles have been reported in 23 states, representing the highest number of cases since 1994, according to CDC. There were 17 outbreaks recorded in 2018.

Prior to the start of the measles vaccination program in 1963, roughly 3 to 4 million people got the measles each year, up to 500 of those patients died, and numerous others were left with lasting effects of the disease.

Widespread vaccination in childhood has resulted in a 99% reduction in measles cases in the country, with the United States having declared measles eradicated in 2000.

Since then, some cases have been imported, and a number outbreaks have been traced to pockets of unvaccinated individuals across the country.

Sterling N. Ransone, Jr., MD, FAAFP, a director of the American Academy of Family Physicians, noted that the MMR vaccine is safe for breastfeeding mothers. It is not yet standard of care to measure measles IgG as part of routine prenatal care, however, because the disease was thought to be eradicated. During a measles outbreak, however, it is certainly reasonable to use history or serology during a prenatal visit to determine whether a mother is immune and then treat her accordingly.

Sarah J. Kilpatrick, MD, PhD is Helping Hand Endowed Chair, Department of Obstetrics and Gynecology, Cedars-Sinai Medical Center Los Angeles, Calif.

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Barriers to abortion training in ob/gyn residency

by Judith M. Orvos, ELS

Since 1995, training or access to training in abortion has been mandated by the Accreditation Council for Graduate Medical Education (ACGME) as part of the core curriculum for ob/gyn residents. But on a new survey of ob/gyn residency directors, more than one-third said their programs did not routinely provide education in that area.

Published in the American Journal of Obstetrics and Gynecology, the findings are from a study by researchers from the University of California, San Francisco. Nearly 80% of respondents to the nationwide survey said they faced institutional or government restrictions on abortion training. The most common strictures were related to hospital policy, followed by state law, but in many cases, the barriers were multiple.

Of the 242 ob/gyn residency program directors in the United States, 190 (79%) responded – 30% from the northeast, 30% from the south, 23% from the midwest and 16% from the west. The survey consisted of 74 multiple-choice, open-ended, and quantitative questions, including information on participation in the Ryan Program, which provides support for initiating and institutionalizing abortion training. Respondents who said training was restricted at their institutions were also asked which procedures were limited, in what ways, and by whom.

Of the 121 program directors (64%) who said they offered routine abortion training, 57% reported some institutional or state-imposed restrictions. Of those who said they offered routine abortion training, 57% reported some institutional or state-imposed restrictions.

With an increasing number of states limiting access to abortion, contraceptives, and primary care, it is even more imperative that ob/gyn residency programs include training in managing and recognizing abortion complications. Women who do not have access to safe local reproductive care may be further along in pregnancy when they seek abortions, leading to increased risk of complications. The result of all this, ironically, may be more unplanned pregnancies, which is the opposite of what states limiting abortion access want. We should heed the findings of this report and do everything we can to make sure our ob/gyn residents receive the required training in abortion care.

Sarah J. Kilpatrick, MD, PhD is Helping Hand Endowed Chair, Department of Obstetrics and Gynecology, Cedars-Sinai Medical Center Los Angeles, Calif.
Antibiotic prophylaxis and operative vaginal delivery

by BEN SCHWARTZ

The World Health Organization (WHO) currently does not recommend routine antibiotic prophylaxis for women undergoing operative vaginal birth because of insufficient evidence of effectiveness. But results of a new study in The Lancet may compel a change to that guidance.

Twenty-seven UK obstetric units participated in the blinded randomized controlled trial. Women aged 16 or older who had undergone operative vaginal birth at ≥ 36 weeks' gestation were randomized to a single dose of intravenous amoxicillin and clavulanic acid or placebo. The primary outcome was confirmed or suspected maternal infection within 6 weeks of delivery based on a new prescription of antibiotics for specific indications, confirmed systemic infection on culture or endometritis.

Of the women, 1715 were given amoxicillin and clavulanic acid and 1705 received placebo. Primary outcome data were missing for 195 women (6%). Baseline characteristics in both groups were similar. Seventy-seven percent of the women were primiparous and 49% had induction of labor. In addition, 13% of the participants had ruptured membranes for more than 24 hours before giving birth. Sixty-five percent of the births were by forceps and 35% were by vacuum extraction.

The authors found that women in the amoxicillin and clavulanic acid group had significantly fewer confirmed or suspected infections (180 of 1619 [11%]) than those in the placebo group (306 of 1606 [19%]; risk ra-

EXPERT PERSPECTIVE The role of infections/sepsis in postpartum complications is well known. It is clear that coverage with prophylaxis at C-section decreases infectious complications. In the search for other markers for possible intervention this Lancet article looks at operative vaginal deliveries. It is unclear if this can be extrapolated to the United States given our higher rate of vacuum use rather than forceps. The majority of the infectious complications were perineal infections and pain. However, the participants in the study had an 89% rate of episiotomies. The question then becomes whether the episiotomy or the operative vaginal delivery is the risk factor that explains the benefit of antibiotic prophylaxis. I am not sure of the answer.

Sharon T. Phelan, MD is Professor, Department of Obstetrics and Gynecology, University of New Mexico, Albuquerque
tio 0.58, 95% CI 0.49–0.69; \( P < .0001 \). Adverse events were minimal in both groups. One woman in the placebo group reported a skin rash and two women in the amoxicillin and clavulanic acid group reported allergic reactions.

The authors say their findings show that antibiotic prophylaxis can significantly reduce incidence of infection after operative vaginal delivery while cautioning that ob/gyns do need to counsel their patients about possible allergic reactions. They suggested that WHO and other organizations adapt their guidance to reflect the benefits of antibiotic prophylaxis in this delivery setting.

Ben Schwartz is the associate editor of Contemporary OB/GYN.

**SOURCE**


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**Questions on measles** CONTINUED FROM PAGE 20

Academy of Family Physicians and a practicing family physician in Delta-ville, Va., said there is also a push to increase surveillance of healthcare workers, particularly those born between 1957 and 1970 who may not have full immunity against measles due to having only one vaccination.

While some healthcare facilities may test titers during pre-employment screening, not all do, Ransone said. The concern then becomes what to do during an exposure, he said. Titers are typically drawn in any cases of exposure, he said, but those results take time, and healthcare workers are removed from frontline care for three weeks after receiving a measles vaccination.

Adults who are uncertain about their measles vaccination status should first try to find their immunization records or evidence of immunity, according to CDC. Without written documentation of the vaccination, CDC suggests revaccination or that titers be drawn to test immunity. Additionally, adults who know they were vaccinated with the killed formulation of the measles vaccine should be revaccinated with the current live MMR vaccine.

According to CDC, this is actually a small group of individuals—less than 1 million people were given the killed vaccine between 1963 and 1967—but it’s unlikely that individuals born in this period were informed either way of which vaccine formula they received.

Again, CDC suggests titers be drawn, or that the current MMR vaccine be administered, with the agency noting that an additional dose of the vaccine would not cause harm. In cases where revaccination is required, immunity takes 2 to 3 weeks after vaccination to develop, according to CDC. Even individuals who are fully vaccinated still run a small chance of contracting measles if exposed, CDC noted, but this chance is small and any infection would result in a milder form of the illness.

One recommendation that has changed for MMR vaccination, however, is the need for a booster dose for protection against mumps. Mumps cases are at their highest in a decade, with 736 cases in 41 states already in 2019. Cases have been rising since about 2015, according to the CDC, with the largest jump in cases among adults aged 18 to 22. Many outbreaks are centered at universities, and recent studies have suggested there is evidence of waning immunity and suboptimal initial vaccine effectiveness. A third dose of the MMR vaccine has been suggested for years by CDC’s Advisory Committee on Immunization Practices and researchers, but the committee had stopped short of offering a blanket endorsement of the additional dose.

A third dose, suggested by many to boost immunity in outbreak clusters, was finally endorsed by ACIP in 2018, but in this year’s vaccine schedule, ACIP returned to its previous position of leaving the decision to local health departments.

Additional recommendations on the MMR vaccine—but in regard to measles—could still be forthcoming, with CDC and ACIP expected to release interim adult guidance on measles vaccination in the coming days.

Rachel Zimlich, RN, BSN is a freelance writer and also works at the Cleveland Clinic.
Pruritus, pain and fissures in a 65-year-old woman

What is your diagnosis when you see vulvar fissures?

by ROSALYN E. MABEN-FEASTER, MD, MPH, JOHN O. DELANCEY, MD, AND HOPE K. HAEFNER, MD

HISTORY

A 65-year-old woman with a history of well-controlled vulvar lichen sclerosus presents to your clinic with acutely worsening vulvar pruritus and pain that feel like paper cuts. She has been using topical triamcinolone 0.1% regularly without improvement. Examination reveals the findings seen in Figure 1.

WHAT IS THE MOST LIKELY DIAGNOSIS?
A. Lichen sclerosus flare
B. Vulvar candidiasis
C. Vulvovaginal atrophy

WHAT TEST(S), IF ANY, SHOULD YOU CONSIDER?
A. Wet preparation (saline and 10% KOH)
B. Yeast culture, and if positive, identification of species
C. Vulvar biopsy
D. A&B

WHAT PERCENT OF PATIENTS EXPERIENCE AT LEAST ONE EPISODE OF THIS DIAGNOSIS?
A. 10%
B. 25%
C. 50%
D. 75%

FOR THE DIAGNOSIS, TREATMENT PLAN, AND DISCUSSION TURN TO PAGE 26
**Pruritis, pain and fissures**

**Diagnostic Test:**
B. Vulvar candidiasis

**Test to Consider:**
D. Wet preparation and yeast culture

**Percent Affected:**
D. 75%

**Discussion**

Figure 1 demonstrates vulvar fissures, which are linear erosions (loss of epithelium) that can be seen in a number of vulvar diseases, including lichen sclerosus, *Candida* infections, herpes simplex virus infections, lichen simplex chronicus (itch-scratch), Crohn’s disease, or tearing from the genitourinary syndrome of menopause.1,2 Patients with vulvar fissures often describe them as stinging or burning pain that feels similar to a paper cut.3 In this patient’s case, we are drawn away from a lichen sclerosus flare as the diagnosis given the fact that she was previously well-controlled on topical corticosteroids. Long-term studies have demonstrated that topical corticosteroids are safe for lichen sclerosus and decrease the chance of developing cancer if used regularly.3,4 However, we know that these drugs can increase risk of infections, especially *Candida*.1,3 Thus whenever patients with lichen sclerosus do not respond or are no longer responding to therapy for lichen sclerosus, you should consider other causes of their worsening symptoms, such as infection or coexisting vulvar conditions.1

The first step in evaluation of this patient would be to obtain a sample for a wet preparation with saline and 10% KOH and consider a yeast culture (identify the species if positive).1,5 The advantage to performing direct microscopy is that you can obtain an immediate diagnosis. However, yeast is missed on 50% of wet mounts. So, if the wet prep is negative, or the patient has not responded to prior antifungal treatments, a yeast culture to identify the species and guide your treatment should be considered. Yeast cultures are most helpful in recurrent or resistant infections.

**Vulvar candidiasis**

Up to 75% of all women will have at least one episode of vulvovaginal candidiasis with 10% to 20% of women being classified as having complicated infections.6 Complicated infections are defined as those that are recurrent, severe, or that occur in patients with diabetes or who are immunocompromised.4 Most commonly candidiasis is caused by *Candida albicans* but other species can also be identified, including *C. glabrata* and *C. krusei*, which can be resistant to first-line therapies.1,5,6 Risk factors for developing this fungal infection include recent antibiotic usage, incontinence, obesity, diabetes mellitus, and immunosuppression (including local topical steroid use).1,5

Most commonly, patients present with vulvar pruritus and may have thick white vaginal discharge.5,3 On examination you may also see vulvar...
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Vulvar candidiasis

Fissures, excoriations, and erythema. The diagnosis is confirmed via vaginal pH measurement (from the lateral side wall of the vagina) and wet mount. Classic microscopic findings include pseudohyphae (Figure 2). As mentioned above, a yeast culture may be beneficial in cases of recurrent or resistant infections, defined as four or more infections per year, or infections that are unresponsive to treatment. We would recommend treating this patient for complicated vulvovaginal candidiasis given her topical corticosteroid use. Treatment can be topical or oral. Topical treatments to the vulva include miconazole nitrate 2% cream twice daily for up to 7 days or nystatin ointment 100,000 units/gram two to three times per day for up to 7 to 14 days. Intravaginal antifungal treatment (numerous azole medications are available) should be given along with the topical treatment to the vulva. Oral treatments include fluconazole, 150 mg for every 72 hours for three doses, before starting a maintenance antifungal regimen. For recurrent infections, weekly fluconazole can be used for up to 6 months.

For additional information, a yeast app is available in the app store (type in ISSVD). This app was developed by the International Society for the Study of Vulvovaginal Disease with an unrestricted educational grant from Prestige, Inc., manufacturers of Monistat. The company had no input into the app content, or development of treatment recommendations.

Lichen sclerosus

This is a chronic inflammatory condition of the skin that is likely autoimmune in nature. Patients typically present with vulvar pruritus, burning or pain with intercourse. They may also be asymptomatic. Lichen sclerosus is characterized by classical skin changes, which include whitening of the skin that can be scattered or diffuse with atrophy and a cigarette paper/cellophane appearance. Often the condition manifests in a figure of eight pattern around the vaginal opening and anus. There may also be thickened areas and fissuring. Vulvar biopsy confirms the diagnosis although the clinical appearance can be utilized as well.

As mentioned previously, treatment is with topical corticosteroids. For lichen sclerosus, clobetasol 0.05% cream is used up to twice daily for 1 month followed by daily for 2 months and then the patient is maintained on topical triamcinolone 0.1% ointment daily. An alternative regimen is to treat as above, for 3 months with clobetasol 0.05% ointment, then use clobetasol 0.05% ointment three times weekly long term.

Vulvovaginal atrophy

A decrease in circulating estrogen that comes with menopause results in thinning of vaginal epithelium. This increases the likelihood of erosions and secondary infection. Patients often present with complaints of dryness, pruritus, and dyspareunia. Erosions or fissuring from friction may be seen. The diagnosis is made based on the clinical appearance of the vaginal mucosa and vulvar skin. On wet preparation, you would see parabasal cells (small, round, immature epithelial cells), elevated vaginal pH (greater than 4.5) and loss of lactobacilli. First-line treatment is the use of lubricants. Patients who do not respond to this therapy may benefit from a trial of local estrogen therapy, ospemifene, or prasterone.

Disclosures
Hope K. Haefner, MD, is on the advisory board of Prestige, Inc.

For references visit contemporaryobgyn.net/vulvar-candidiasis

Irregular vulvar mass in a postmenopausal woman

Do you know how to differentiate precancerous from cancerous vulvar lesions? contemporaryobgyn.net/ IrregularVulvarMass

Vulvar pruritus in postmenopausal woman

The patient states she has had a 4-month history of worsening vulvar pruritus. contemporaryobgyn.net/vulvar-tests

Dysuria, painful lesions in 26-year-old woman

A 26-year-old G0 comes to the office complaining of dysuria and painful lesions on her vulva. contemporaryobgyn.net/201804quiz
Asherman’s syndrome, also known as intrauterine adhesions (IUA) and intrauterine synechiae, was first described in the late 19th century and further elucidated in two case series by Israeli physician Dr. Joseph G. Asherman as “amenorrhea traumatica.” Classically Asherman’s described complete obliteration of the uterine cavity by adhesive disease leading to amenorrhea; however, the term is now commonly applied to all patients whose adhesive disease process is symptomatic. Symptoms vary and can include hypomenorrhea or amenorrhea, infertility, recurrent pregnancy loss, and dysmenorrhea.

The true prevalence of intrauterine adhesions is unknown because invasive imaging studies or hysteroscopy such as saline infusion sonography (SIS), hysterosalpingogram (HSG), or hysteroscopy are required for diagnosis. These imaging studies are generally performed to evaluate patients that already have at least one symptom of Asherman’s syndrome. There are likely a significant proportion of additional patients with intrauterine adhesions who are asymptomatic or not concerned with their hypomenorrhea. Given these factors, the closest estimate of a baseline prevalence is approximately 1.5%, based on incidental HSG diagnosis. Once a previous uterine procedure is included in the query, disease prevalence rises sharply.

Risk factors
In general, most intrauterine adhesions are thought to be secondary to traumatic instrumentation of the uterus. While not all instrumentation leads to adhesion formation, certain factors increase risk. Women in the late peripartum and postpartum period are particularly at risk, and the elevated risk can last up to 4 weeks following either delivery or miscarriage, presumably related to a patient’s hypo-estrogenic state. A 2013 meta-analysis found that the pooled risk of intrauterine adhesions (IUA) was 19.1% in women with hysteroscopic evaluation within 1 year of miscarriage. Multiple miscarriages or procedures increase this risk. Additional risk factors include direct apposition of resected pathological tissue, such as trocar placement and cannula aspiration, endometrial curettage, curettage for retained products of conception, previous uterine surgery (e.g., myomectomy, tubal ligation, and hysterectomy), and in utero exposure to radiation. Patients with a history of intrauterine device (IUD) use and history of pelvic inflammatory disease (PID) may also be at higher risk.

Minimizing intrauterine trauma is the key to prevention of adhesions but treatment is possible when they occur.
as in a hysteroscopic myomectomy with multiple fibroids, septum resection or metroplasty, and uterine compression sutures (Tables 1 and 2). Although rare in North America, tuberculosis is the only known infectious cause of IUAs. In a 1982 Israeli retrospective review, tuberculosis accounted for 4% of the Asherman’s cases. Currently, there is no evidence showing that either postpartum or chronic endometritis leads to Asherman’s syndrome. Generally, adhesions are formed when the fibrin matrix originally laid down during the first stage of wound healing is not appropriately removed. If normal fibrinolysis does not occur, scar tissue forms between two opposed surfaces. Uterine adhesions occur when the basalis layer of the endometrium or myometrium is damaged. The resulting adhesions can range from thin and filmy to dense and fibrotic. Loss of the basalis layer of the endometrium without formation of adhesive disease is referred to as “Unstuck Asherman’s” or endometrial sclerosis, and patients with it can present with many of the same symptoms. Asherman’s symptoms are caused by mechanical blockage of menstrual shedding, or decreased vascularity of the adhesive disease relative to normal endometrium.

**Diagnosis**

The gold standard for diagnosis of IUA is hysteroscopy. SIS and/or HSG are often used in initial workup of patients with Asherman’s and they have high sensitivity but low specificity. Pelvic sonography without use of a distention media is of limited use, however, a very thin or interrupted endometrial stripe may suggest injury to the basalis layer. Lack of withdrawal bleeding following estrogen and progesterone challenges should trigger hysteroscopic evaluation in patients with an appropriate history. A pelvic exam should be performed in initial evaluation patients with symptoms, but it is generally of limited value for this diagnosis. We have found that in patients being evaluated for amenorrhea, a complaint of catamenial pain and/or thickened fundal stripe or hematometria on ultrasound tend to be associated with a better prognosis.

At least seven separate and distinct classification systems exist for IUAs, and the system proposed in 1978 by Marsh et al is probably best known. It classifies adhesions into three categories—minimal, moderate, and severe—based on hysteroscopic findings (Table 3). A widely used scientific classification set forth in 1998 by the American Fertility Society (now the American Society for Reproductive Medicine [ASRM]) includes sequela of adhesions as well as the extent of adhesions. It also allows for classification based on findings from HSG and hysteroscopy (Table 4). Currently, there is no single commonly agreed upon classification system, nor is there an existing recommendation for a unified system from AAGL, the International Federation of Gynecology and Obstetrics (FIGO), or the American College of Obstetricians and Gynecologists (ACOG).

We advocate use of cold scissors to avoid thermal injury to the endometrium and minimize recurrent scarring.
Primary treatments

Hysteroscopic lysis of IUAs is the primary initial treatment in patients with Asherman’s syndrome who have symptoms. However, expectant management, particularly in the absence of symptoms, is a reasonable option. A single study demonstrated subsequent pregnancy in close to 50% and resumption of menses in more than three-quarters of women managed expectantly. There are no data to suggest a benefit from hormonal management alone in treatment of Asherman’s, but in patients who no longer desire fertility, gestational therapy can be used to suppress menses and decrease catamenial pain.

Prior to the advent of hysteroscopy, blind approaches were the standard of care. This included cervical probing and dilation and curettage. Outcomes were only slightly better than those in patients managed expectantly. These modalities are no longer recommended. Hysteroscopy allows for both diagnosis with classification, and treatment. The primary treatment of filmy adhesions can often be accomplished with blunt dissection using the diagnostic hysteroscope. For anything more than minimal, filmy adhesions, operative lysis should be performed. While hysteroscopic adhesiolysis has been described using radiofrequency needles or loops and the YAG laser, we strongly advocate use of cold scissors to avoid thermal injury to the endometrium and minimize recurrent scar formation (Table 5). Lysis can be performed under transabdominal ultrasound guidance if a patient has cervical adhesions or normal anatomic landmarks cannot be visualized.

In cases of complete cavitary obliteration, many techniques have been described, but there is no standard of care. In general, these techniques involve creation of a neo-cavity under visual guidance by either fluoroscopy or sonography. We recommend priming the patient with a course of estrogen to better delineate any remaining portions of endometrium and then performing dissection under ultrasound guidance. In our opinion, there is no role for laparotomy or laparoscopy in initial treatment of Asherman’s.

Secondary prevention

Primary hysteroscopic adhesiolysis typically leads to some level of adhesion reformation. Strategies for secondary prevention are of the utmost importance in any treatment plan and numerous approaches are well described. The theoretical and intuitive benefit of estrogen for endometrial proliferation and healing has led to near universal use of supplementation with the hormone following initial treatment. However, there are no published trials specifically comparing estrogen supplementation to expectant management after initial surgery. A meta-analysis of studies that included estrogen for secondary prevention showed no harm and suggested some benefit, but there is no high-quality evidence to strongly support estrogen use. There is also no consensus on type, dosage, or duration of therapy.

### TABLE 2

<table>
<thead>
<tr>
<th>Setting</th>
<th>Procedure</th>
<th>Incidence (%)</th>
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<td>Schenker and Margalioth</td>
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<tr>
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<td>32</td>
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Abbreviations: D&C, dilation and curettage; POC, products of conception; PPH, postpartum hemorrhage; SAB, spontaneous abortion.
ration of estrogen treatment following primary surgical management. A meta-analysis looking at pooled results of post-adhesiolysis treatments suggests that estrogen use after initial treatment may be beneficial and does not appear harmful.17 We therefore continue to advocate for unopposed estrogen for a period of time following treatment when not contraindicated.

**Stents**

Stents of many types have been used in an effort to prevent reformation of scar tissue across the endometrial cavity following primary treatment. These include solid barriers such as intrauterine devices (IUDs), Foley catheters, Cook Balloon Uterine Stents, and amnion graft or gel matrix such as hyaluronic acid.

IUDs have historically been used as a mechanical barrier between the walls of the uterus following hysteroscopic adhesiolysis, but they have fallen out of favor because of difficulty obtaining an inert IUD. Both the pro-inflammatory copper IUD and endometrial-suppressing levonorgestrel-releasing intrauterine system are poorly suited to endometrial recovery.

Currently, the most commonly used stent is an inflated pediatric Foley catheter or Cook Balloon Uterine Stent. This is generally left in place for 3 to 14 days. A nonrandomized trial comparing the Foley catheter to an IUD favored the Foley catheter.18 Studies also suggest low risk of infection with the Foley catheter.19 A randomized study including use of an amnion graft in addition to the Foley catheter demonstrated decreased adhesions at interval hysteroscopy when using the graft.20 Ongoing research looking into additional uses of stem cells in treatment of recurrent IUAs shows promise, but this therapy is still investigational.

Hyaluronic acid gel has been studied as an adjunct to surgery. A 2003 randomized controlled study showed decreased IUA formation following placement of the gel, compared with no treatment.21 In a more recent retrospective cohort study looking at different stenting options, no difference was found between the control group and the hyaluronic acid group.20 Of note, this study did find stenting with the Foley catheter to be superior to both no treatment and the other stents evaluated.

**Serial adhesiolysis**

Regardless of the prevention method employed, between one-third and two-thirds of patients will form subsequent adhesions.14 Evaluation of the endometrial cavity should be performed after the initial surgery and is commonly done with either HSG or repeat hysteroscopy. Repeating hysteroscopy at 2- to 3-week intervals can interrupt adhesion reformation and permits easy management of forming adhesions. This treatment can be continued until no further adhesion reformation is observed. In a series of patients in whom this approach was used, the mean and median number of follow-up hysteroscopies was three and menstrual and fertility outcomes were comparable to other approaches involving use of a stent.22

**Office vs. OR**

In general, IUA have low vascularity and innervation, which makes these
cases ideal for an office-based approach. One study found that 87.6% of patients tolerated office hysteroscopy.23 Given the high likelihood of adhesion reformation following the initial adhesiolysis, serial procedures are warranted. Using an office-based approach to these procedures minimizes cost and maximizes patient convenience. In postpartum patients who develop intruterine scarring, the expectation of amenorrhea generally leads to delayed recognition of disease, compounding the emotional trauma of the antecedent uterine injury. We find the less intrusive and transparent nature of an office-based approach to be emotionally therapeutic.

Our practice
After taking a detailed history and performing a physical, if Asherman’s is suspected, we typically schedule the patient for an office-based hysteroscopy. Occasionally we move directly to the operating room if the patient has reported a severe intolerance of an HSG/SIS or does not tolerate the office pelvic examination. We attempt to time the hysteroscopy for the early proliferative phase of the patient’s menstrual cycle or use progestational therapy to optimize visualization in menstruating patients.

Patients are advised to take a high-dose nonsteroidal anti-inflammatory drug 1 hour prior to the procedure. A 3- to 5-mm rigid hysteroscope with a 5 French working channel is used, allowing for use of cold semi-rigid scissors. For endometrial access, we use vaginoscopy (Table 6), as it is better tolerated than a speculum and tenaculum. Dilation is rarely required so paracervical blocks are of little benefit. For distention we use a 1- to 3-L pressure bag of normal saline, cystoscopy tubing, and passive out flow into an under-buttocks drape. Procedures typically last 2 to 20 minutes and are well tolerated. Adhesiolysis is performed bluntly or with the scissors. When the scissors are used, we move from filmy adhesions and windows to dense adhesions, which are lysed in the midline. Small pockets can be gently dilated using the hysteroscope or closed scissors. When possible, the tubal ostia are used as landmarks to establish the normal cavity size and shape. We typically use transabdominal sonography in amenorrheic patients in whom we anticipate cervical scarring and/or severe intrauterine scarring.

After significant adhesiolysis, we prescribe daily oral estradiol (2 mg po bid), unless it is otherwise contraindicated. The drug usually is continued through completion of the patient’s treatment. We do not use a post-procedure stent, mostly secondary to patient discomfort and the theoretical risk of infection, but we think it is a reasonable option. In our practice, we always perform a repeat hysteroscopic examination, and counsel patients that multiple/serial procedures are often necessary. We continue subsequent hysteroscopic resections at 2- to 3-week intervals, until a normal cavity is maintained. If estradiol is used, it is discontinued following the final procedure. We do not use antibiotics routinely at any point in the management process.

Primary and early prevention
Given that we know what procedures and factors place patients at greatest risk for subsequent formation of IUA and their sequela, we as ob/gyns should start thinking about primary prevention. When performing uterine procedures, particularly on postpartum patients, we recommend modifying surgical technique to minimize intrauterine trauma. This includes avoiding blind whole-cavity sharp cu
How to optimize imaging in the obese gravida

Proper positioning, careful choice of probe, and leveraging of post-processing capabilities all can improve ultrasound quality in this patient population.

by CHRISTINA S. HAN, MD, AND KERRY HOLLIMAN, MD

Obesity has become an overwhelming epidemic in the United States and contributes an estimated $147 to nearly $210 billion per year in healthcare costs. It is estimated that over 60% of the US female population is considered overweight, with 45% of US women between ages 15 and 49 considered obese.1-4

This prevalent disorder increases both risk of infertility and complications during pregnancy, and has become a major clinical risk factor for adverse outcomes for both mother and fetus.2,4 Women with obesity experience increased risks of maternal complications of gestational diabetes, preeclampsia, cesarean delivery, thromboembolism, and postpartum hemorrhage, and fetal complications, such as prematurity, congenital anomalies, macrosomia, birth complications, and stillbirth.2,3

Maternal obesity is also associated with increased risk of fetal structural anomalies, especially cardiac defects, neural tube defects, sacral agenesis, anal atresia, and limb reduction abnormalities.1-3 Prevalence of cardiac defects in women with body mass index (BMI) > 40 kg/m² is increased (RR 3.63; 95% CI 1.33–9.91).5

Why obesity makes imaging challenging

In addition to the risk of structural anomalies, technical challenges associated with sonographic imaging result in a significantly lower detection rate for cardiac anomalies, as well as an increased risk of missing markers of aneuploidy.1 The percentage of overweight women who have suboptimal fetal echocardiography is 17.4% when compared to 6.4% in normal-weight patients.6

Many factors contribute to suboptimal imaging in women with higher BMI. Sonographic visualization of fetal structures is degraded by depth of the body fat layer, with resultant increased depth of insonation, absorption of energy by the adipose tissue, and higher back-scatter from refraction.7 Over 50% of fetal anatomic surveys in women with obesity cannot be completed during the first ultrasound examination.5 Studies of second-trimester ultrasound examinations have shown that as BMI increases, there is a steady degradation in scan quality, and rates of poor visualization of fetal heart and spine correlate linearly with the degree of obesity.3 One study found that if a repeat ultrasound is performed at 21 weeks, then visualization of the heart improved; however, in 20% of exams, the fetal heart could not be adequately assessed despite several ultrasounds.3

Techniques to improve imaging

Images obtained while scanning a patient with obesity are often of poor resolution secondary to backscatter, artifacts, and noise.7 There are several

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techniques that can result in better sonographic imaging of these patients. The primary goal is to reduce the distance between the transducer and the fetus, and to leverage advanced ultrasound technologies for post-processing.

**Proper patient positioning**
The panniculus limits visualization due to absorption of ultrasound energy by the adipose tissue, as well as increasing depth of insonation. Because the basic tenet of good ultrasound technique is placement of the organ of interest as close as possible to the transducer, scanning at a point away from the thickest portion of the pannus (between the umbilicus and pubic symphysis) may improve image quality. Placing patients in alternate positions, such as lateral decubitus, oblique, semi-recumbent or upright may allow the sonographer to scan away from the areas of most depth, yielding better images. The decubitus position causes the pannus to fall away, allowing the practitioner to use the lateral flank as a window, while pointing the transducer medially. The pannus can also be lifted by an assistant or by the patient herself, and scanning can be performed from the infrapanicular crease to minimize the distance to the target of the ultrasound, the fetus. Using multiple positions throughout the course of a single visit can result in more optimal views of fetal anatomy and maternal structures. In addition, after the first trimester, it may be necessary to move the fetus into a different position, using a free hand. Figures 1 and 2 show examples of the importance of appropriate positioning of the patient during ultrasound.

**Full bladder**
It is also helpful to have the patient maintain a full bladder, which displaces the uterus cephalad, where the adipose tissue of the anterior abdominal wall may be thinner.

**Proper probe selection**
A lower-frequency transducer (e.g. 1 MHz), as opposed to the traditional 2-to 5-MHz abdominal probe, can be combined with beam-forming algorithms to allow for better modeling in overweight patients. Because absorption is proportional to ultrasound frequency, lower-frequency transducers allow for less absorption, less attenuation, and more penetration, at the expense of less resolution. Using tissue aberration programs that correct and adjust for the speed changes that occur in adipose tissue also allows for improved resolution and greater depth of penetration. Real-time multiplanar imaging provided by isotropic and new crystal array transducers also be helpful in patients who are obese.

**Using the vaginal probe**
Because the vaginal probe can be placed closer to the fetal anatomy when used with a transvaginal approach, it is particularly useful in patients with excess adiposity. A transvaginal approach should be considered routine in suboptimal imaging in the first trimester and in scenarios where fetal parts close to the cervix are suboptimally visualized (i.e., intracranial anatomy in a cephalic fetus, or fetal extremities and sacral spine in a breech fetus). The vaginal probe can also be placed directly in the umbilicus, using it as an acoustic window, and has been shown to improve the fetal cardiac exam.

**Image acquisition techniques/alterations**
Use of specialized advanced imaging technologies allows for post-image capture enhancements. Increased
signal-to-noise ratios and improved margin definition are easier with post-processing techniques. Use of compound imaging and tissue harmonic imaging has also vastly improved the quality of images that can be obtained from standard ultrasound techniques. The principle behind compound imaging is to combine multiple slices of images that have been obtained from different angles to generate an improved composite sonographic image. Tissue harmonic sonography, on the other hand, is a gray-scale sonographic technique that markedly improves sonographic contrast resolution, particularly in patients who are difficult to image with conventional techniques.

**Special considerations**

**Ergonomic tips to prevent injury to sonographer/physician**

Taking into account good ergonomic practices is especially important for a practitioner performing ultrasonography on patients who are obese. When performing ultrasound regularly, repetitive injury is common, due to forceful or awkward positions, applying pressure for extended periods of time, and improper positioning. Musculoskeletal injuries are common in sonographers who work in the ob/gyn setting, and it is imperative that they remain aware of hand positions and proper posture and avoid awkward twisting movements while doing scans to avoid injury.

**Avoiding bias against patients who are obese**

In our society, obesity is stigmatized, and even though one-third of the adult US population is obese, patients with it are frequently the targets of negative or derogatory comments, prejudice and poor treatment in many settings, including healthcare. There is a growing amount of evidence that supports the notion that physicians and other healthcare workers hold strong implicit bias about patients with obesity, and those biases need to be addressed at the systematic and training levels. Because many of our patients have already experienced negative reactions from others, it is even more important to provide them with compassionate care, and to avoid any unconscious bias against patients with obesity, especially because they are more likely to have complications during pregnancy and will need to be able to trust that their physician treats them with respect and dignity.

**Conclusion**

Obesity is a growing epidemic in the United States. Patients who are obese are at increased risk of fetal anomalies and overall, adverse outcomes are increased in both mothers who are obese and their fetuses. Pregnant patients who are obese present significant technical challenges for those performing ultrasonography. Providers should leverage a patient position, optimize probe selection, and acquire an understanding of post-processing abilities of their ultrasound machines to maximize image quality and facilitate appropriate counseling of pregnant women who are obese. Patients who are obese often require additional ultrasounds to complete anatomical surveys, and have a higher utilization of healthcare resources during and after their pregnancies. The economic impacts of obesity cannot be ignored and working with our patients to improve their health before, during, and after their pregnancies can improve the health of society over the long term.

**DISCLOSURES** The authors report no potential conflicts of interest with regard to this article.

**FOR REFERENCES VISIT** contemporaryobgyn.net/ImagingObese
Fighting back with love

When an ob/gyn treats young patients exposed to cruelty and confusing messages, it can be tough to overcome anger at the situation.

by STEPHANIE CIZEK, MD

My 12-year-old patient was sitting alone in the exam room when I walked in. Eyes on her phone, she was engrossed in a video of a girl about her age in the middle of a long rant. We listened together to the girl's tirade against everything from her parents to her school to her boyfriend to pop culture stars. “She seems pretty angry,” I said, to which my patient replied that she knew the girl well and her videos sometimes went on for hours.

In life and in my work, I try to focus on “finding the funny”—the parts of a day that make me laugh. In pediatric gynecology, there are a lot of really great, hilarious moments. A mom reports a “Crayola Seafoam Green” discharge from her child’s vagina, into which the girl had placed a crayon. A laugh-cry moment when a patient sobs to me that her grandmother was given a diagnosis of cancer and “has only 30 or 40 more years to live.” And then there are the nicknames that my patients use to refer to the vulva and vagina. When I first meet them, I try to use their words and hear myself saying hoo-haw.

But some days, the humor is hard to find, and I feel like I want to make a rant video myself. In gynecology, we’re constantly navigating a world that, at best, sends mixed messages to our girls about their worth as human beings, and at worst can feel like a constant assault. In trying to be emotionally present for every patient, we talk easily about sadness or joy. It’s less easy to acknowledge that anger can co-exist with these feelings, maybe because discussing anger means having to discuss its complicated roots.

Roots of anger

My patient with the friend who makes the angry videos has a lot to be angry about herself. I met her in the Emergency Room when she was 11 years old and came in with heavy vaginal bleeding from a molar pregnancy. There was no fetus, but a molar pregnancy starts like any other, with sperm. She had been raped. Afterwards, I could find no 11-year-old-appropriate words to describe the abnormal pregnancy to her, to reassure her when she asked me the difference between an abortion and the procedure that she had undergone to remove the tissue from inside her uterus, to explain that the abnormal pregnancy tissue can linger in the body even after treatment, and can return and become like a cancer, requiring months of laboratory monitoring. She was transferred into foster care shortly after discharge from the hospital. When the girl missed one of her lab checks, our social worker learned that she had run away with an older boyfriend. For a brief time, she was sought by the police, and she was eventually found and placed in a locked-down care facility. As far as I know, her rapists have never been locked down, have never been in the hospital undergoing a procedure they didn’t understand, and have never felt the prick of a blood draw every week, then every month.

It seems natural and justified to feel angry for my patients who are in difficult situations borne of violence. When the difficult situation is borne of love, my anger feels less natural and justified, my values more suspect, my role less clear. For example, we cared for a 17-year-old woman who has had multiple major surgeries for a severe congenital reproductive tract malformation. Health-wise, she’s currently doing very well. A member of a religious sect in which marriages are arranged, she is nearing the age of marriage. Her parents and the leader of the sect, all loving people devoted to her happiness, recently had a conference call with the gynecology team. The patient was not on the call, but it was done with her knowledge and permission. The parents and the religious leader requested a formal letter describing in detail the woman’s fertility potential and said that an inability to carry a pregnancy would make my patient potentially...
un-marriageable. Her fertility potential is meager, and I felt frustrated at the circumstances and at what we were being asked to do. I was lucky to have an amazing attending to talk to about my anger in private. That conversation allowed me to examine my values, find a space where my anger was welcomed—and recognize where it was not—and to grow as a physician.

Facing anger
It can become overwhelming. I’m angry at myths about hymens, and the widespread belief that a pelvic exam or using tampons will break one. At misinformation about what the vulva should look like, so my patients feel uncomfortable about their bodies, unsure who to ask if they are normal. At restrictions on birth control access and insurance coverage, so that my patients can’t all use the medications they need for their painful periods, heavy bleeding, acne, cancer prevention—or yes, for contraception. I am angry about the never-ending stories of sexual abuse and sexual pressure, and the meager number of girls who have access to counseling to help them heal. Add to this a health care system that under-prioritizes the female body. For example, there are operative reports for young girls who have had major urinary and bowel surgeries that don’t mention the vagina and uterus. Girls with menses so heavy they necessitate blood transfusion, yet whose previous providers noted nothing abnormal about their menstrual flow, or maybe didn’t ask. And there are preschoolers treated over and over for yeast infections, even though it’s extremely rare for a yeast infection to occur at that age.

It’s confusing and tragic and it hurts, then it feels unreal, then routine, then almost inevitable (or worse, almost normal). In the #MeToo era, acknowledging anger seems healthy and constructive, but it doesn’t end there. We can move from anger to support to empowerment.

Fighting back
Our patients show us how to travel this arc, and what it means to support women. In light of how these conversations could have gone for my patients, these stories seem like more than expressions of love: they seem like fighting back.

We work in a job where difficult conversations about sex and fertility occur every day, and serve as guides in a world of conflicting messages where we don’t always know the way ourselves. It’s okay to be angry at how our patients struggle, at the systems around us, at ourselves—make a rant video, write an article, shout it in the streets! Then do what our patients do: fight back with love.

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Who should physicians talk to when they are unhappy in their jobs?

by SUNEEL DHAND, MD

The headlines on physician burnout and job dissatisfaction are truly alarming. A large physician organization in Massachusetts recently declared it a “major public health crisis.” The rush towards big corporate medicine in an environment of massively bloated bureaucracy and administrative requirements has really taken its toll on doctors of all specialties. Well over 50% are burned out, and this has huge consequences for our nation’s healthcare. We desperately need good doctors, and those doctors need to be happy in their careers.

So, with many physicians dissatisfied with their jobs, the next question is: who, if anyone, should they talk to when this first happens?

1 Other immediate colleagues
You likely work in a group of physicians, some of whom are much more experienced than you. There’s nothing like talking to your own colleagues (hopefully trusted friends too) and going over your frustrations. Seek three things in particular: (1) perspective, (2) solutions, and (3) immediate advice on what to do.

2 Your supervisor
This is likely to be the physician chief of your group (who may have even hired you!). If you are lucky, this is someone who is supportive and has always had your back. Sit down with that person and discuss your feelings towards your job.

3 Administrators
This may sound rather fanciful in today’s environment, but there are some institutions out there, albeit a minority, with supportive administrators who like to stay in touch with their frontlines. Do you have a chief medical officer (CMO) or chief executive officer (CEO) who is like this?

4 Colleagues in other places
You likely know physicians in other places and parts of the country. Perhaps you also network at a lot of conferences (you should!). What’s their take on the unique issues you face, and do they give the impression that their facilities are any better?

5 Family
This goes without saying. The unfortunate reality of life is that anybody who is unhappy at work is rarely truly happy at home either (carry-over effect). Do your loved ones notice that you come home exhausted and unhappy? If so, it really is a warning signal that a change needs to be made.

Assuming you are a good, competent physician, and working in a half decent place, the healthcare organization won’t want to lose you. It’s also very costly for them to hire another doctor. They should offer whatever help is possible to address your concerns, and probably another carrot or two. Realistically, many things may be out of their hands, however (such as federal administrative requirements). But even though you probably have a lot of other options with the supply-demand mismatch...
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Leading cause of denials and how to prevent them

Denials are often avoidable but several strategies can be implemented to ensure ob/gyns are not losing revenue.

by TOM ROMEO

Each new denial is essentially a revenue leak. Even when claims are recovered, the costs associated with that recovery must be subtracted from patient revenue. Recent data put that recovery cost at roughly $118 per denial. Factor in the lost revenue from your unrecovered claims and it’s clear why denials are a painful financial drain on practices.

What makes denials so frustrating is that many are avoidable. The leading causes are well known, and it’s possible to prevent these leaks before they occur. The key is having processes in place to identify and correct errors and omissions before a problematic claim is ever submitted.

Defining denials

Unlike a rejection, which occurs when a submission lacks pertinent data or proper coding, denials are received, reviewed, and found to be inadequate by the payer or health plan. This may be due to insurance plan coverage stipulations, limits, or an untimely filing. Denials cannot be resubmitted, but they can be appealed. It’s the appeal that can prove costly.

Most common reasons for denials

The number one cause for a denial is that a patient isn’t eligible for care under the terms of the insurance plan. In the research cited above, nearly one in five respondents said “registration/eligibility” was the leading reason for denials. The simple step of doing eligibility checks before a patient is seen by medical staff can prevent this.

Other common reasons for denials are:

- Insufficient information. A simple omission, such as date of birth, can lead to a costly denial.
- Duplicate billing. This happens when a similar or equivalent claim is sent because of a clerical error or overlap in office duties.
- Improper or outdated CPT or ICD-10 codes. The codes, which determine what is paid, change quarterly, and your practice — or your RCM vendor — is responsible for capturing and operationalizing all updates.
- Untimely filing. You only have so many days to file the claim.
- Service is not covered. A patient’s coverage may have been terminated or their maximum benefit has been met (often in the case of physical therapy).
- Out of network. Some plans require doctors and practitioners to be “in-network” for coverage.
- Problems with modifiers. Errors can result from submitting invalid modifier combinations. Many invalid modifier combinations can be avoided with better training for coding personnel or by using a qualified medical billing service.
- Prior authorization required. Some payers want authorization or a referral from another physician before services can be performed.
Mitigating risk with technology
The complexity of medical billing puts tremendous pressure on practices as many processes are unlikely to catch common errors such as duplicate billing or incorrect CPT codes. This is where technology can be transformative. It can, for example, automate the updating of CPT codes practice-wide to significantly reduce the risk of using an outdated CPT code.

Technology can also assist with prior authorization, guiding staff through the important steps of assessing patient eligibility. While there is no substitute for adequate staff training and education, having a stepwise process to guide staff who process claims ensures the right information is collected and verified before a claim ever leaves the practice.

Putting technology into practice
A few years ago, a five-person practice in Attleboro, Massachusetts, seeing between six and 15 patients daily, would routinely write off denied claims. It cost them thousands monthly. By adding new technology to predetermine eligibility, the practice addressed its main issue and the number one reason for denied claims: ineligibility.

In the new process guided by technology, front desk staff can verify patient eligibility with the insurance company prior to an appointment. When a patient presents her insurance card during check-in, any issues with eligibility can be addressed in real time. Having this take place beforehand ensures a better experience for the patient and a smoother check-in and billing process for the practice.

Technology and automation don’t replace the human touch patients expect. In fact, revenue cycle management technology, which offers much more than predetermined eligibility review, is enabling practices large and small to focus less on managing loss and more on efficiently and profitably building a vibrant office that provides a better patient experience.

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DISCLOSURE The author reports no potential conflicts of interest with regard to this article.

For references visit contemporaryobgyn.net/preventingdenials

TAKEAWAYS
Many practices feel powerless as claim after claim is denied. A closer look, however, reveals that many denials are avoidable. Fix those leaks and you’ll see immediate return to your bottom line. What’s more, you’ll streamline operations and save time that can be put back into treating patients. Here’s how you can get started:

■ Audit your practice to see if you’re at risk for any of the most common reasons for denial.
■ Train and retrain staff to recognize and be vigilant around the key error points that lead to denials.
■ Consider revenue cycle management technology, which when properly integrated with your EHR and/or practice management system, can automate critical aspects of the billing process.
■ Start benchmarking your progress; see how much profit you recoup by stopping leakage that is caused by denials. Focus on “denial rate,” which the American Academy of Family Physicians says should be between 5% to 10% on average. Less than 5% is more desirable.

Unhappy physicians
in healthcare—never be hasty about handing in your resignation. It doesn’t completely have to be black or white either. Working in a different capacity at your current institution, or even going part-time, may be two other viable options. And even if you ultimately do leave for understandable reasons, don’t

make the age-old mistake of burning your bridges. Be amicable and always leave on good terms. The healthcare world is small.

Suneel Dhand, MD is an internal medicine physician, author and speaker. He is the cofounder of DocsDox, a service that helps physicians find local moonlighting and per diem opportunities, bypassing the expensive middleman.

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For references visit contemporaryobgyn.net/unhappyphysicians
Ensuring medication affordability CONTINUED FROM PAGE 12

Direct payments to physicians
The CMS Open Payments program authorized by the Physicians Payment Sunshine Act requires industry to disclose all payments to physicians.12 In 2016, $2.82 billion in general (non-research) payments were made to physicians.13 While that figure includes over $1 billion for invention-related royalties and licensing fees, it also includes nearly $500 million in consulting fees, $237 million for food and beverages, and $188 million for travel and lodging. In addition, eight out of 10 patient advocacy groups, which often lobby for a specific drug or device, receive financial support from Pharma which they are not obligated to report.3

Industry made 517,077 non-research payments, valued at $80 million to 23,292 (49.7%) ob/gyns between August 1, 2013 and December 31, 2015.14 Subspecialists received larger median payments than generalists ($500 vs. $296); urogynecologists received the largest median dollar amount, maternal-fetal medicine physicians the least. Median payments to ob/gyn subspecialists exceeded payments to orthopedic surgeons, although the latter remain the biggest recipients of overall payments, primarily from royalties or licenses. By contrast, the most common (94%) payments to ob/gyns were for food and beverages, entertainment, and travel.

Take-home message
The extent to which rising drug costs are adversely impacting our economy and threatening the viability of our health care system seems clear. There are many drivers of escalating drug prices, including absence of a true market, high costs of intermediaries, unscrupulous marketing practices, and suppression of generic competition by brand drug makers. Other cost drivers include perverse incentives engendered by flawed government regulations and the inability of Medicare to negotiate drug prices or to permit drug importation. Finally, long-standing symbiotic financial relationships between physicians and drug makers adds yet another layer of incremental costs. While the sheer magnitude of these challenges is daunting, the good news is that there are also many practicable steps that can be taken to enhance medication affordability while preserving the extraordinary level of innovation that the US pharmaceutical industry has achieved. In Part 2 of this editorial, I will describe these solutions.

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FOR REFERENCES VISIT contemporaryobgyn.net/DrugCostsPart1

Asherman’s syndrome CONTINUED FROM PAGE 33

rettage when targeted hysteroscopic resection is possible.

Recent data have shown some benefit for placement of hyaluronic acid gel following suction D&C.31 We also strongly recommend follow-up office hysteroscopy after procedures associated with risk of adhesion formation. These include: larger hysteroscopic myomectomies, in particular those with multiple fibroids resected; laparoscopic or open myomectomies where fibroids abutted or entered the cavity; and hysteroscopic septum resections. Finally, we also recommend that our obstetric colleagues discuss risk of IUA with patients who had prepartum D&Cs and recommend hysteroscopic evaluation after 6 weeks for vaginal delivery and 3 months for cesarean delivery, once adhesions have had time to form, but can still be relatively easily corrected.

DISCLOSURES The authors report no potential conflicts of interest with regard to this article.

FOR REFERENCES VISIT contemporaryobgyn.net/AshermansSyndrome
The importance of intervention
CONTINUED FROM PAGE 49

A cord venous blood gas indicated a pH of 6.905, CO2 of 94.9, PAO₂ of 28.1, bicarbonate of 17.3, and a base excess of 16.7.

The infant’s initial neurological examination showed pupils pinpoint and equal bilaterally, no reaction to light, no tone, no spontaneous movement or eye opening, and no reflexes. He was diagnosed with “severe encephalopathy secondary to perinatal hypoxic – ischemia and DIC.” Although there were no detectable subclinical seizures on electroencephalogram, the physicians suspected seizure activity on physical examination and, as a result, the infant was treated with phenobarbital. He was placed on hypothermia protocol from birth until April 19, 2014. On April 21, 2014, magnetic resonance imaging was performed and the infant was noted to have an “acute” right thalamic infarct, measuring 1.1 x 1.3 cm. In addition, there was a finding of a posterior fossa subdural hematoma, as well as some arachnoid hemorrhage. Almost every note refers to the fact that the infant was suffering from “severe hypoxic ischemic encephalopathy (HIE).”

Damages
Records from pediatric neurology and the infant’s pediatrician indicate that the child met milestones up to age 1 year. The pediatric neurologist found two to three beats of clonus with some possible hypertonicity. At age 1 year, the boy was able to say consonant sounds and “dada” was emerging as specific. However, the plaintiffs hired their own speech pathologist, who said the child might or might not have a speech delay. In October 2014 (age 6 months), the parents applied for early intervention program (EIP) services and an evaluation performed did find “significant delays in gross and fine motor function.” He was also evaluated by a developmental pediatrician, physical therapist, and occupational therapist and found to have low trunk tone centrally and there was head lag when he was pulled to a sitting position. They also found increased tone in his extremities and his hands sometimes would fist and other times were open. Tightness was found, particularly in the child’s lower extremities at the knees and ankles. His deep tendon reflexes were very brisk at 3+, but no ankle clonus was found and no tremors were observed. Two cognitive developmental tests administered to the infant arrived at opposite conclusions. The infant began occupational therapy in October 2014 and continued to receive it.

Experts/Discovery
The ob/gyn expert believed the case was indefensible as to Dr. B. She believed the infant should have been delivered at 3:36 pm, and if he had been, he would have no issues. She believed a cesarean delivery was warranted at 4:20 pm. The expert did not fault Dr. A for delivering the child vaginally, given the time she arrived on the scene. A crash cesarean delivery performed after Dr. A had a chance to assess the situation, the expert said, would not have amounted to significant time-saving in the infant’s delivery.

The pediatric neurology expert believed the infant would be fine. Although the child may have some discoordination, his comprehension, the neurologist said, was normal. The expert also believed that the child might have some speech difficulty early but that it would improve with time. He believed the child would be enrolled in mainstream classes.

As for the 5- to 6-minute delay in intubating the infant until the pediatric resuscitation team arrived, the neurology expert pointed out that the infant was receiving (PPV), which did provide oxygenation. He did not believe that the time it took for the resuscitation team to arrive or the difficulty the pediatricians had intubating the infant represented a departure from standard of care. He agreed, however, that plaintiff counsel could make an argument that “every second counts.” Intubation would have been better in the long term, but medically, PPV was fine in the short term.

The neonatology expert opined that this case established an incredibly
clear, almost textbook case of what would be relatively acute perinatal asphyxia. He gave a lot of credit to the neonatal team and believed that the aggressive treatment they provided was adequate. The expert stated that the resuscitation was appropriate although there was a slight delay in intubation. He stated that the 6-minute delay did not correlate with the degree of abnormalities found on clinical exam.

Dr. B and Dr. A agreed that Dr. B’s assessment of the infant at critical times was lacking. They also agreed that Dr. B probably would not have communicated any issues to Dr. A because she did not appreciate them. The assumption was that she was so intent on delivery she did not appreciate what was occurring on the FHR monitor.

In reviewing the strips, Dr. A testified at deposition there were three decelerations between 10:55 and 10:59 am. Dr. B believed the nursing entry at that time, which reflected fetal bradycardia was incorrect and she disagreed with that assessment. She stated for that for fetal bradycardia, the infant’s heart rate had to remain there for 10 minutes and that did not occur. Dr. B was forced to acknowledge that from 2:08 pm through 5:06 pm, there were decelerations seen on each panel through time of delivery. She testified that did not mean there were recurrent decelerations the entire time but she did admit that there were portions of time that there were recurrent variable decelerations.

At 3:34 pm, the patient was fully dilated and she started pushing with every contraction at 3:39 pm. Dr. B was asked why she did not administer terbutaline to help with the tachysystole. She testified that she wanted to deliver the baby and did not want to interfere with the patient’s contractions and pushing. Dr. B testified that tachysystole can occur during labor and can be normal. She stated that there was a late deceleration seen at 3:29 pm, which most likely was caused by the tachysystole. Dr. B stated it is “possible” this deceleration was a prolonged deceleration of 9 minutes because the FHR never seemed to fully recover to baseline. She stated this could be viewed as non-reassuring but testified that there was still moderate beat-to-beat variability and some loss of contact, so it was difficult for her to comment on this finding. Dr. B testified that at delivery, the infant was floppy with no spontaneous respirations.

The testimony of Dr. A was that she did not believe she could have performed a cesarean delivery faster than she was able to deliver the infant vaginally. To transport the patient to the operating room, get everyone set up, make the incisions, and top off the epidural anesthesia, she said, would have taken approximately 20 minutes, which is roughly the timeframe in which the infant was delivered from her arrival on the scene. Dr. A ultimately said that what is seen towards the end of the strips (fetal tachycardia, decreased beat-to-beat variability, and decelerations) could be consistent with hypoxia. Because there was a loss of contact towards the end on the FHR monitor strips, however, some of the strips were difficult to decipher. Dr. A stated that after delivery and when the infant’s arterial blood gas levels were obtained, what was seen on the FHR monitor strips toward the end could have been consistent with hypoxia.

Dr. A’s opinions regarding Dr. B’s management of delivery until she arrived would likely have proven damning in trial.

**RESOLUTION**

The case was settled prior to trial for slightly under $4 million. Dr. B’s “failure” to appreciate the significance of fetal well-being, or lack thereof, as exhibited by non-reassuring FHR monitoring strips and to effectuate early caesarean delivery was too daunting a departure from acceptable practice to risk a trial and a jury’s verdict. While we were able to effectively tiptoe around the land mines of criticism during deposition, no such protections would have been afforded at trial, when both defendants’ criticisms of management were likely to be exposed. Dr. A’s opinions regarding Dr. B’s management of delivery until she arrived also would likely have proved damning. Efforts were made to limit defendants’ exposure during the discovery phase of the case, but once the opportunity presented itself to resolve the case within available insurance coverage rather than risk a jury’s verdict, we took the opportunity to do so.
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The importance of intervention: When was this baby in trouble?

In this case, the question of fetal well-being as demonstrated on the FHR tracing is significant.

Facts
The plaintiff mother received prenatal care at defendant ob/gyn practice, predominately from Dr. A, between August 29, 2013 and April 15, 2014. There was no issue with that care.

At 4:16 am on April 14, 2014, the plaintiff was admitted to defendant hospital at 36 weeks, 6 days because of increasing contractions. An epidural was started at 8:06 am. Labor was managed by Dr. B from 8:00 am up to and including delivery of the infant at 5:06 pm. Dr. B was the daytime on-call attending for defendant ob/gyn practice and Dr. A (who was on vacation, but in the office) came to deliver the infant when Dr. B called to inform her that the patient was fully dilated. Dr. A arrived at about 4:50 pm or 16 minutes before delivery.

Labor was reported to be routine until 2:30 pm. At that time, the fetal heart rate monitor (FHR) showed fetal tachycardia to 165 bpm. The patient was 7 cm dilated, 90% effaced, and the infant was at +1 station. Oxytocin was started at 4 MUmin. At 3:25 pm, the patient was fully dilated and the oxytocin was stopped because of long variable decelerations, which had started at 3:10 pm, some of which had a late component. At that time, there was still good beat-to-beat variability. Tachysystole had begun at 3:15 pm.

The infant was at +4 station as of 4:20 pm, and the FHR continued to deteriorate from “bad” Category II strips to Category III strips, with decreasing beat-to-beat variability over that time until 4:36 pm, when variability was absent. At that time, maternal fever also was noted, from 99.7°F to 102.3°F. When Dr. A arrived at about 4:50 pm, she reviewed the FHR monitor and instructed the mother that her infant had to be delivered now. Because the head was so far down (at +5 station), Dr. A believed the infant could be delivered faster vaginally than with a cesarean section. At vaginal delivery at 5:06 pm, meconium and a tight nuchal cord x 1 were present. The mother’s temperature at delivery was 100.6°F.

The infant’s Apgars were 1, 3, and 4. Pediatrics was in the room at the time of delivery and suctioned the meconium but the infant’s heart rate was less than 60 beats per minute (bpm). Tactile stimulation and positive pressure ventilation (PPV) did not improve the heart rate. At 52 seconds, a neonatal airway specialist was called. At 2:27 minutes, the anesthesiologist arrived to assist. At 3:59 minutes, the pediatric resident made an unsuccessful attempt to intubate the infant. Another unsuccessful attempt at intubation was made at 4:17 minutes, by the pediatric attending. At 5 minutes, the neonatal airway specialist arrived and at 5:21 minutes, another unsuccessful attempt at intubation was made. Finally, at 6:10 minutes, Pediatrics successfully intubated the infant.

Because the head was so far down, Dr. A believed the infant could be delivered faster vaginally than with a C-section.

For More Legally Speaking
Turn to Page 45

Andrew I Kaplan, Esq is a partner at Aaronson, Rappaport, Feinstein & Deutsch, LLP in New York City, specializing in medical malpractice defense and healthcare litigation. This case was handled by one of his partners.
fFN testing can help rule out
~80% of patients
with symptoms of preterm labor.

~ 80% Patients receive a negative result

~ 20% Patients receive a positive result

Benefits of a Negative Result
A negative fFN result means the patient has a <1% chance of delivery in the next 14 days.

High NPV:
NPV for delivery within:

<table>
<thead>
<tr>
<th>Days</th>
<th>NPV</th>
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<tbody>
<tr>
<td>7</td>
<td>99.5%</td>
</tr>
<tr>
<td>14</td>
<td>99.2%</td>
</tr>
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</table>

Benefits of a Positive Result
A positive result can help clinicians identify patients that may benefit from interventions, such as steroids or maternal transfer.

Useful PPV:
PPV for delivery within:

<table>
<thead>
<tr>
<th>Days</th>
<th>PPV</th>
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</thead>
<tbody>
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<td>12.7%</td>
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<tr>
<td>14</td>
<td>16.7%</td>
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