Family Doctor

A Journal of the New York State Academy of Family Physicians

Summer 2023

Volume twelve, Number one

Focus:

Women's Reproductive Health

FEATURE ARTICLES:

- Emergency Contraception - Who, When, and How for the Family Physician
- Menstrual Health Challenges: Their Impact on Refugee, Immigrant, and Migrant Women
- A Cardiovascular and Psychological Stress Test: The Maternity Period and its Lifelong Impacts
- Climate Change and Women's Reproductive Health: The Family Physician's Role in Adaptation
- Breastfeeding Within the Reproductive Years

New York State Academy of Family Physicians

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From the Editors:

The summer issue of *Family Doctor* is addressing topics related to women's reproductive health and its functions and processes throughout the lifespan. We had an overwhelming response from potential authors for this issue and hope that we adequately touch on this crucial topic, as well introduce the need for additional focus on practicing more inclusive healthcare. We also hope that this issue sufficiently honors the necessity for advocacy for both reproductive access and justice.

By the time this issue is published we will have celebrated our LGBTQIA+ community for Pride Month in June. We are reminded that health care access is a right for everyone and that we, as family physicians, should continue to advocate and work to expand access to sexual and reproductive health for this community.

In the same manner, we acknowledge that there needs to be more inclusive research that addresses the many issues affecting this community. Both editors and the authors of this issue are aware of the need for more gender expansive language in order to provide inclusive care.

We remember that June 24,2023 marked the one-year anniversary of the decision in Dobbs vs Women's Health Organization. One year later, this decision continues to impact access to abortion care across the country and has impacted our clinical community's ability to provide comprehensive reproductive care. The legal landscape of abortion access is still changing and varies state by state.

In the State of New York, the NYSAFP upholds its position in opposing restrictions on providers who perform abortions as well as opposing restrictions on the use of public funds for abortion. The NYSAFP also opposes criminalization of interstate travel to obtain abortion or to assist someone who crosses state lines to obtain abortion.

Because of this, I am proud to be a family physician practicing in the state of New York. I am also proud to work in an institution which, through a grant from the NYS Department of Health, will work to expand abortion care for patients and training for family medicine residents.

As we continue to strive to develop ourselves as family doctors, let us not forget that this is just another tool in our tool box and we must continue to add more tools as the world changes around us. We will continue to pivot so that we can provide inclusive and comprehensive care to all.

Thank you,

Mary K. Ellis, MD
Family Doctor Editor

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From the Executive Vice President

By Vito Grasso, MPA, CAE

In preparing various reports for our annual Congress of Delegates we tend to highlight our major areas of focus: advocacy, education and cultivation of leadership skills. This is particularly challenging in advocacy wherein many of the successes we have involved preventing legislation or regulations from being enacted. This year, for example, we succeeded in securing continuing funding for the Doctors Across NY program. We also were able to secure funding for the Area Health Education Centers and increased Medicaid payment for primary care. These are all important initiatives, but each affords benefits for only some members of the Academy.

Much of what we do in advocacy is to prevent things from happening that would adversely affect members or patients. This year was no exception as we joined with several other medical societies, business groups and hospital associations to oppose legislation that would substantially exacerbate New York's medical liability insurance crisis. The Legislature passed a bill (S.74-A/A. 6770) which would have increased the number of "close family members" that could seek compensation, would have allowed more time to bring suits, and would have expanded the types of damages available beyond economic loss to include new forms of non-economic loss commonly referred to as "grief and anguish." This legislation would have applied generally in wrongful death suits but would have been particularly devastating for cases involving alleged medical malpractice.

We were unsuccessful in dissuading the Legislature from passing the bill but we did succeed in getting the Governor to veto it. Many members joined in our efforts by participating in our annual lobby day and by responding to our grassroots lobbying alert to contact the Governor to urge her to veto the bill.

Although we were successful in defeating the legislation there are, nonetheless, alarming developments on the medical liability landscape which compel us to remain vigilant, and also to take steps to help members protect themselves in a climate of growing awards for plaintiffs in liability cases generally.

It is well known that NY has extraordinarily high costs of medical liability. NY ranks first nationally in per capita payouts for malpractice awards: $2,154. The total payout in 2022 for NY was $434,154,550; also, the highest in the country.

The steady increase in awards, even absent the kind of expansion and acceleration which would have occurred if the Governor had signed S.74-A/A. 6770 into law, has pushed the average payout beyond the $1.3 million in primary coverage which most physicians are required to have. This development puts personal assets in jeopardy as liability carriers only cover awards up to the limits established in the policy.

NY has also experienced an unprecedented increase in "nuclear verdicts" in liability cases, including medical liability. Nuclear verdicts are jury awards of $10 million or more. NY ranks 3rd for the highest number of nuclear verdicts between 2010 and 2019 and second for the highest per capita amount of nuclear verdicts. Nationally, 20.6% of all nuclear verdicts occur in medical liability cases. NY's situation is further exacerbated by the "long tail" from incident to resolution – often 6-7 years.

We are currently working with our endorsed liability carrier, MLMIC, to address this disturbing development and the trend it portends for future premium costs and the risk of awards. Our focus will be to increase coverage for members, enhance risk management services and offer coverage for members who engage in interstate practice which has become increasingly risky as more states adopt laws which restrict access to health care services in women's health and transgender care.

NY has been a leader in advocating for protection of patient access to care in these areas and has adopted shield laws to protect NY physicians who provide care to patients in states which have restricted access from prosecution by those states. Those protections, however, have limitations and will most likely be challenged in court. Expanding professional liability coverage should be part of a strategy to protect yourself from both the increased risk of expanding awards and the threat of litigation if you provide care to patients from states which have restricted access to services which you may provide. We will continue to work with MLMIC to develop products to help our members protect themselves and their personal assets. We will inform you of our progress in our weekly newsletter and through other communications we will develop as those products become available.

As always, our goal is to serve members to help you serve your patients.

Much of what we do in advocacy is to prevent things from happening that would adversely affect members or patients.

President's Post

By Heather Paladine, MD

As the new President of the New York State Academy of Family Physicians, I'm excited to write my first column for this issue of Family Doctor that focuses on reproductive health. Reproductive health and abortion care are important parts of my practice and the education I provide as a residency program director, and I believe that providing comprehensive reproductive health care in the context of overall medical care is one of the areas that sets our specialty apart.

The term reproductive justice (RJ) was coined in 1994 by a group of Black women in Chicago, who went on to found the organization SisterSong three years later. I encourage all family physicians to familiarize themselves with their work. SisterSong defines RJ as "the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities." RJ is a fundamental principle that goes beyond the scope of reproductive rights. It encompasses a broader perspective, focusing on the social, economic, and political factors that influence a person's ability to make informed choices about their reproductive health. Recognizing the importance of RJ lays the foundation for comprehensive and equitable healthcare systems.

RJ recognizes that health is not solely determined by individual choices but is influenced by societal structures and policies. It calls for a comprehensive approach that goes beyond reproductive healthcare, addressing issues such as poverty, racism, and inadequate healthcare systems. By addressing these systemic barriers, RJ aims to create an environment where people can make decisions about their reproductive health free from coercion and discrimination.

The concept of intersectionality is integral to RJ. It acknowledges that people's experiences are shaped by multiple aspects of their identity, such as gender, race, ethnicity, socioeconomic status, and immigration status. Intersectionality recognizes that marginalized communities face unique challenges and barriers in accessing reproductive healthcare. RJ calls for inclusive policies that consider these intersecting factors and work towards equitable outcomes for all people.

This issue of Family Doctor is very timely. The changes in the national legal landscape in the past year have made it even more important that New York State continue to be a leader in the area of reproductive rights. I'm pleased to report that NYSAFP members, led by Dr. Linda Prine, had a key role in passage of the New York abortion provider shield law in June. The law contributes to RJ and health care equity by helping to ensure that pregnancy options are available to all people, not only those with the means to travel for abortion care. Regardless of how our members feel individually about abortion, we acknowledge as an organization that it is part of the full scope of pregnancy options that should be available. The NYSAFP opposes non-evidence-based legislation that interferes with the doctor-patient relationship and prevents physicians from being able to provide medically appropriate patient-centered care. By protecting New York-based physicians and other health care providers from prosecution by other states for medical care that is legal in New York, the law creates a safer environment for both patients and healthcare professionals.

While the New York abortion provider shield law is a significant step forward, achieving reproductive justice requires a broader policy framework. It necessitates comprehensive measures that address issues such as affordable contraception, prenatal care, pregnancy health disparities, comprehensive sex education, and family planning services. These policies should be grounded in the principles of equality, non-discrimination, and respect for autonomy. The NYSAFP has been a leader in advocating for universal health care, a single payer health care system, a living wage, and equal rights for LGBTQ+ people; all of these policies relate to the social determinants of health that are key to RJ as well. We will continue to prioritize these policies and to advocate for RJ principles on a state and national level. I'm proud to lead this organization as we strive to serve our members and improve the health of our patients and communities.

The changes in the national legal landscape in the past year have made it even more important that New York State continue to be a leader in the area of reproductive rights.

Albany Report

By Reid, McNally & Savage

The regularly scheduled 2023 legislative session in New York concluded with both houses gaveling out on Saturday June 10th. The Senate completed its work around 3am with Senate Majority Leader Stewart-Cousins ending the session saying, "see you in 2024!" Whereas the Assembly adjournment ended with the caveat that they expected to return in two weeks to complete unfinished business.

On June 20th, Assembly members returned to Albany for a two-day session where they took up a number of additional bills which had already been passed by the Senate and then adjourned for the year. In total, just shy of 900 individual bills were passed by both houses during the 2023 legislative session, out of nearly 15,000 bills introduced since the session started in January. Most bills now await action by Governor Hochul.

While many issues dominated state discussions this year, the area of reproductive health care and related protections received a great deal of attention and focus following the Dobbs decision to overturn Roe v. Wade on June 24, 2022. Actions taken this year included funding and programmatic provisions included in the final budget passed in early May as well as stand-alone bills and legislative packages enacted outside the budget.

NYSAFP played a strong, leadership role in supporting a number of these measures including one that the Assembly just passed on June 20th during the special session, which we are told to expect Governor Hochul to sign into law soon. Below is a summary of these initiatives and NYSAFP's advocacy efforts on behalf of its members and the patients family physicians serve.

Legislation Protecting NY Physicians in Use of Telehealth for Reproductive Healthcare Services Across State Lines Passed by Both Houses

During its 2022 Congress, NYSAFP resolved to support legislation establishing protections to reproductive health service providers which has gained significant traction and national attention since it was introduced at the beginning of the 2023 legislative session. S1066B (Mayer)/ A1709B (Reyes) allows physicians and other authorized clinicians in the State to provide medication abortion and other reproductive health services for patients, regardless of their location, via telehealth. In particular, the bill would safeguard providers from out-of-state prosecution, having their professional license revoked or suspended, or jeopardizing their medical liability coverage. This legislation is extremely important, as across the U.S., 12 states have completely banned abortions, 14 have restricted abortion access or attempted to but were blocked by the court, 29 states specifically require physicians to administer medication abortions, and 18 states have banned abortion pills' use in telemedicine. With this bill, providers will receive New York State protections to serve patients via telehealth and have abortion medications mailed to people in those states, thus eliminating access barriers and other challenges and ensuring abortion care access for all. One important note that if this becomes law, New York State cannot protect a provider who takes these actions and then travels into a prohibitive state.

NYSAFP supported patient access to telemedicine abortion from the bill's introduction:

"Our Congress of Delegates approved a resolution last year calling for protection of NY licensed clinicians who provide telemedicine abortion services for patients in other states to ensure that everyone, regardless of their place of residence, can receive

care they want and need. Our members have been meeting with legislators, and circulating petitions and memos because we support the right of all people to make their own healthcare decisions without government interference. Our members want to help the people in states that have restricted their right to make their own decisions and strongly urge the NY State Legislature and Governor Hochul to make NYS a national leader and provide these critical protections,"– ***Immediate Past- President of NYS Academy of Family Physicians Andrew Symons, MD****, quote featured in Senator Mayer and Assembly member Reyes' press release distributed on January 18th, 2023 announcing bill's introduction*

This bill was one of the main priorities on NYSAFP's annual Advocacy Day at the NYS Capitol on February 27th, 2023. Dozens of physicians, residents, and students met with their legislators to share their stories and urge its passing in the Assembly after it was successfully passed by the Senate on January 24th.

NYSAFP built a coalition of supporters, garnering over 30 memos in support for the bill, and continuously strengthened the campaign by sharing memos and updates/supportive media with legislators. We also put out action alerts for members to directly voice their support to their representatives and continued advocating through countless meetings with legislators during the session.

Further, in coordination with the bill sponsors, NYS Senator Mayer and NYS Assembly member Reyes, ACT Access, and abortion medication access advocates, including the Abortion Coalition for Telemedicine Access, Medical Students for Choice, Advocates for Youth, and the Center for Reproductive Rights, a press conference was held on April 18th, 2023, to push for Assembly action. More than a dozen legislators came to show their support and it was made evidently clear why New York must join Massachusetts, Colorado, Washington, and Vermont, all of which have passed similar laws, to remain a leader in reproductive healthcare. Dr. Rachelle Brilliant, President-Elect of NYSAFP, and Dr. Linda Prine, longstanding member of NYSAFP (featured in photo with Senate Finance Chair Senator Krueger), spoke at the event to share their stories as clinicians and the importance of patients across the U.S. having access to needed reproductive healthcare services.

We are very pleased to report that both houses have passed this bill and it now awaits action by Governor Hochul. We thank NYSAFP leadership and membership for all of its support for this important healthcare measure.

SFY 2023-24 Final State Budget Includes Funding and Measures to Support Reproductive Healthcare

In the SFY 2023-2024 Final Budget enacted in early May, several key actions related to women's reproductive health were taken. First, **new allocations were agreed upon to protect abortion access and make New York State the nation's first Safe Harbor State**. These include $25 million in recurring support for additional Support Abortion Access Services, $10 million in one-time Security Grants for Reproductive Health Centers, $65.8 million in additional Medicaid reimbursement ($14.1 million state share), $14.9 million to increase surgical abortion reimbursement, $35.2 million to increase family planning reimbursement, and $15.6 million for pharmacist prescribed contraceptives. This package will also protect individuals' abortion-related data regardless of state residency status, from out-of-state law enforcement officers, thereby safeguarding abortion access for all.

Further, a new grant program will be established to build reproductive healthcare provider capacity within the State, fund uncompensated care, and give financial support to organizations providing practical support to individuals within and travelling to NYS. More people will be coming to New York for abortion care and this policy will ensure that they receive the help they need and deserve. Another proposal included in the final budget prevents insurers that issue or renew medical malpractice insurance covering a health care provider from taking adverse action against the provider if they perform an abortion or provide reproductive health care that is legal. Insurers will also be prohibited from refusing to issue or renew, canceling, limiting, restricting, reducing coverage or charging or imposing an increased premium or rate for a medical malpractice insurance policy, as well as reporting to an appropriate private or governmental entity regarding practices of providers that may violate abortion laws in other states.

A new proposal was also agreed upon to provide **Medicaid coverage for doula services and establish a rate of at least $1,930 for those services**. Doulas provide crucial emotional and physical support for pregnant people, and importantly improve health outcomes, and every individual deserves access to one.

Other Legislative Measures Passed by Both Houses to Protect and Expand Abortion Access and Women's Health

In one of the first acts of the session in January, both houses re-passed a constitutional amendment bill **S108-A Krueger/ A1283 Seawright** to expand the constitutional prohibition against discrimination in civil rights to include additional protected classes. This bill adds ethnicity, national origin, disability, age, and sex, including sexual orientation, gender identity, gender expression, pregnancy, pregnancy outcomes, and reproductive healthcare and autonomy to the existing list of protected classes for which discrimination in civil rights is prohibited. This bill was also passed last session and with the concurrent action this year, is expected to go to the voters for consideration in the next election.

Governor Hochul has also signed several bills into law passed by both houses that protect abortion access on public campuses in the NYS, expand over-the-counter contraception access, and shield abortion service providers from arrest and extradition. Legislation **A1395-C (Epstein)/S1213-B (Cleare)** supported by NYSAFP ensures public colleges and universities in NYS offer access to medication abortion on-campus and **A1060-A (Paulin)/S1043-A (Stavisky)** will allow pharmacists to dispense self-administered

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contraception pursuant to a standing order. Both of these bills were signed by the Governor on May 2, 2023, to combat the rollback of abortion rights across the U.S. since Roe v. Wade was overturned and to support contraceptive access.

Further, S1351 (Krueger)/A1005 (Lavine), signed by the Governor on March 3rd, 2023, ensures that reproductive health service providers are legally protected by prohibiting police in the State from cooperating with out-of-state investigations related to the performance, or aiding in the performance, of an abortion done within NYS. S2226 (Webb)/A976 (Paulin) was also signed into law that day to develop a statewide electronic tracking system for sexual offense evidence collection kits. This bill will allow survivors to track and receive updates on the status and location of their kit and is invaluable to helping survivors have access to information and control over their kit and case.

Legislation passed by both houses this session, **A5435-A (Solages)/S1867 (Brouk)**, has the potential to reduce disparities in maternal health, if signed into law by the Governor. This bill would require the NYS Department of Health to establish and maintain a New York state community directory for doulas for Medicaid reimbursement and the promotion of doula services to Medicaid recipients.

Finally, legislation has passed both houses, **A3113 (Clark)/ S3609B (Webb)** to require health equity impact assessments done for projects seeking the construction, establishment, merger, acquisition, closure, or reduction of a hospital or health-related service evaluate the impact on reproductive health services and maternal health care. Provider and health care system consolidation or changes in ownership have threatened these health services in parts of the State and it is essential that patients have uninterrupted access points. These final bills have not yet been transmitted to the Governor for action.

All of us at Reid, McNally & Savage wish NYSAFP members and your families an enjoyable summer and thank you for all of your continued support for the Academy's successful advocacy program in New York State.

Upcoming Events

2023

Aug. 5-6, 2023
Summer Cluster
Edith Macy Center
Briarcliff Manor

Sep. 21, 2023
Resident Meet & Greet
Embassy Suites – Syracuse

Oct. 12, 2023
Resident Meet & Greet
Erie County

Nov. 5, 2023
Fall Board Meeting

2024

Jan. 12-14, 2024
Winter Weekend

Feb. 25-26, 2024
Winter Cluster
Albany Renaissance

For updates or registration information for these events go to www.nysafp.org

TWO VIEWS: Sexually Transmitted Infections

VIEW ONE

A REVIEW OF THE STI EPIDEMIC IN YOUNG ADULTS AND SCREENING DISCUSSIONS

By Rebecca Kobos, MD

There is an epidemic of sexually transmitted infections (STIs) nationwide. The Centers for Disease Control and Prevention (CDC) offer useful infographics that help illustrate the data surrounding who is affected.[1] (https://www.cdc.gov/std/products/infographics.htm) This is particularly useful for family physicians who see and treat patients of all ages and are uniquely poised to help respond to this crisis. In this article, we offer a brief overview of the data, (all figures courtesy of New York State Department of Health online resources) testing and treatment options for chlamydia, gonorrhea, and syphilis, including Expedited Partner Therapy (EPT) for chlamydia and gonorrhea.

NATIONAL AND NEW YORK STATE DATA

According to the CDC, there were over 26 million new STIs in 2018, including chlamydia (CT), gonorrhea (GC), and syphilis. Twenty percent of individuals living in the US are estimated to have an STI. It is worth reading this statement aloud, "One in five individuals in the US have an STI." Further analysis undercovers racial, ethnic, sex and age disparities. The CDC estimates that one half of all new cases of STIs occurs in individuals between the ages of 15 and 24.[2]

The most frequently diagnosed STI is chlamydia. National numbers from the CDC indicate new CT cases of over 1.5 million in the United States. Equally striking is the resurgence of syphilis, and with that an alarming rise in cases of congenital syphilis, necessitating more screenings for women of childbearing age.[3]

Data from the New York State Department of Health Data indicates this same trend at the state level. Posted on the NYS DOH website is the Sexually Transmitted Infections Surveillance Summary Report by year. Graphs and data from 2021 are referenced throughout this article.[4]

In 2021, in NYS, the rate of new cases chlamydia (CT) among young females ages 15-24 years of age was greater than males of that age. (Figure 1). This trend is consistent with national data. The data further showed that non-Hispanic Black individuals are disproportionately affected with a higher rate of CT compared to the rate of white, non-Hispanic individuals. (Figure 2)[5]

NYS DOH data on gonorrhea (GC) demonstrate higher rates of cases in females between the ages of 15-19 years old and then a reversal (higher rates in males) for all other age groups. Data on race and ethnicity demonstrate a similar health disparity found with CT cases, in that non-Hispanic Black individuals have the highest rates of GC cases, much more than white, non-Hispanic individuals.[6]

Finally, looking at syphilis data from NYS DOH for 2021, there is an alarming increase in congenital syphilis cases, following an increasing number of cases in female individuals. While rates of syphilis cases remain highest in males, the increase in cases in females is concerning with the rise in congenital cases.[7]

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VIEW TWO

SCREENING AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS IN PREGNANT WOMEN

By Chinwe Okoye-Oyibo, MD; Ifesinachi Nnaji, MD and Lovedhi Aggarwal, MD

Sexually transmitted infections (STIs) are a major global public health challenge, with women being disproportionally affected compared to men.[1] According to the New York State (NYS) Department of Health, in 2020, chlamydia continues to be the most commonly reportable STI in NYS with 97,199 diagnoses (22% decrease from 2019), with the highest rates seen in females from 15-24 years of age.[2] Gonorrhea increased in females by 28.7% and decreased in males by 6.2%.[2] Similarly, the rates of primary and secondary syphilis among females continued to increase 6-fold compared to 2014 rates.[2] Sequelae of untreated STIs, specifically in women, include upper genital tract infections, infertility, chronic pelvic pain, cervical cancer, chronic infection with hepatitis viruses and HIV, vertical transmission to fetus, increased risks of premature delivery, low birth weight, and associated morbidity and mortality.[3] In this article, we will discuss the epidemiology, current screening guidelines, and treatment methods of the common sexually transmitted infections (chlamydia, gonorrhea, syphilis, trichomonas, herpes, HBV, HCV & HIV), especially during the antenatal period.

SCREENING

Screening and treating STIs significantly impacts the acute health of the patient and plays an important role in preventing reproductive complications such as infertility or the vertical transmission of an infection to a neonate. The CDC recommendations for screening all pregnant women are summarized in Table 1.

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SCREENING

Chlamydia and Gonorrhea

The US Preventive Services Task Force (USPSTF) recommends screening for CT and GC in all sexually active women 24 years or younger and in women 25 years or older who are at increased risk.

The USPSTF advises the evidence is insufficient for screening for CT and GC in men.

The USPSTF defines risk as having a history of an STI, a new partner or multiple partners, a partner diagnosed with an STI, using sex for drugs or history of unprotected sex (plus/minus condom use). The task force notes offering extragenital testing, including urine, vaginal, rectal, and pharyngeal sites.[8]

Syphilis

The USPSTF recommends screening all persons at increased risk for syphilis.

Increased risk includes but is not limited to men who have sex with men (MSM), persons with HIV or other STIs, using illicit drugs, or history of sex work. In addition, the USPSTF recommends early screening for all pregnant women. The American College of Obstetrics and Gynecology recommend screening pregnant women as early as possible in pregnancy and repeat screening at 28 weeks and again at delivery if at high risk. High risk includes history of sex work, incarceration, diagnosis of HIV and living in an area of high prevalence.[9]

TREATMENT AND PLAN

Chlamydia (CT)

Treatment:

Recommended: Doxycycline 100 mg by mouth twice a day for 7 days

Alternate: Azithromycin 1 gram by mouth for one dose OR levofloxacin 500mg by mouth daily for 7 days

Plan:

Providers should report the STI to the New York State Department of Health as all STI's are reportable. Providers should advise the patient of no intercourse for 7 days from the start of their treatment and include 7 days from their partner(s) treatment. Recommend testing for all STIs. Consider a Test of Cure (TOC) 4 weeks after treatment completion if the patient is at increased risk of reinfection or for those who are pregnant.[10]

Gonorrhea (GC)

Treatment:

Recommended: Ceftriaxone 500mg IM. If the patient weighs >= 150 kilograms, ceftriaxone 1 gram IM.

Alternate: Gentamycin 240 mg IM in a single dose PLUS azithromycin 2 grams by mouth x one dose OR cefixime 800 mg by mouth x one dose.

If CT has not been excluded, add doxycycline 100 mg by mouth twice a day for 7 days.

Plan:

Providers should report, advise patients of no intercourse for 7 days from the start of their treatment and their partner(s) treatment, screening for other STIs and TOC as per the CT plan discussed above with one exception. If GC is diagnosed in the pharynx, it is recommended that the patient have TOC screening 7-14 days after initial treatment.[11]

Syphilis

Treatment:

Treatment depends on the stage of syphilis at diagnosis. Staging is beyond the scope of this article, but a detailed review can be found online at the CDC.

In brief review:

* For primary and secondary stage syphilis: benzathine penicillin G 2.4 million units IM x one dose. Alternate: doxycycline 100 mg by mouth twice a day for 14 days.
* For latent syphilis:
* IF EARLY (acquired diagnosis within the preceding 12 months): benzathine penicillin G 2.4 million units IM x one dose
* IF LATE: (acquired diagnosis beyond preceding 12 months): benzathine penicillin G 2.4 million units IM once a week x 3 doses.

Plan:

Providers should report to their local DOH, advise patients of no intercourse for seven days post treatment completion and partner(s) treatment, and screen for other STIs and TOC as per the CT and GC plans discussed above. In addition, specific repeat testing for syphilis is advised at 6, 12 and 24 months.[12]

Direct communication with the local DOH for any syphilis case is advisable for help with tracking partners and follow-up testing.

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Figure 1: Chlamydia Rates in NYS

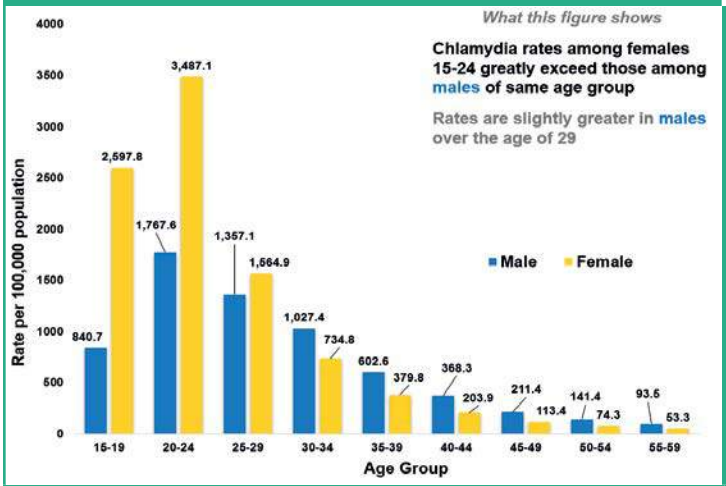
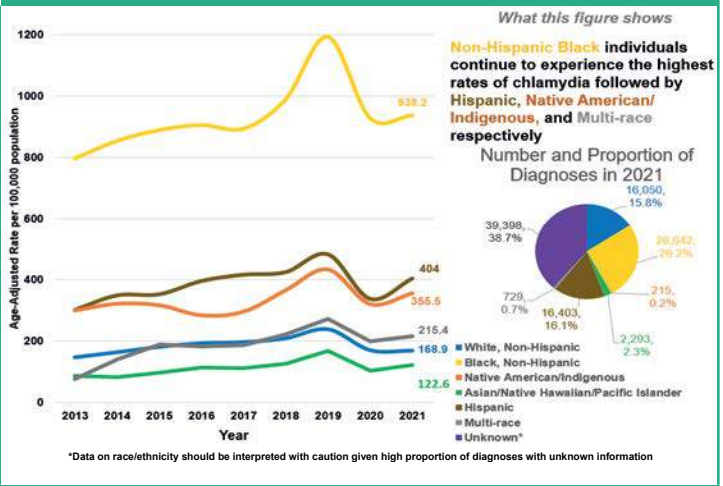


Figure 2: Chlamydia Rates by Race/ Ethnicity in NYS



NYS DOH data on CT. Sexually Transmitted Infections Surveillance Summary Report, New York State, 2021 (ny.gov)

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Table 1: CDC Recommendations for Screening Pregnant Women

Disease	Screening Recommendations
Chlamydia	***First prenatal visit:*** Screen all pregnant women <25 years of age and older pregnant women at increased risk for infection **Third trimester:** Rescreen if <25 years of age or at continued high risk
Gonorrhea	***First prenatal visit:*** Screen all pregnant women <25 years of age and older pregnant women at increased risk for gonorrhea at first prenatal visit **Third trimester:** Rescreen for women at continued high risk
Hepatitis B (HBV)	***First prenatal visit:*** Screen all pregnant women **Third trimester:** Rescreen women who: – Were not screened prenatally – Those who engage in behaviors that put them at ***high risk*** for infection –Those with signs or symptoms of hepatitis at the time of admission to the hospital for delivery
Hepatitis C (HCV)	***First prenatal visit:*** Screen all pregnant women during each pregnancy, except in setting where the prevalence of HCV infection is (HCV RNA-positivity) <0.1%
HIV	***First prenatal visit:*** Screen all pregnant women **Third trimester:** Rescreen women at high risk for acquiring HIV infection
Syphilis	***First prenatal visit:*** Screen all pregnant women **Third trimester (28 weeks (about 6 and a half months) and at delivery):** Rescreen women who: – Are at risk for syphilis during pregnancy (e.g., misuses drugs; has had another STI during pregnancy; or has had multiple sex partners, a new partner, or a partner with an STI) – Live in areas with high numbers of syphilis cases, and/or – Were not previously tested or had a positive test in the first trimester

CDC - Screening Recommendations and Considerations Referenced in Treatment Guidelines and Original Sources - Accessed May 1st, 2023 [4]

The CDC currently does not recommend routine screening for pregnant women for bacterial vaginosis, trichomoniasis, herpes (HSV), and human papilloma virus (HPV).

Chlamydia

Chlamydia trachomatis *(C. trachomatis)* is the most common sexually transmitted bacterial pathogen in the United States.[4] Chlamydial infection in pregnancy is associated with a myriad of complications including fetal loss, premature rupture of membranes, preterm labor and delivery, and low birth weight among others.[5,6] The increased risk for preterm delivery with *C. trachomatis* may cause up to a two to four-fold increased risk for preterm labor and delivery.[7-9] Maternal infection with *C. trachomatis* may lead to neonatal infection including conjunctivitis and pneumonia due to very high vertical transmission rates (50-70 % without treatment).[10,11] The most sensitive (>90%) and specific test (>99%) for diagnosis of *C. trachomatis* is the nucleic amplification test (NAAT) using a swab specimen from the vagina or cervix or first catch urine.[12] The first-line treatment in pregnancy is azithromycin, with amoxicillin as a suggested alternative. (See Table 2)

Gonorrhea

Gonorrhea, a frequently reported bacterial infection, results from colonization by Neisseria gonorrhea *(N. gonorrhea)*. *N. gonorrhea* is transmitted via sexual contact with mucous membranes lining the female reproductive tract, which includes the cervix, uterus and fallopian tubes.[13] Since 2009, the incidence has risen by 118% in both males and females with over 700,000 new cases of gonorrhea reported in 2021 alone.[14] *N. gonorrhea* can be vertically transmitted to the newborn at the time of birth from the mother's genital tract, resulting in ophthalmia neonatorum or a systemic neonatal infection.[4,15] Diagnostic testing for gonorrhea includes culture (endocervical), nucleic acid amplification test (NAAT), and POC NAAT, such as GeneXpert (Cepheid).[4,13] Pregnant women with uncomplicated gonorrheal infection should be treated with the same preferred regimen as the general population, a single dose of ceftriaxone 500 mg delivered intramuscularly.[13] (See Table 2)

Syphilis

Syphilis is a sexually transmitted infection that crosses the placenta during pregnancy and results from an infection with Treponema pallidum.[4] Maternal syphilis has been associated with complications such as hydramnios, spontaneous abortion, and preterm delivery. Fetal manifestations include fetal syphilis, fetal hydrops, prematurity, fetal distress, and stillbirth. Congenital syphilis, neonatal death, and late sequelae such as cerebral palsy, permanent vision loss, and musculoskeletal deformity are among the complications seen in neonates.[4,16] The rate of congenital syphilis increased 291% from 2015-2019 with a simultaneous 172% increase in the prevalence of primary and secondary syphilis in women aged 15-44 years.[17] Serological testing, treponemal or nontreponemal, is used to screen for syphilis and detect antibodies to the offending agent.[4,13,18] Treatment of syphilis infection is dependent on the stage at the time of diagnosis. A single injection of long-acting benzathine penicillin G is indicated for the primary, secondary, or early latent syphilis in pregnant women.[19] For those with late latent syphilis or latent syphilis of unknown duration, the CDC recommends three doses of long-acting benzathine penicillin G at weekly intervals.[18] Women with penicillin allergies should be desensitized and treated with penicillin due to limited evidence on the efficacy and safety of alternative antibiotics.[13,18]

Trichomonas

Vaginal trichomoniasis is caused by an infection with the protozoan parasite Trichomonas vaginalis *(T. vaginalis)*, resulting in vulvo-vaginitis and altered vaginal discharge in symptomatic women.[20,13] Outcomes of inadequately treating trichomonal infection in pregnant women results in complications like low birth weight and pre-term labor.[13] Trichomoniasis has been also found to be associated with PID, post hysterectomy cuff cellulitis, HIV, and other sexually

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Disease intervention specialists from DOH are assigned cases and are invaluable in ensuring appropriate patient and partner follow-up.

EXPEDITE PARTNER THERAPY (EPT)

EPT is available in NYS for sex partners of those diagnosed with chlamydia, gonorrhea and trichomoniasis. It is intended to help stop the rising numbers of STIs from untreated partners.

The optimal plan is to have the partner(s) evaluated, screened, and treated in person. However, if that is not an option, EPT is legal in NYS and allows the patient's provider to prescribe medication for the partner(s) without identifiable information. Medication in hand with educational material is the preferred method for EPT, but if the medical office does not dispense medications, a written prescription, along with educational material, may be provided to the index patient for their partner. Providers should familiarize themselves with how to legally provide EPT medications. It is important to note, EPT is not permitted in any case of abuse or if the index patient has syphilis. Preferred treatment regimens for EPT are available for review online at CDC and NYSDOH.[13]

CONCLUSION

Providers should include STI screening and testing as part of routine health care for all patients. After a review of national and state data, it is critically important that we remember certain patient populations are disproportionately affected by high rates of STIs. It is paramount we ensure those patients with the highest rates of STIs are educated on risk, prevention, pertinent screenings, and treatment. Only through partnerships with our local DOH can we begin to reach all populations at risk and hopefully stop the STI epidemic.

Endnotes

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11. Gonococcal Infections Among Adolescents and Adults - STI Treatment Guidelines (cdc.gov)
12. Syphilis – STI Treatment Guidelines (cdc.gov)
13. Questions, Answers, and Best | Practices for Expedited Partner | Therapy (EPT) – AIDS Institute Clinical Guidelines (hivguidelines.org)

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transmitted infections.[20] Most patients are asymptomatic, however, women who do experience symptoms commonly report a frothy yellow-green vaginal discharge and a foul fishy odor, especially after having vaginal intercourse and during menses.[4,20] Nucleic acid amplification testing (NAAT) is recommended for the diagnosis of trichomonas over wet mount microscopy, due to its high sensitivity.[13] All pregnant women diagnosed with Trichomonas should be treated, regardless of the presence or absence of symptoms.[13,21] It is recommended to treat with metronidazole 500 mg twice a day for 7 days, as the first line choice.[13,22] These individuals should be retested within 3 months after initial treatment due to the high rates of infection recurrence.[13]

Human Immunodeficiency Virus

Human immunodeficiency virus (HIV) is a virus that attacks the body's immune system and if not treated, can lead to acquired immunodeficiency syndrome (AIDS).[13] According to the CDC, of the 36,801 new HIV diagnoses in the US, only < 1% (84) were due to perinatal transmission.[23] Perinatal HIV diagnoses has decreased 41% from 2015 to 2019, with African American populations disproportionately affected more than other ethnic groups.[23] HIV usually presents itself as an asymptomatic illness on initial presentation, or patients would describe mononucleosis type of symptoms (fevers, sore throat, fatigue, body aches, oral ulcers, leukopenia, thrombocytopenia, elevated transaminases, and or lymphadenopathy).[13]

Rapid HIV testing is offered as a quick screening tool, with a negative result being definitive, unless the patient had a recent exposure to HIV.[24] If rapid testing is reactive, immediate initiation of HIV prophylaxis for mother and fetus is recommended until supplemental testing results are available.[24] The goal of initiating antiretroviral therapy (ART) is to reduce perinatal transmission and to treat maternal HIV disease.[24] Highly active antiretroviral therapy (HAART) is used during pregnancy to suppress viral load. Studies also show that when some women with HIV had a cesarean section (C-Section) before labor started, the chance of passing HIV to their babies was lowered by half.[13]

Herpes Simplex Virus

According to the CDC, genital herpes simplex virus (HSV) is a common STI, with 572,000 new genital herpes infection reported in the United States among people aged 14-49 in 2018.[25,26] Symptoms consist of having the classic multiple, bilateral, ulcerating, pustular lesions, tender lymphadenopathy, dysuria, local pain and itching, and systemic symptoms including fever, headache, malaise, and myalgias.[26] Genital herpes is of great concern in pregnant women because of the risk of vertical transmission to the infant during pregnancy.[27] For a mother diagnosed during her first two trimesters of pregnancy, sequential viral cultures on genital secretions should be taken from week 32 to delivery. With two consecutive negative cultures and the absence of active genital lesions at time of delivery, it is safe to perform a vaginal delivery. Active genital lesions and or prodromal symptoms, such as vulvar pain or burning at delivery, during the last 4-6 weeks of pregnancy, will lead to a caesarean section.[27]

Parturient women with primary active lesions are treated with oral acyclovir 500 mg 3 times/day for 7-10 days, or oral valacyclovir 1G twice/ day for 7-10 days. Symptomatic recurrent episodes are treated with oral acyclovir 400 mg 3 times/day for 5 days, or 800 mg 2 times/ day for 5 days.[28] For women experiencing recurrent HSV outbreaks,

oral suppressive therapy should be offered, beginning at 36 weeks' gestation. Acyclovir 400 mg three times daily or valacyclovir 500 mg 2 times/day, from 36 weeks until time of delivery, would reduce outbreaks at the time of delivery, eliminating vertical transmission and the risk of performing a C-section for the mother.[28]

Hepatitis B & C

Hepatitis B (HBV) and Hepatitis C (HCV) are routinely recommended screenings during pregnancy. The USPSTF recommends that all pregnant women should be screened for HBV and HCV during their first perinatal visit.[29] Since 1998, there has been an annual increase in the rate of maternal HBV by 5.5%. In contrast, the prevalence of HCV in the U. S. is estimated to be about 4%.[30] According to the CDC, all pregnant women should be screened for HBV with HBsAg during each pregnancy, preferably at the first prenatal visit, and HBV DNA viral load testing is recommended for those testing positive for HBsAg. Antiviral therapy, like tenofovir disoproxil fumarate (TDF), should be initiated in individuals with HBV DNA >200,000 IU/mL starting at 28 weeks.[31] Pregnant women who are HBsAg negative with a high risk of acquiring HBV should be given the HBV vaccine.[31] HCV should also be tested during each pregnancy with HCV Ab, and if positive, it should be followed by the HCV RNA PCR test to assess for an active infection.[31] Hepatitis C curative treatment is not currently approved for use during pregnancy; however, once the mother has given birth and completed breastfeeding, it is safe to begin this treatment.

Table 2 – Treatment of STIs In Pregnancy

Chlamydia	Azithromycin 1 g orally in a single dose Alternative regimen- Amoxicillin 500 mg orally 3 times/day for 7 days
Gonorrhea	Ceftriaxone 500 mg in a single IM dose plus treatment for chlamydia if infection has not been excluded
Trichomoniasis	Metronidazole 500 mg twice a day for 7 days
Syphilis	Pregnant women should be treated with the recommended penicillin regimen for their stage of infection
HSV Type 2	
- First Episode	Acyclovir 500 mg 3 times/day for 7-10 days, or oral Valacyclovir 1Gram twice/ day for 7-10 days
- Recurrent	Oral Acyclovir 400 mg 3 times/day for 5 days, Valacyclovir 500 mg orally 2 times/day
HIV	Highly active antiretroviral therapy (HAART) is used during pregnancy (individualized)
Bacterial Vaginosis	Metronidazole 500 mg 2 times/day for 7 days

CDC- STDs during Pregnancy Treatment and Care- Accessed May 1st, 2023[33]

CONCLUSION

The burden of STIs in pregnancy poses a major challenge in both resource rich and resource poor settings. Most STI's are asymptomatic so screening and treatment of pregnant mothers, is not only important for the health of the woman but can also be crucially important to the wellbeing of the newly born infant. Healthcare providers should keep abreast of the most current national recommendations and guidelines for screening and management of STIs.

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Emergency Contraception – Who, When, and How for the Family Physician

By Sushama Thandla, MD, MPH; Anna Jacquinot, MD and Michael Owitz, MD

Introduction and Background

A 2023 meta-analysis showed that compared with an intended pregnancy, unintended pregnancy is significantly associated with adverse maternal and infant outcomes.[1] Family practice clinicians need to be fully aware of the impact of the continuation of an unintended pregnancy beyond the completion of that pregnancy, into the life course of both mother and child involved. As family medicine clinicians play an important role in preventative health care and risk minimization, they have an especially significant responsibility in appropriate counseling regarding the risk for unintended pregnancy. Providers tend to be well-versed in routine birth control management but often neglect to provide appropriate counseling regarding emergency contraception (EC), leaving patients unaware of this effective, valuable time-sensitive intervention.[2] In order to provide just and equitable healthcare to people at risk for unintended pregnancy, family medicine clinicians should have a thorough understanding of how to counsel patients on emergency contraception.

In this article, we review the current recommendations, guidelines, and mechanisms of emergency contraception, and explore the opportunities family physicians have to address emergency contraception in their day-to-day practice.

Important Aspects of Intervention

In settings where birth control is not being effectively utilized and a person does not want to risk pregnancy after sexual intercourse, emergency contraception is a crucial intervention. Emergency contraception or EC, is defined as therapy used to prevent pregnancy after an unprotected or inadequately protected act of sexual intercourse.[3] According to the Center for Disease Control's National Survey of Family Growth from 2017-2019, 65.3% of women from 15-49 years old were using contraception, a proportion that had been growing from previous years.[4] This leaves the remaining 34.7% of women of childbearing age unprotected from pregnancy, which includes those that don't want an unplanned pregnancy. According to studies, upwards of 45% of pregnancies are unplanned.[5] An estimated 19% of women have been sexually assaulted in their lifetimes and have been at high risk of an unintended pregnancy.[6] It is also notable that the less invasive methods of birth control such as pills and barrier methods have higher risks of failure, particularly when accounting for actual use as opposed to intended use.[7] All of these scenarios describe the categories of women who would benefit from EC.

Despite the increasing availability and utilization of EC, there has been no compensatory increase in counseling on the effective use of EC medications.[1,10] These shortcomings might be circumvented by educational interventions for and by family medicine clinicians. Given appropriate counseling, patients can be empowered to choose the EC that is most appropriate for them, facilitated by clinicians who are well-informed and prepared to prescribe them.

One of the key factors for the efficacy of EC is the timing of its use. The current approved methods for EC have an effective window of three to five days, with recommendations for use as soon as possible after unprotected sex.[8] Delay in the use of EC may increase the risk of unintended pregnancy by up to five times, when compared to use immediately following intercourse.[9] Being well-informed and prepared to make timely decisions and knowing where to turn when in need is of utmost importance to women in such emergency situations.

Current Guidelines and Options

The World Health Organization's (WHO) indications for emergency contraceptives for pregnancy prevention include sexual intercourse where no contraceptive is used, sexual assault where no protection was used, and intercourse when there is a concern for the failure of the contraceptive used.[21] See Table 1.

Established clinical guidelines endorse the effectiveness, indications, and prescription of EC, simultaneously advocating for the education of patients and clinicians. The most recent guidelines for EC, established by the Society of Family Planning were released in January 2023.[8] Prior to this, the 2015 American College of Obstetricians and Gynecologists Practice Bulletin on EC explained the major options that were available.[3] The WHO has released practice recommendations for the modalities of EC with specific applications across many countries of the world.[21] The WHO found a low to moderate grade of evidence for strongly recommending that a woman take ulipristal acetate (UPA) as

soon as possible after unprotected intercourse, but within 120 hours to prevent pregnancy,[13] and recommends resuming or initiating routine contraception after the use of EC.[21] In the United States, the Centers for Disease Control has specified the recommended forms of EC.[4]

In terms of oral options, ulipristal acetate (UPA), also known as Ella, is the first-line EC pill due to its higher efficacy, larger time frame for effective use, and smaller side-effect profile.[11] However, UPA is only available via prescription in the US. Levonorgestrel (LNG), also known as Plan B, is another oral option for EC which is easily available over the counter at most pharmacies at an average cost of 40 dollars.[12] Levonorgestrel, and to a lesser extent UPA, have certain patient-specific scenarios of obesity and concurrent cytochrome P450 inducer use that limit their efficacy.[8] Despite limitations with levonorgestrel use, pharmacy staff, and even clinicians tend to be more familiar with levonorgestrel for EC than UPA, its more effective counterpart, which might indicate a gap in provider knowledge.[13] A less effective method of oral EC is the Yuzpe method, where patients take a specified dose of oral combination contraceptive pills within 72 hours of intercourse, followed by a second dose 12 hours later. While the Yuzpe method is certainly not ideal, it can be considered in the event of a limitation in the pharmacy supply of levonorgestrel or UPA.[14]

Intrauterine devices (IUDs) are a highly effective non-oral option for EC if inserted within 5 days of unprotected intercourse.[15] In fact, ACOG notes that the copper IUD (also known as ParaGard) is the most effective overall method of EC.[3] The pharmacology of oral and non-oral methods is discussed in more detail in the pharmacology section of this article. See Table 2 for details of the available options for EC.

In order to increase the accessibility for EC, clinicians should be prepared to discuss options with patients and allow for appropriate shared decision-making. Should personal beliefs prevent a clinician from prescribing or dispensing EC medication, current guidelines recommend that a clinician should be prepared to refer patients to someone willing to write and dispense the prescriptions.[16]

Pharmacology of Emergency Contraception

The guideline-recommended first line EC pill is ulipristal acetate (UPA), also known as Ella. This medication is offered as a single 30mg dose, which can be used up to 120 hours (~5 days) after unprotected intercourse.[8] UPA is available via prescription only, and is contraindicated in confirmed pregnancies, so requires a pregnancy test before it can be given. It exerts its effect by binding to and blocking progesterone receptors, and produces two subsequent effects depending on which phase of the menstrual cycle the medication is taken during. Prior to ovulation and during luteinizing hormone (LH) surge, the anti-progesterone effects delay follicle development and release, thus preventing an egg from coming into contact with the sperm. Following ovulation, the medication is believed to thin the endometrium, presumably making it inhospitable for implantation.[17,8] Recent studies have called into question the anti-implantation effects of UPA which may deter some clinicians from using UPA for EC.[18] However, major guideline recommendations from ACOG, the Society of Family Planning, WHO, and the CDC have ruled that the main mechanism of action remains follicular inhibition.[4,5,8]

The only other FDA approved EC pill is levonorgestrel (LNG), more commonly known as Plan B. This is given as a single 1.5mg dose within 72 hours, or approximately three days, of unprotected intercourse. This medication works similarly to UPA in that it binds to progesterone receptors, ultimately limiting the LH surge and

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Table 1. World Health Organization Indications for Emergency Contraception Use[20]

Sexual intercourse when no contraceptive has been used; Sexual assault when the person was not protected by an effective contraceptive method; Sexual intercourse where there is a concern for contraceptive failure or misuse, including:	
Condoms	Breakage, slippage, or incorrect use
Combined hormonal contraceptive pills	Three or more consecutively missed pills or three days late during the first week of the cycle
Progesterone-only contraceptive pills	Three or more hours late from usual pill use time or more than 27 h after the previous pill
Desogestrel-only contraceptive pills	Twelve or more hours from usual pill use time or more than 36 h after the previous pill
Norethisterone enanthate injection	Two or more weeks late for injection
Depot-medroxyprogesterone acetate injection	Four or more weeks late for injection
Combined injectable contraceptive	Seven or more days late for injection
Cervical cap or diaphragm	Dislodgement, breakage, tearing, or early removal
Withdrawal	Failed withdrawal
Spermicide	Failure to melt prior to intercourse
Fertility awareness methods	Miscalculation of abstinence period, or failure to abstain or use a barrier on the fertile days
Intrauterine device or implant	Device expulsion

Data from selected practice recommendations for contraceptive use. 3rd ed. Geneva: World Health Organization; 2016.

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delaying ovulation, but does not have the potential anti-implantation effect that has been associated with UPA.[19] While they have similar mechanisms, UPA is able to interrupt the LH surge, whereas LNG is no longer effective once the LH surge has begun. Because of this, UPA has been found to be more effective than LNG in decreasing the risk of pregnancy, making it the pill of choice for EC for prescribers.[11] Despite this, LNG is more readily available than UPA and it does not require a pregnancy test prior to use, making it a feasible choice that is available over the counter at most pharmacies.

Regardless of medication choice, when advising patients on the use of EC pills, there are several important factors to keep in mind. Providers should inform patients that these medications are most efficacious when taken as soon as possible after unprotected intercourse. Patients should be counseled on what to expect after taking these medications, that they can delay their upcoming period, and cause it to be heavier or more painful than usual. Finally, both pills may have reduced efficacy in certain conditions such as obesity, malabsorption, and use of cytochrome P450 inducers such as carbamazepine or phenytoin.[8] In these situations, patients may better benefit from placement of an IUD.

The copper intrauterine device (IUD) or ParaGard is the next available option as EC, not only for its efficacy but for its subsequent action as a long-acting reversible contraceptive (LARC). The IUD requires a pregnancy test followed by placement by a skilled provider within five days of unprotected intercourse, increasing the number of steps needed by a patient in order to receive the treatment. The mechanism of the copper IUD as an emergency contraceptive is the same as its mechanism as a LARC, wherein copper ions interfere with the motility and survivability of sperm, and induce a local sterile inflammatory reaction, making the area inhospitable for both sperm and egg. Recently, data has been gathered showing equal efficacy for levonorgestrel IUDs, (available as Liletta or Mirena), as EC, again using its mechanisms as a LARC of interfering with the maturation and mobility of sperm.[8] Counseling patients on the emergent use of IUDs is similar to counseling on their use as birth control, though, in the interest of full disclosure, patients should understand that IUD use as an emergency contraceptive is not FDA-approved at this time. Otherwise, patients should be aware that following placement, IUDs may trigger cramping and increased vaginal bleeding, as well as eventual amenorrhea. If a patient receives an IUD while pregnant, there are significant risks of miscarriage, preterm delivery, and septic abortion, so patients should undergo pregnancy testing before an IUD is placed. Following placement, IUDs may be used for long-term birth control for many years.[8]

Role of the Family Physician in Addressing Emergency Contraception

Prevention is an important fundamental concept in the practice of family medicine, and prevention of unintended pregnancies falls within the broad scope of preventive primary care. While family medicine providers can orient their patients on how to access and effectively use emergency contraception, these interventions also afford opportunities for counseling on routine birth control options, as well as STD testing.[8]

During appointments that address reproductive health such as yearly health maintenance exams, encounters for birth control counseling, and postpartum visits, emergency contraception should be discussed. Empowering patients, especially younger age groups, with knowledge about EC is easily achieved through educational interventions.[20] Family medicine clinicians should educate patients about the option for EC after intercourse, especially when young patients inform the physician that they are sexually active but decline routine effective contraceptive methods.

Table 2: Current Emergency Contraception (EC) Options in the United States[13,21-23]

Option	Generic Name and Dose	FDA Approved	Time Frame for use from Sexual Intercourse	Efficacy – Various Outcomes (data from cohort, meta-analysis or systematic review)	Prescription or OTC	Pregnancy Test
Oral	Ulipristal acetate 30mg single dose	Yes	Up to 120 hours	> 95% reduction in risk of pregnancy risk depending on LH surge[13]	Prescription	Yes, if able without delaying getting EC but not absolutely needed
	Levonorgestrel 1.5 mg single dose	Yes	Up to 72 hours	60-94% reduction in risk of pregnancy	OTC	No
	Combined Estrogen-Progesterone-Yuzpe regimen, 2 doses 12 hours apart Ethinyl estradiol 100-120mcg Levonorgestrel 0.5-0.6mg each dose	No	Up to 72 hours	74% reduction in risk of pregnancy[23]	Prescription	No data
Intrauterine System	Copper	No	Up to 120 hours	0.12 %failure rate[21]	Prescription	Yes
	Levonorgestrel 52mg	No	Up to 120 hours	<1% failure rate[22]	Prescription	Yes

Family physicians have multiple opportunities to educate their patients about contraception even during non-reproductive health encounters, unlike other specialty practitioners who may usually intervene only through a specialty visit to address reproductive health concerns. All adult women and adolescents should be counseled about EC, especially those who may be at high risk for fetal or maternal complications of pregnancy due to their medical conditions. Additionally, recommendations should be made to contact their clinician after unprotected intercourse.

Conclusions

Current guidelines from major national organizations have established indications and recommendations for emergency contraception. The most used, effective, and easily accessible EC options are oral ulipristal and oral levonorgestrel. Although intrauterine device insertion is the most effective EC option, its procedural protocol limits patients' access to obtaining it easily.

Educating family medicine clinicians about emergency contraception holds tremendous potential for effective discussions regarding EC options. Educating patients about the availability, options, timing, and effectiveness of using EC is necessary, and this topic should be discussed in appropriate clinical situations with adolescents and women in the reproductive age group.

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Menstrual Health Challenges:
Their Impact on Refugee, Immigrant, and Migrant Women

By Sonia Scallon; Cindy Jiao, MD and Nora Callinan, MD

Overview of Menstruation

Approximately half of the population experiences menstruation, which is a pubertal milestone and natural part of the reproductive cycle. Although menarche marks a biological phenomenon, it also represents a social transition and the onset of accompanying menstrual health needs.[1] Menstrual health is defined as the complete physical, mental, and social wellbeing in relation to the menstrual cycle.[2] Addressing menstrual health and its complexities requires timely knowledge about the menstrual cycle, access to hygiene resources, support for disorders and discomforts, and a sociocultural environment free from restrictions related to menstruation.[2]

There is a growing understanding that achieving menstrual health is essential for human rights, gender equality, and the sustainable development goals as defined by the United Nations.[3] However, despite this increasing recognition of its importance, an estimated 500 million individuals were unable to achieve menstrual health even before the COVID-19 pandemic.[4] Supporting menstrual health continues to be limited by multiple challenges, including financial constraints, social stigma, and lack of education surrounding menstruation and menstrual management.[5,6] Other challenges include women feeling unprepared for menarche, along with incomplete understandings of the ovulatory cycle and menstrual health disorders.[7] It is important to recognize and address these challenges, as menstrual inequities have been associated with worse health outcomes–including the risk of bacterial infections, barriers to diagnosing menstrual disorders, and negative impacts on emotional well-being.[8] Family medicine physicians are often individuals' first and most consistent contact with the healthcare system,[9] so it is imperative for family physicians to remain aware of these inequities and actively seek to address these concerns.

Menstrual Challenges in Refugee, Immigrant, and Migrant Communities

Although menstrual health challenges affect all menstruating individuals, refugee, immigrant, and migrant (RIM) communities face unique challenges that must be acknowledged when approaching menstrual health equity. First, it is important to distinguish the differences between RIM communities and the contexts of their arrivals. The term, "refugee," is an internationally recognized legal classification for individuals fleeing their home country based on founded fears of persecution due to race, religion, nationality, or membership of a political or social group.[10] In the United States, "immigrant," is defined as any person legally admitted for permanent residence.[11] In contrast, "migrant," refers to

individuals who have moved away from their usual residence, whether temporarily or permanently.[11] Although RIM communities represent vastly heterogeneous groups, they face similar health challenges including lack of healthcare access, poverty, cultural and language barriers, and limited or interrupted formal education.[12] New York State (NYS) had the third largest number of refugee arrivals by state, with nearly a quarter of the state's population comprised of foreign-born individuals in 2020.[13] Thus, recognizing the socioenvironmental factors that compound health is important when addressing health disparities, including menstrual health, that impact a significant population of NYS.

RIM communities face unique challenges to achieving menstrual health including limited health education surrounding menstruation prior to resettlement. As a whole, RIM communities are transitioning from environments where sociocultural systems surrounding sexual and reproductive health may vastly differ from countries of resettlement.[14] Previous research has established that RIM individuals often have limited opportunity to learn about menstruation due to limited access to health services and information.[15] Specifically, factors such as war, interrupted schooling, reduced access to sexual and reproductive health services, and lack of available educational materials often negatively impact RIM women's health literacy.[15] Insufficient information and evidenced-based materials produce difficulties with menstrual literacy, defined as the capacity to make decisions based on acquiring, understanding, and processing menstrual health information.[4] As a result, women seek information from peers, maternal figures, and media which can spread misinformation and sexual myths.[15,16] Recent studies confirm that RIM communities lack adequate knowledge of menstruation prior to menarche, leaving them unprepared to manage menstrual cycles.[16]

After resettlement, menstruation in RIM communities may be negatively influenced by the challenges posed by migration and displacement. For example, women from RIM communities often first prioritize their basic needs such as housing and employment during resettlement rather than their menstrual challenges.[17] Direct access to menstrual health resources is also limited by additional social factors such as obtaining childcare, finding transportation to appointments, and navigating the health system of the host country.[15] Other challenges include language and communication barriers which further complicate appointments, limiting the uptake of treatment and educational resources.[15] In addition, RIM communities commonly face financial barriers to purchasing menstrual products, which often force them to improvise protective methods and infrequently change menstrual products.[16] As a result, unsanitary practices may lead to poorer health outcomes including irreversible compromise to fertility (e.g. endometriosis) and critical conditions (e.g. toxic shock syndrome).[16] Conversely, providing menstrual health resources such as sanitary pads has been shown to significantly reduce prevalence of sexually transmitted infections and bacterial vaginosis.[18]

Sociocultural beliefs also significantly impact how RIM communities perceive menstruation, which may contribute to stigma and hinder open conversations surrounding menstrual health. Across multiple cultures in RIM communities, menarche is often acknowledged as a symbolic transition into womanhood, linked with reproductive maturity and adulthood.[19] However, within these same cultural environments, menstruation is often associated with dirt, taboos, and restrictions. Some RIM communities view menstruation with shame and secrecy, describing the term as "disgusting," "polluting," and as something that should not be discussed with others. Due to a culture of silence, many RIM women report embarrassment at menarche and often participate in self-seclusion.[20] For example, women from Afghan refugee communities reported prohibition from religious activities or places of worship, even after resettlement.[19] Many RIM women report dissatisfaction with their menstrual knowledge and endorse a desire to be more forthcoming with their own future daughters.[19,21]

Proposals and Challenges for Family Medicine Physicians

Supporting menstrual health in RIM populations necessitates following best practices for caring for RIM patients in general. In a narrative review, Lau and Rodgers (2021) offer several suggestions to improve cultural humility and competency at the individual and organizational level including: respect for cultural diversity, strong partnerships between healthcare groups and the communities, professional interpreter services, and linguistic and culturally appropriate communication across multiple areas of the clinic.[22] In line with these principles, we propose the following best practices when caring for RIM communities and their menstrual health needs:

1. **Understanding the core belief systems and sociocultural contexts of RIM patients in your practice**

   It is important to identify the cultural norms of RIM communities, including gender norms and belief systems. Given the challenges of busy primary care clinics, we suggest agenda-setting at the start of the visit and setting aside a dedicated time to discuss menstrual health. In this dedicated time, physicians can inquire in an open-ended manner about the patient's experience, feelings, and ideas toward menstruation. An example of this could be asking the following: "Is there anything I should know about your cultural beliefs regarding menstruation that could help me take better care of you?" For example, a 50-year-old immigrant patient came to the clinic due to concerns that her birth control was stopping her periods. When we explored her beliefs surrounding her menstrual irregularity, she expressed that she thought it was normal, and even desired, to have her period regularly until she was 65 years old. Although we raised the idea of menopause and how her body may be naturally stopping her periods, understanding of the patient's beliefs regarding her menstrual cycle was crucial to developing rapport and holistically caring for her health.

   As part of health maintenance exams or new patient visits, we traditionally ask about menstruation such as its regularity and if the patient uses contraception. Given that many patients may not know what is considered regular, we suggest asking patients about how heavy their menstrual cycles are, if their menstrual cycles are painful, and how they manage their bleeding. Using these inquiries as a screening tool, physicians can identify any red flags, such as heavy menstrual bleeding, that may warrant scheduling a follow-up visit. In the follow-up

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visit, physicians can more deeply explore the patient's personal experience, beliefs, and knowledge surrounding menstruation. Physicians can continue building rapport by asking open-ended questions such as, "How do you feel about your menstrual cycle?" or "Do you feel that your menstrual cycle is 'normal'?" Because each patient's experience is unique, the definition of "normal" will be different for each person. A follow-up visit will allow family medicine physicians to thoroughly address the complexities of menstrual health and ask about other areas of interest: the duration of their menstrual cycle, number of hygienic materials used/changed, intermenstrual bleeding, menstrual pain, or signs of perimenopause. It also may be useful to explore the patient's perceptions toward hormonal birth control if menstrual regulation is desired. Ultimately, sensitively exploring the patient's attitudes and beliefs toward menstruation will allow the physician to build rapport, uncover possible menstrual disorders requiring further workup, and emphasize patient-centered care. Management for menstrual problems is not inherently different from a non-RIM patient; however, more time may be needed to understand cultures, beliefs, and attitudes to build rapport.

2. Actively screening for period poverty and providing education surrounding menstrual health

Family medicine physicians should screen for period poverty affecting their patient population, especially in individuals

Table 1. Menstrual Health Resources

Menstrual Education Resources		
American Academy of Family Physicians (AAFP): Menstrual Disorders	https://www.aafp.org/pubs/afp/topics/by-topic.menstrual-disorders.html	The AAFP provides an updated list of articles in the American Family Physician journal surrounding menstrual conditions and related topics. These articles are accessible to AAFP members and may aid physicians in managing common menstrual-related concerns.
Bedsider	https://www.bedsider.org/	Bedsider is an online website founded by physicians and other experts to provide a birth control support network for women ages 18-29. This website is a useful tool for physicians to use if patients need methods to control menstrual bleeding or want additional health information.
Local and National Menstrual Equity Initiatives		
Food Bank For NYC: Woman to Woman Campaign	https://www.foodbanknyc.org/womantowoman/	The Food Bank For NYC initiated the Woman to Woman Campaign in 2016 which seeks to provide hand-assembled hygiene kits and menstrual packages to women and girls facing poverty in New York City.
National Diaper Bank Network's Alliance for Period Supplies:	https://nationaldiaperbanknetwork.org/alliance-for-period-supplies/	The National Diaper Bank Network launched the Alliance for Period Supplies with sponsorship from Kotex in May 2018. Allied programs are independent non-profit organizations that collect and distribute menstrual supplies in local communities across America.
Capital Region Menstrual Health (CRMH)	https://schenectady.cce.cornell.edu/health-wellness/capital-region-menstrual-health	Cornell Cooperative Extension of Schenectady County initiated the CRMH which provides menstrual products directly to underserved communities through a network of community-based organizations and local Period Pantries.
Resources for RIM Health		
Center for Disease Control (CDC): Immigrant, Refugee, and Migrant Health	https://www.cdc.gov/immigrantrefugeehealth/index.html	The CDC provides information regarding RIM health and health education tools used to improve cultural and linguistic barriers. These resources are not specific to menstrual health but allow physicians to sensitively address the specific needs of RIM communities in their areas.
U.S. Food and Drug Administration (FDA): Office of Women's Health	https://www.fda.gov/consumers/free-publications-women/publications-other-languages	The FDA's Office of Women's Health offers multiple health brochures and fact sheets translated in various languages and dialects. Menstrual health related topics include menopause and hormones.
MedlinePlus: Health Information in Multiple Languages	https://medlineplus.gov/languages/all_healthtopics.html#M	MedlinePlus offers brochures and health information topics translated into multiple languages. Some related topics include menstruation, menopause, pregnancy, and women's health.
Health Translations	https://www.healthtranslations.vic.gov.au/	Health Translations is an Australian-based, free online library that provides translated information about health and wellbeing for clinicians who work with diverse communities.

from RIM communities. In an Upstate NY clinic, patients revealed experiences of using toilet paper, newspaper, and paper towel to manage their menstrual flow due to financial constraints.[23] Screening for period poverty involves directly asking patients about their ability to access menstrual products and resources. As many women and menstruating individuals come from backgrounds where sexual health and menstruation may be unfamiliar, family medicine physicians should initiate conversations in judgment-free, confidential, and safe environments.[24]

In these settings, family physicians should also be prepared to discuss concerns pertaining to menstrual health. While the concept of "menstrual education" is vast and spans multiple areas, physicians should personalize the session to the patient's needs and ask about specific areas of interest – such as hygiene management or signs and symptoms of menstrual disorders.[22] Since most physicians have limited time to fully evaluate all of the patient's concerns in a single appointment, clinics can provide health brochures, booklets, or fact sheets translated into languages of clinic preference for the patient to review until the next appointment. There are multiple online, publicly available national resources that can provide family medicine clinics with up-to-date and accurate translated materials that are listed in Table 1.

3. Addressing language barriers in clinic

One obvious barrier to caring for RIM populations is language barriers, particularly because there are many dialects. Even with professional interpretation services, it can be difficult to find the right dialect to communicate with the patient. If possible, it is almost always best practice to use a professional interpretation service. Ideally, a professional in-person interpreter will be best able to capture the essence of the conversation and non-verbal language; however, a video interpreter and phone interpreter are also options that are often more accessible in an office setting. Best practices for using an interpreter include introducing yourself to the interpreter and giving the interpreter time to introduce themself. Look at the patient, speak to them directly, and avoid phrases such as, "ask her this," or "tell him that." Speak slowly and be prepared to explain even simple concepts; for example, some words may not translate perfectly, or the interpreter may ask clarification questions.

An associated challenge for family medicine clinics is that more than one visit may be necessary to address medical problems. Often, RIM patients of ours have not been seen in many years and will come in requesting a "full checkup," when they have multiple challenging issues to address. Menstrual health can, and often does, fall lower on the list. If patients reveal menstrual health concerns that may not be fully addressed at the first visit, providers should actively work to schedule upcoming appointments to best address their patients' needs. Additionally, even with the use of interpreter services, it often takes physicians longer to communicate clinical information to patients with limited English proficiency when compared to patients who can speak fluent English.[25] For this reason, we suggest that physicians allocate longer appointment times for patients that require interpretation services to facilitate clear communication and provide patient-centered care. For example, at Albany Medical Center's family medicine clinic, a physician may choose to schedule an additional 20 minutes for an appointment to provide adequate time to elicit patient concerns using interpretation services.

4. Partnering with RIM community networks and strengthening support systems

Assisting refugees and immigrants involves a strong and integrative network between individuals and agencies, not solely limited to the family medicine practice. Partnerships between service organizations and refugee communities can facilitate cultural competence and provide mutual benefits to providers and refugee clients.[22] For example, in Chicago, a family-centered mental health intervention for Bosnian refugees with post-traumatic stress disorder engaged family members and refugee facilitators from the Bosnian refugee community.[26] By engaging community members in health interventions, clinicians were able to bridge cultural differences and strengthen refugee support systems. Family medicine practices can similarly partner with outside organizations, such as mental health clinics, schools, and RIM-service agencies. These community partnerships should be tailored to the needs of the local RIM communities. For busy family medicine practices, we suggest including medical students who are eager to develop cultural awareness and interact with RIM communities. For example, at Albany Medical College, medical students are regularly involved in service-learning programs such as Albany Med Commitment to Refugees and Immigrants (AMCRI). As part of AMCRI, medical students connect with refugee families to help them navigate barriers when accessing healthcare, social services, and educational opportunities. Students aid in linking RIM families to healthcare resources while learning how to sensitively address the diverse needs of RIM communities.

National and Local Resources Supporting Menstrual Health

Table 1 shows a list of resources available for family medicine physicians to stay regularly updated surrounding treatment guidelines, national organizations, and local initiatives to support menstrual health equity. While this list is not exhaustive, it encompasses key players and initiatives in supporting menstrual health that physicians can incorporate into their practices.

Conclusion

Menstrual inequity is a prevalent and significant issue that affects menstruating individuals worldwide. RIM communities in particular face unique challenges when supporting their menstrual health, including challenges with resettlement, menstrual product access, and sociocultural stigma surrounding menstruation. Given the large proportion of RIM communities living in New York State, family medicine physicians have an important role in exploring and alleviating these inequities. Strategies include sensitively screening for period poverty, ensuring access to professional interpreters, collaboration with local community organizations, and actively providing menstrual health resources.

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A Cardiovascular and Psychological Stress Test: The Maternity Period and its Lifelong Impacts

By Shifra Mincer, MD; Elizabeth Brown, MD, MPH, and Scott Hartman, MD

Pregnancy and childbirth can be joyous and celebratory events, but they can also become medically complex experiences with lifelong impacts on physical and emotional health. Increasing evidence shows that, much like a cardiac stress test, adverse pregnancy outcomes (APOs), namely hypertensive disorders of pregnancy, gestational diabetes, preterm birth, and fetal growth restriction, can unmask an individual's future cardiovascular disease (CVD) risk.[1] This increased risk may impact health decades down the line but can also have short-term effects with data showing increased risk of short-term CVD within 5 years of APOs.[2]

This association might be explained in part by the fact that during pregnancy both blood volume and red blood cell mass increase, leading to increased preload and cardiac output. In fact, starting as early as 5 weeks of gestation and peaking in the mid-second trimester, cardiac output increases by 20-50 percent. Systemic vascular resistance drops and heart rate increases to compensate. These acute cardiovascular changes are somewhat like the changes induced by a cardiac stress test.[3] It may also be the case that cardiovascular disease shares a common pathophysiology with APOs, such that endothelial dysfunction, arterial stiffness and chronic inflammation play a role in both. Thus, it is unclear if APOs are independent risk factors for future CVD or if the APOs are early indicators of future CVD.

Psychological complications from the maternity period, including peripartum mood disorders and traumatic childbirth experiences, can also have lifelong impacts on mental health. As such, pregnancy and childbirth can be similarly viewed as psychological stress tests that can expose an individual's vulnerabilities to mental health disease processes.

Primary care physicians who care for obstetrical patients both during and after the maternity period have a unique opportunity to counsel their patients on the lifelong effects of APOs and to intervene appropriately when indicated.

Our goal is to use gender inclusive language as we acknowledge that not all obstetrical patients identify as women, however, we are limited by the fact that most of our source material uses gender-binary terms and that most studies have focused on cis-gender women. More data is needed on gender-expansive individuals as they present in obstetrical care.[4]

Cardiovascular Disease

Although heart disease remains the leading cause of death in women in nearly all higher income countries, for many decades the medical research on CVD focused on the disease as it presented in men.[5] In women, CVD more often occurs without warning making it particularly devastating.[1] In the past decade there has been growing awareness of women's unique cardiovascular risk factors. In 2011 Mosca et al. emphasized the importance of developing "female-specific clinical recommendations" and noted the limitations of standard risk stratification tools such as the Framingham criteria and even the Reynolds Risk Score, which was developed specifically for estimating 10-year CVD risk in women over age 45.[5] Absent from both of these and the ASCVD Risk Calculator, are APOs, which newer evidence shows can have significant effects on CVD risk. Indeed, APOs are far from rare and may occur in as many as 30 percent of obstetrical patients.[6]

History of preeclampsia and preterm delivery are formally included in both the 2018 and the 2019 American College of Cardiology's and American Heart Association's joint guidelines as important risk factors to be included in assessing an individual's lifetime risk of CVD.[7,8] Literature from the past few years focuses on the 4th trimester, when patients typically transition from maternity care to general primary care. Data suggest that patients often miss postpartum visits; however, this vulnerable period can prove critical for primary care physicians and provide a unique opportunity to utilize information from the pregnancy and delivery to optimize an individual's lifelong health.[6]

Hypertensive Disorders of Pregnancy

Hypertensive disorders of pregnancy (HDP), including chronic hypertension (HTN), gestational hypertension (gHTN), preeclampsia, eclampsia, and chronic hypertension with superimposed

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preeclampsia, complicate 5-10 percent of pregnancies.[9] They are associated with accelerated cardiovascular aging, with recurrent preeclampsia conferring the highest risk. Several studies have shown a greater prevalence of subclinical atherosclerosis and arterial stiffness index among women over 40 years of age who experienced HDP.[10]

Preeclampsia is defined as the onset of hypertension after 20 weeks' gestation with proteinuria, organ dysfunction, or uteroplacental dysfunction. It currently occurs in approximately 5 to 7 percent of pregnancies in the United States, but the rate is 60 percent higher in Black than in white individuals.[11] The disease serves as the leading cause of maternal morbidity and is associated with a 4-fold increased risk of developing heart failure and a 2-fold increased risk of developing coronary heart disease, stroke and death due to coronary heart or CVD.[12] Preeclampsia has also been linked to an increased risk of developing chronic HTN and end-stage renal disease.[13]

Because their pathophysiology may be similar to HDP, and because they are similarly associated with an increased lifelong risk of CVD, fetal growth restriction and preterm delivery can also be classified as HDP. Along with gHTN and preeclampsia, studies associate these conditions with higher rates of CVD and HTN within as little as 5 years after delivery. Poorer outcomes continue up to and past 10 years of delivery with data showing higher rates of CVD, HTN, coronary artery disease, stroke, heart failure and overall mortality in those with a history of HDP.[2,11]

Fetal Growth Restriction

A small for gestational age (SGA) infant is one whose birth weight is below the tenth percentile for gestational age. This does not always reflect a pathologic process as some babies are constitutionally small and at their size have reached their appropriate growth potential. When a newborn is small due to fetal growth restriction (FGR), it has not achieved optimal growth in utero. FGR is primarily due to restricted uteroplacental perfusion and thus suboptimal fetal nutrition. Classifying the prevalence of FGR can prove challenging as SGA can be normal physiology.[14] That being said, large racial differences have been noted in SGA births. Data collected from 2011-2017 shows SGA occurring in 6.8 percent of non-Hispanic white deliveries and in 11.6 percent of non-Hispanic Black deliveries.[15]

Risk factors for FGR include various chronic diseases including pregestational diabetes, chronic or gHTN, and preeclampsia. Dozens of studies have also linked acute and chronic stress to FGR. Black individuals are 1.5 times more likely than white individuals to give birth to an SGA infant with some data linking indicators of structural racism and income inequality with SGA birth.[16] As stated above, aside from the numerous risks to the infant, FGR is also associated with higher rates of future cardiovascular disease.

Preterm Delivery

As of 2021 preterm delivery (PTD) (<37 weeks) affected 10.5 percent of United States births.[17] Spontaneous preterm delivery (sPTD), due to either preterm labor or preterm prelabor rupture of membranes (PPROM), accounts for approximately 75 percent of preterm deliveries, the remainder being medically indicated for various maternal or fetal indications such as preeclampsia or nonreassuring fetal status.[3] Large racial and ethnic differences exist in preterm birth rates. In 2021, the rate of preterm birth among African-American women (14.8%) was about 50 percent higher than the rate of preterm birth among white or Hispanic women (9.5% and 10.2% respectively).

Data show that sPTD alone is associated with as much as a 3-fold increase in CVD-related deaths later in life. Some data show an increased risk of long-term maternal kidney disease after sPTD, which may contribute to CVD risk. Furthermore, an inverse relationship exists between gestational age at delivery and increased maternal CVD risk, such that the earlier the delivery the greater the risk. Individuals who experience preeclampsia and PTD may have as much as an 8-fold increase in risk of CVD.[3]

Gestational Diabetes

Gestational diabetes mellitus (GDM), defined as the onset of glucose intolerance in pregnancy, affects approximately 3-5 percent of US pregnancies annually.[18] Rates are somewhat hard to estimate given that many obstetrical patients are not screened for type 2 diabetes mellitus (DM2) until pregnancy and, as such, some of the cases of GDM may actually be chronic DM2.[19] Nevertheless, GDM is associated with at least a 7-fold increased risk of subsequently developing DM2.[18] Given the strong association between these conditions, it is recommended that all individuals who develop GDM have glucose tolerance testing at 4-12 weeks postpartum and then repeat testing every 1-3 years thereafter.[19] DM2, in turn, represents a significant CVD risk factor and is therefore included in most widely accepted algorithms for estimating CVD risk. GDM alone also confers a higher lifetime risk of CVD. In a 2019 meta-analysis, Kramer et al. showed that GDM, in the absence of subsequent development of DM2, was associated with a 56% higher risk of future CVD in the first ten years after pregnancy.[20]

Perinatal Mental Health & Birth Trauma

Perinatal depression affects over 10 percent of obstetrical patients in the United States and is associated with various adverse infant and maternal outcomes, including lower rates of breastfeeding initiation and duration as well as poor maternal and infant bonding.[21] Other perinatal mental health disorders include anxiety disorders, bipolar spectrum disorders and postpartum psychosis.[22] Birth trauma may occur in as many as 45 percent of deliveries and can lead to the development of posttraumatic stress disorder.[23] Individuals of color have higher rates of postpartum depression. In a 2012 CDC study, rates of postpartum depressive symptoms were 8.6 percent in white, non-Hispanic, 10.5 percent in Hispanic, 10.8 percent in Black, and 17.5 percent in American Indian/Alaska Native women.[21] The effects of postpartum depression may extend for years, with one study showing that one quarter of patients with depressive symptoms at 4 months postpartum still had symptoms 3 years later.[24]

The Fourth Trimester Model (4TM)

The IMPLICIT Network (Interventions to Minimize Preterm and Low birth weight Infants through Continuous quality Improvement Techniques)[25] is a collaborative focused on improving birth outcomes and promoting the health of parents, infants, and families through innovative models of care, quality improvement and professional development for current and future physicians. The Network is best known for its collaboration with the March of Dimes in developing unique and sustainable models of interconception care and has now developed and is actively studying new models of postpartum care.[26]

The Fourth Trimester Model (4TM), a branch of the IMPLICIT Network, is an initiative to provide access for birthing parents within 2 weeks of childbirth to offer support and address parent and child needs in the immediate postpartum period. The model is based on the American College of Obstetricians and Gynecologists recommendations to optimize postpartum care,[27] has been piloted at several offices in Monroe County, and has been shown to increase the likelihood of breastfeeding goals being met (79 percent of participants in the program met their breastfeeding goal versus 21 percent who did not participate).[28] Offices that utilize this model have also demonstrated much higher likelihood of patients meeting their prenatal contraception goals by 6 weeks postpartum.[28]

The IMPLICIT Network 4TM model includes creating a patient registry of prenatal patients, a late 3rd trimester risk assessment, and an early new parent visit at 1-3 weeks post-delivery in addition to the traditional 6-week postpartum visit. Data tracked includes attendance, breastfeeding, contraception, and depression screening. This project offers increased opportunities for identification of difficulties with lactation and other postpartum concerns, and early referral to appropriate services.

Recommendations and Future Directions

Over the last decade the incidence of new-onset HDP has doubled. Black individuals experience these and other APOs at far higher rates than individuals of other racial identities. In turn, Black women experience the highest rates of death from coronary heart disease and the highest overall CVD morbidity and mortality.[6] Primary care physicians, particularly ones who follow patients through pregnancy and postpartum, have a unique opportunity to look into their patients' futures and possibly intervene to prevent adverse outcomes. Affected patients should be monitored closely with blood pressure and weight checks as well as glucose monitoring in cases of GDM. Counseling on future risk, healthy lifestyle and postpartum weight loss may be appropriate. In some cases, APOs may tip the scale on the decision to initiate statin therapy. A 4TM visit can also be an opportunity to discuss a difficult birth experience and screen early for postpartum mood disorders.

Our University of Rochester-based group aims to address the large racial inequities in maternity care by deepening our connections with the Rochester Healthy Baby Network and Rochester Consortium to End Black Maternal Mortality, whose listening sessions and steering committee helped direct the initial implementation of the 4TM model. We are currently undertaking a qualitative study at 3 sites (2 in Pennsylvania, 1 in New York) to help better understand how early 4TM care helps shape or enhance the postpartum experiences of birthing people. Finally, we are presenting aggregate data from 9 4TM pilot sites at this year's Family Medicine Eastern Consortium regarding 4TM/postpartum visit attendance for patients with biomedical risk factors. This will help shape further study into how the early 4TM visits can shape improved postpartum care and links to long term primary care.

Given the inequities noted in this article, any new program approach to postpartum care should include community voices, particularly the voices of Black patients. Medical practices, health centers and health systems should seek ways to partner with community organizations and center the voices of those who utilize their care. These approaches will not only help advance birth equity and birth justice but also lifelong health equity.[29,30]

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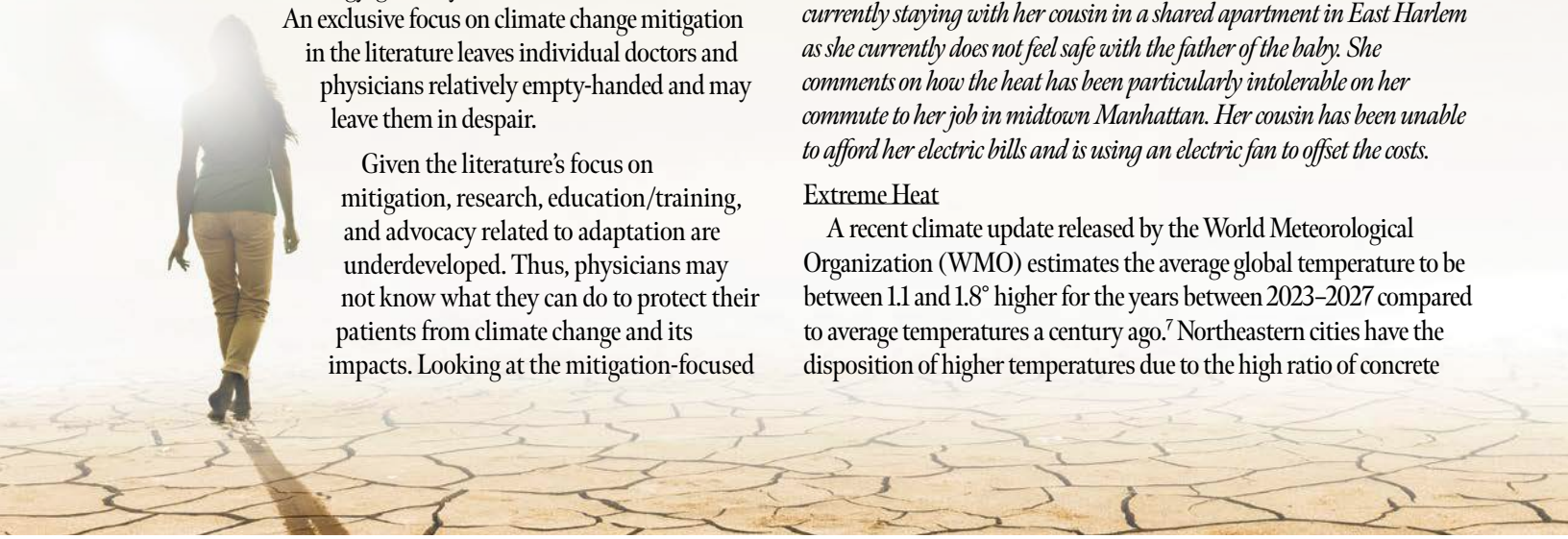
Climate Change and Women's Reproductive Health: The Family Physician's Role in Adaptation

By Minyoung J. Park, DO; Kyle Ferguson, PhD and Lovedhi Aggarwal, MD

Introduction:

Climate change is one of the greatest global threats to women's reproductive health. Numerous studies have correlated the extremes of the climate crisis with poor health outcomes, including infertility, abnormal embryonic development, lifelong health conditions in children, increased perinatal and maternal mortality, and further health disparities among different socioeconomic populations.[1] The gravity of the crisis is evidenced by a wide range of climate change–related phenomena: worsening heatwaves, precipitative fluctuations leading to extremes of flooding or dry spells, increasing storm severity, and changing patterns in infectious diseases and air quality.[1] New York State (NYS) contains diverse geographic regions that are susceptible to different types of health threats posed by climate change.[2]

Fortunately, physicians and health researchers have been paying increased attention to climate and health, amplifying their calls for action.[3] However, the responses they recommend are overwhelmingly focused on climate change mitigation (i.e., reducing emissions or atmospheric concentrations of CO_2 and other greenhouse gases [GHGs]). Although mitigation is urgent and necessary, it cannot be the only response. Climate change adaptation, which involves adjusting to actual or expected climate change and its effects in order to avoid or moderate harm, is also necessary since climate change is already here and mitigation efforts may fail or fall short.[4] In addition, adaptation can be empowering for individual physicians and individual patients, who may feel powerless in the face of the global challenges obstructing the mitigation agenda. Our normal concepts of individual responsibility do not fit well within the structure of climate change as a problem, a structure defined by its planetary scale, its temporal scale, and our individual-level powerlessness in the face of technology, global systems, and collective action.[5]



An exclusive focus on climate change mitigation in the literature leaves individual doctors and physicians relatively empty-handed and may leave them in despair.

Given the literature's focus on mitigation, research, education/training, and advocacy related to adaptation are underdeveloped. Thus, physicians may not know what they can do to protect their patients from climate change and its impacts. Looking at the mitigation-focused literature, they may advocate for changes to their practice or advise patients to change behaviors or support policies with the aim of reducing GHG emissions to advance the mitigation agenda. But such strategies fail to address their patients' exposure and vulnerability. Family practitioners (FPs) have the responsibility to be well-informed on the implications of climate change so that they are sensitive to those threats when patients present and can provide evidence-based recommendations and action plans to empower patients' decision- making. Common primary care strategies proposed or implemented often focus on education, advocacy, and research. While these are welcome, they should be supplemented by a richer role for FPs in climate change adaptation. FPs should consider various types of climate change adaptation activities and commit to participating in those for which they are an ideal fit.[6]

In this article, we present three vignettes, each of which illustrates a climate change–related threat to women's reproductive health in NYS. In each case, we suggest ways that family doctors can help patients adapt by educating them about the threat, emphasizing its severity, and empowering them with behavior changes that will reduce their exposure or vulnerability to that threat. Although these FP-led adaptation strategies might be applicable and of likely benefit to patients in general, these interventions gain additional urgency and importance for women during pregnancy since they are particularly vulnerable to climate change exposure pathways which can negatively impact health.

Climate Change's Impacts on Women's Reproductive Health

Case 1: 26-year-old Black patient with a history of asthma and obstetrical history of G2P0010 at 22 weeks and 1-day gestational age presents to the office for her follow-up prenatal visit. The patient is currently staying with her cousin in a shared apartment in East Harlem as she currently does not feel safe with the father of the baby. She comments on how the heat has been particularly intolerable on her commute to her job in midtown Manhattan. Her cousin has been unable to afford her electric bills and is using an electric fan to offset the costs.

Extreme Heat

A recent climate update released by the World Meteorological Organization (WMO) estimates the average global temperature to be between 1.1 and 1.8° higher for the years between 2023–2027 compared to average temperatures a century ago.[7] Northeastern cities have the disposition of higher temperatures due to the high ratio of concrete

and asphalt to relative green space. In the case of New York, language has been noted as a barrier to accessing resources and understanding warnings about weather-related disasters, and English proficiency appears to have an inverse relationship to heat vulnerability in southern NYS and the counties around NYC.[8] However, rural areas and small towns are also at risk for heat-vulnerability due to low prominence of air conditioning, and heat waves in these regions are historically more rare. Although extreme heat is not a new phenomenon, there are numerous data showing that heat secondary to climate change has had an increasing impact on health outcomes. Literature shows that projected temperature changes would lead from a 50% to a 91% increase in heat-related deaths in Manhattan by the 2080s compared to the 1980s.[9]

Given that the physiological state of pregnancy increases body temperature, pregnant women are among the vulnerable groups susceptible to heat-related health repercussions, and in particular, poor maternal-fetal outcomes. Primary outcomes include preterm births and low birth weights. Heat has been shown to cause early labor through release of prostaglandins triggered by dehydration. Further, abnormal uterine blood flow to the fetus has been associated with heat, giving rise to placental insufficiency, abnormal fetal growth, and increased risk of uterine abruption.[1] These conditions are known risk factors to fetal demise. In addition, interpersonal violence has been associated with extreme weather events, linked to insecurities in finances and mental health stress.[10]

Recommendations for Extreme Heat

Family physicians should be cognizant of the dangers of being pregnant during heat waves, and be prepared to recommend protective measures. These conditions require close prenatal follow-ups and effective communication of individual and local measures to their especially heat-vulnerable patients. Individual measures can include staying hydrated and indoors during peak daylight hours to reduce exposure to the heat. Patients should also be educated on utilizing air conditioning when possible, in lieu of solely relying on fans during dangerous high temperatures, as studies show that electric fans do not provide appropriate protection during extreme heat. This is likely due to the necessity of ambient air temperature needing to be lower than that of normal body temperature for an efficient cooling convection process.[11] Additionally, an example of a system-based intervention that the provider can empower their patients with includes knowing the locations of New York City's (or other areas) cooling centers that are accessible via public transportation.[12] FPs should also direct patients to reliable early warning systems, educate them about how to interpret those warnings, and establish a plan of action for when the warnings occur. In addition, intimate partner violence screening outreach should be heightened in communities at higher risk for poor heat wave outcomes.

Case 2: 19-year-old Cuban patient G2P0101 at 18 weeks and 5 days gestational age presents to the ED for vaginal bleeding. Patient says that the power has been out for 2 days in her neighborhood in Brooklyn with the series of strong rainstorms that have been ongoing for the last week.

Severe Storm Surge

Storm surges are becoming more prominent in the setting of climate change. This is evidenced by not only the more frequent severe storm events, but also the prominent coastal flooding and significant sea-level rise of 1 foot since 1900.[9] Increased precipitation across all regions of New York in the span of 50 years has been well documented.[13] Notable storms pertinent to New York that are not directly correlative of climate change include Hurricanes Irene and Sandy.[9] However, the severe economic and health casualties from these events signify the need for adaptation to more frequent and inevitable extreme weather, including preparation for the occurrence of more frequent power outages. A study with a time series design focused on data from Hurricane Sandy reports a positive trend in the number of ED visits for pregnancy complications as power outage duration increased.[14] The pregnancy complications included an increase in threatened labor, early delivery, and gestational diabetes. The impact of power outages in the socioeconomic realm also revealed that risk factors for pregnancy complications included pregnant women <20 years of age, a Black or Hispanic background, and an uninsured status.[14]

Flooding also poses a risk for increased waterborne diseases and is linked to diarrhea and dehydration, although cholera is less likely to be prevalent in the United States, than in some other areas of the world. With increasing sea levels, increased salinity levels in the drinking water is projected, which has been associated with preeclampsia development.[1] Additionally, flooding poses a high mortality risk to low-income people inhabiting unzoned, illegal basements and cellars, reports of which are well known in New York City.[15] Pregnant people in these living situations are especially vulnerable.

Recommendations for Storm Surge

Close prenatal care is crucial for socioeconomically vulnerable populations in high-risk coastal flooding regions. Such regions have been studied and documented through mapping tools by certain organizations like Coastal Resilience.[16] The provider's role can include advocacy to continue to promote systemic changes to ensure an abundance of medical clinics in these areas, as well as the availability of healthy drinking water for all patients. Safe local housing is also essential to remaining healthy, and it is important to establish partnerships with organizations that can help connect patients with adequate housing resources. In storm surge areas, FPs should communicate known risks to their patients, direct them to appropriate resources, and work with them to co-develop a plan to reduce their vulnerability and exposure. For example, New York City's emergency management department provides toolkits for homeowners with guidelines of steps (e.g., assessing regional flood risk, preparing emergency supply kits, locating evacuation zones, protecting home assets) to take prior to, during, and after flooding events.[17]

Case 3: 18-year-old Colombian patient G1P0 at 12 weeks and 3 days gestational age presents to the office for fever and generalized pruritic rash. She immigrated to the United States a few days ago and is currently staying with family friends in Suffolk County. She recalls reports of a local Zika virus (ZIKV) outbreak prior to her having left her hometown. A serum ZIKV real-time polymerase chain reaction (RT-PCR) was obtained and resulted positive for a ZIKV infection.

Changes in Vector Ecology

Warming temperatures could expose more people to vector-borne diseases. In the aftermath of the 2015 pandemic of ZIKV, concerns

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over links between climate change and emerging arboviruses have become more pressing. Based on temperature-dependent model predictions, in the worst-case scenario, over 1.3 billion new people could face suitable transmission temperatures for ZIKV by 2050.[18] The next generation will face substantially increased ZIKV transmission temperature suitability in North America and Europe, where ZIKV-naïve populations might be particularly vulnerable.

At this time, ZIKV transmission is not a direct threat to New York. To date, NYS Zika cases are limited to travel to Zika-endemic regions and through sexual transmission.[19] In addition, data corroborate that the mosquito range will expand with warming winter temperatures. The Asian tiger mosquito, or *Aedes albopictus*, is an invasive species with high disease vector potential for viruses (i.e., chikungunya virus, dengue virus, Eastern equine encephalitis virus, and West Nile virus) some of which have been attributed to severe fetal growth abnormalities and death. The Northeast (including New York City and Long Island) is becoming a more suitable habitat for these species. By the end of 2100, more than 30 million people are projected to be exposed to the large vector virus pool with known reproductive repercussions.[20]

Recommendations for Changes in Vector Ecology

Systemic and individual effective adaptation measures have been documented and implemented against vector-borne diseases, such as malaria and dengue fever. FPs should be sensitive to these risks and strategies when patients present, receive education regarding the changing vector ecology, and recommend practical strategies to reduce exposure. Individual strategies include wearing long sleeves, using insect repellant on exposed skin when outdoors, using mosquito nets and screens partitioning indoor living space for daily activities, and eliminating standing water around homes to prevent mosquito egg proliferation.[21] In addition to patient-centered counseling on an individual scale, clinicians should advocate for increased priority on research establishing the immune history of vulnerable populations, modeling when and where the next outbreak might occur, evaluating the efficacy of conventional and novel intervention measures, and increasing surveillance efforts to prevent further expansion of harmful mosquito species.

Conclusion

We have reviewed three types of climate change–related threats to women's reproductive health in NYS and recommended concrete actions family physicians can take to help their patients adapt to these threats. By focusing on adaptation, we are not suggesting that mitigation is unnecessary or destined to fail. Instead, adaptation must be part of our portfolio of responses to climate change, and many adaptation strategies, unlike much of the mitigation agenda, are within the power of individual doctors and patients.

One limitation of our article is that the interventions and adaptation strategies we recommend need further study, and research is needed to provide the evidence base required for their fuller endorsement and integration into clinical practice. Our hope is that the suggested strategies will assist family physicians in helping their patients adapt to climate change and will lead to additional reflection on effective adaptation and the family doctor's role in achieving it.

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Breastfeeding Within the Reproductive Years

By Anna Jack, MD, IBCLC and Caroline Mullin, MD

Introduction and Background

The benefits of breastfeeding for both the birthing parent and the infant have been well described in the literature.[1-4] Currently, the American Academy of Pediatrics (AAP) and the World Health Organization (WHO), recommend breastfeeding until the age of 2 and beyond.[1,5] A subsequent pregnancy during this time is not uncommon, and patients decide whether to continue breastfeeding throughout pregnancy, and whether to breastfeed an infant and an older child in tandem during the postpartum period. Many patients respond to cultural trends and taboos to decide about extended breastfeeding while others hide their breastfeeding choices.[6,7] Few lactating persons consult with their providers on these topics. This article aims to educate providers by reviewing the trends and current evidence regarding the safety of breastfeeding during pregnancy (BDP), tandem breastfeeding (TBF), and the use of the lactation amenorrhea method (LAM).

Breastfeeding During Pregnancy

When a birthing person becomes pregnant while breastfeeding they must decide if breastfeeding throughout some or all of pregnancy is the right choice for them. This can be a complex decision based upon personal comfort, cultural norms and societal support, as well as the health of the parent, child and pregnancy. It is essential that health care providers have a good understanding of the evidence regarding the safety of BDP so that they can accurately counsel patients. The safety of BDP was addressed in a Cochrane Review published in 2017 by Lopez-Fernandez et al, with considerations summarized below.[8]

Maternal Considerations

Several small studies support the theory that breastfeeding causes increased nutritional demand for the mother, however this is difficult to quantify and is of unclear significance to the health of the birthing person and the pregnancy. For example, women who were BDP were found to have lower fat reserves in the first two trimesters,[9] lower weight gain[10] and decreased maternal body fat stores throughout pregnancy.[11] Similarly, women who were BDP were found to have lower maternal hemoglobin levels in late pregnancy.[10,12] At the same time however, one of these studies showed that mothers who were BDP were also noted to consume more nutritional supplements and to have equal fat reserves by the third trimester.[9] It is therefore reasonable to recognize the increased nutritional demand for a mother who is BDP, while also providing guidance that increased nutritional consumption can likely outweigh nutritional depletion by late pregnancy. More studies are needed to quantify the degree of increased nutritional demand and outline specific nutritional recommendations for women who are BDP.

Pregnancy Considerations

Despite common theories that breastfeeding could lead to preterm labor (PTL) and increased risk of spontaneous abortions (SAB), several studies showed no significant difference between the rates of PTL or SAB among patients who are BDP.[10,12,13-17] People considering BDP should be advised that there has been no evidence to suggest an increased risk of SAB or PTL while breastfeeding.

Newborn Considerations

It remains unclear if the increased nutritional demand described above is associated with decreased fetal and infant growth. Some studies demonstrated a significant trend of lower birth weights in newborns,[9] a higher percentage of newborns with low birth weight and a higher percentage of small for gestational age newborns.[12] In contrast however, other studies demonstrated no difference with respect to mean birth weights,[9-11,15,17] and others demonstrated no association between BDP and a risk of having a small for gestational age newborn.[18] Only one study focused on the growth of the newborn during the first month and observed that infants born to mothers who were BDP weighed, on average, 125g less at 1 month of life.[19] More studies are needed to clarify the effects of BDP on fetal and infant growth.

Older Child Considerations

With respect to the well-being of the older child, little remains known. Only one study examined the growth of children weaned during a new pregnancy and found that the children weaned during a subsequent pregnancy compared with those weaned at the same age outside of pregnancy, demonstrated reduced growth rates.[20] More studies are needed to confirm this finding.

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Breastfeeding Considerations

Many people wean during pregnancy. Several studies observed that a high percentage of women wean their older child during the first two trimesters.[13-15,21] Providers can normalize this trend while also discussing the benefits of extended breastfeeding and the lack of evidence that BDP is associated with PTL or SAB so patients can make informed decisions. Several studies show that milk production will decrease or cease during a subsequent pregnancy[12,13] and that milk will revert to colostrum by late pregnancy in preparation for meeting the nutritional needs of a newborn[19,22]

The aforementioned studies highlight the bulk of evidence that is available regarding the safety of BDP and are in line with the American Academy of Family Physicians (AAFP) Position Paper on Family Physicians Supporting Breastfeeding, which states that there is no evidence of harm for extended breastfeeding during pregnancy.[23] Furthermore, any mixed evidence should be weighed in the context of known benefits of extended breastfeeding including immune support for the child[24] and reduced risks of breast cancer for the lactating parent.[25]

Tandem Breastfeeding

The AAFP Position Paper on Family Physicians Supporting Breastfeeding does not mention tandem breastfeeding specifically, but extended breastfeeding is addressed as described above. It is known that tandem breastfeeding (TBF) is less common in the United States and some research suggests that the lower rates of TBF in the US are due to cultural taboos and the anticipation of criticism from families and health care providers.[19] But for people who do choose to tandem breastfeed, information can be obtained from resources such as La Leche League and Kelly Mom, or books such as Adventures in Tandem Nursing: Breastfeeding During Pregnancy and Beyond.[26] The following information describes recent themes within emerging research regarding TBF.

Prior to the 2020s, the majority of literature on TBF, focused on motivation, perceived benefits and challenges of TBF. Reasons for motivation included perceived maternal and child health, and themes such as "avoid wasting the effort invested", "desire such life experience" and "exercise the freedom to decide".[27] Reported advantages of TBF included forming a team with their children, healing from a traumatic birth experience[27] and helping an older child adjust to the birth of a younger sibling.[28] Challenges that emerged include breast pain, fatigue[29] and an increase in perceived insufficient milk supply.[30]

In the last several years, higher quality studies have emerged looking at the components of human milk during pregnancy while breastfeeding an older child, while tandem breastfeeding, and after weaning an older child. In one study, the colostrum and mature milk of tandem versus non-tandem breastfeeding people were similar.[31] Another study showed that volume, total fat, estimation of total microbial load, metabolite fingerprinting and metataxonomics were not statistically different between human milk of tandem versus non-tandem breastfeeding.[32] One additional study showed that human milk adapts to the needs of the younger breastfeeding child by decreasing fat and protein levels after the older child weans.[33]

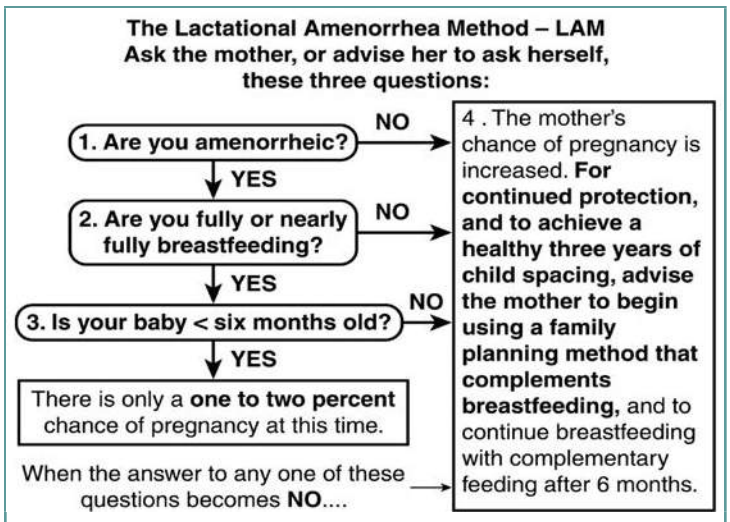
The AAP New Mother's Guide to Breastfeeding recommends feeding the infant before the older child, but offers little evidence-based recommendations.[28] Based upon the evidence cited above, patients who TBF can be counseled that their breastmilk will adapt to the nutritional and immunologic needs of their infant.

Lactation Amenorrhea Method (LAM)

Patients should be educated about all forms of contraception and should be empowered to make an informed choice about their postpartum contraception. It is important that women receive contraceptive counseling in the context of both their lactation and birth spacing goals.

One Cochrane Review from 2003 stated that "the evidence is inadequate to make evidence-based recommendations regarding hormonal contraception use for lactating women."[34] In a stronger statement, The Academy of Breastfeeding Medicine (ABM) concluded that hormonal contraception may decrease milk supply in the early postpartum period, or in any of the following circumstances: low milk supply, history of lactation failure, history of breast surgery, multiple births, preterm birth, compromised maternal health or fetal health.[35] Given these recommendations, in addition to hormonal contraceptive options, it is important that birthing persons are provided with information about non-hormonal contraceptive options, like the lactation amenorrhea method (LAM).

The AAFP Position Paper on Family Physicians Supporting Breastfeeding concludes that LAM is safe and effective under the following circumstances: when a birth person is exclusively breastfeeding without routine supplementation or delays in feeding, when an infant is younger than six months and when menses have not returned (no bleeding after 56 days postpartum).[23] When counseling about LAM, the ABM has created a helpful table which can be used in discussion with patients. [6]



Berens, P. and M. Labbok, Appendix I - ABM Clinical Protocol #1 : Contraception During Breastfeeding, Revised 2015. 2022, Elsevier Inc. p. 882-891.

Given LAM is dependent upon the three circumstances listed above, if the lactating person does not meet this criteria, they should be counseled about the increased risks of pregnancy and other contraceptive options.

Summary

Breastfeeding and lactation topics in the medical literature have historically focused on the prenatal and early newborn periods, yet lactation spans the reproductive years and some patients are choosing to breastfeed in the extended postpartum period. In the last three years, evidence has emerged and suggested that providers should move from discussing *"lack of risk"* to *recommending* extended breastfeeding, which includes breastfeeding during pregnancy and tandem breastfeeding. As more women participate in extended breastfeeding, some are relying on LAM for contraception, often without guidance from their health care providers. This review of evidence, trends and recommendations can be used to inform a well-rounded discussion between providers and their patients during the preconception, interconception and extended postpartum period.

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Management of Dysmenorrhea with Complementary Alternative Medicine (CAM)

By Helen Ding, MAT; Quinn Matos, MTS; Diana Badillo, MD and Francis Faustino, MD

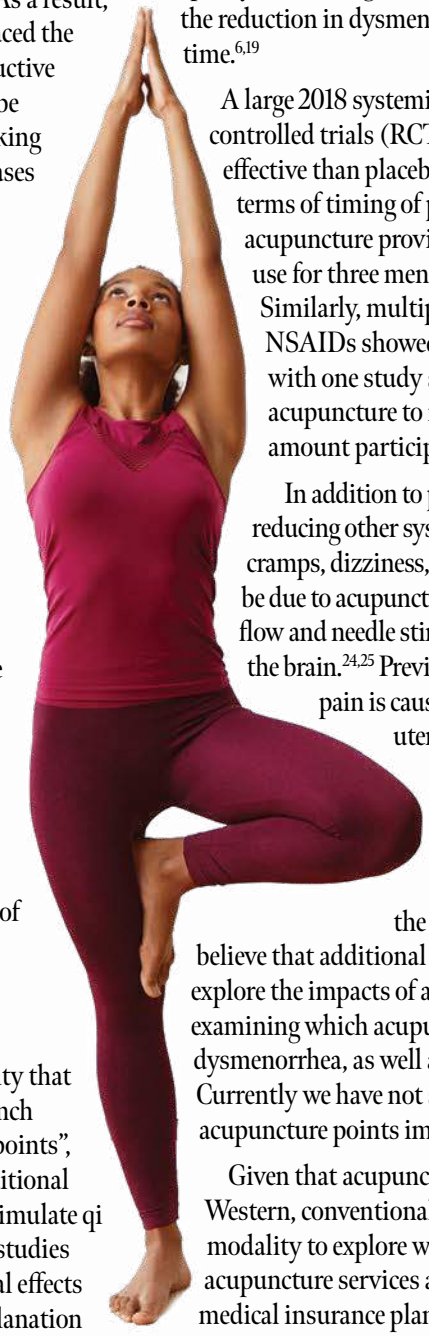
Introduction

Dysmenorrhea, or painful menstrual cramps, affects a significant proportion of women of reproductive age. Symptoms range from mild discomfort to debilitating pain and can potentially cause disruptions in day-to-day activities, mood, sleep, and overall well-being. Dysmenorrhea can occur as the result of conditions like endometriosis, uterine fibroids, pelvic inflammatory disease, and adenomyosis; however, the majority of cases of dysmenorrhea are considered primary, or in the absence of a clear cause.[1] As a result, prevalence is difficult to estimate; one recent review placed the prevalence between 45% and 95% in women of reproductive age.[2] Additional studies have shown dysmenorrhea to be more prevalent in younger ages, with an estimated peaking prevalence of 67-90% among women aged 17-24.[2,3] In cases of primary dysmenorrhea, the pathophysiology is not fully understood. The most widely accepted cause of dysmenorrhea is the overproduction of uterine prostaglandins during menses, and the current first line treatments are NSAIDs.[4,5]

Recently there has been a focus on complementary and alternative treatments for managing dysmenorrhea.[6-9] Literature has shown alternative treatments to help with dysmenorrhea symptoms that have preferred side effect profiles and lower costs.[6,10-12] As far as we know, there have been mostly small studies on complementary and alternative medicine (CAM) modalities in managing dysmenorrhea. This article provides an overview of the current evidence on alternative treatments for dysmenorrhea, including herbal medicine, acupuncture, yoga, and contemplative/mindfulness practices, as well as potential mechanisms of action and benefits. We conclude with recommendations for healthcare providers and patients regarding the use of alternative treatments for dysmenorrhea with the goal of helping to integrate alternative treatments for dysmenorrhea into treatment plans.

Acupuncture

Acupuncture is a traditional Chinese healing modality that involves insertion of needles approximately a quarter inch deep at specific points of the body, also known as "acupoints", which align with energy meridians.[13] According to traditional Chinese medicine (TCM), insertion of these needles stimulate qi energy along these non-anatomical meridians.[13] Many studies have shown that acupuncture has positive physiological effects related to pain, although currently there is no clear explanation for why this is the case.[14-16] In current Western medicine, acupuncture is commonly accepted and is used by some conventional healthcare practitioners, particularly primary care health providers.[17] Large meta-analyses have found acupuncture to be effective in the treatment of chronic pain, with effects persisting over time.[18] With respect to dysmenorrhea, meta-analyses and randomized control trials have shown acupuncture to be more effective when compared to NSAIDs, although these studies do not specify exact dosage of NSAIDs and some studies have shown that the reduction in dysmenorrhea pain is only maintained for a short time.[6,19]



A large 2018 systemic review which included 60 randomized controlled trials (RCT) found that acupuncture was more effective than placebo and NSAIDs at reducing general pain.[6] In terms of timing of pain relief, one of the studies showed that acupuncture provided significant pain relief after consistent use for three menstrual cycles compared to placebo.[20] Similarly, multiple studies comparing acupuncture to NSAIDs showed significant pain relief with acupuncture, with one study showing positive results when comparing acupuncture to ibuprofen dosage taken at the regular amount participants used in their previous cycles.[6,21-23]

In addition to pain, acupuncture may be beneficial in reducing other systemic symptoms of dysmenorrhea such as cramps, dizziness, headache, and mood changes.[19] This could be due to acupuncture needles' effect in changing local blood flow and needle stimulation causing release of endorphins from the brain.[24,25] Previous studies have suggested that menstrual pain is caused by reduced blood flow secondary to uterine hyperactivity, and acupuncture is thought to decrease pain by increasing local blood circulation through vasodilation.[26,27]

Current research shows promising results on the impact of acupuncture on the management of dysmenorrhea pain. We believe that additional and larger RCTs are needed to further explore the impacts of acupuncture on pain, specifically with examining which acupuncture point locations best manage dysmenorrhea, as well as how often acupuncture should occur. Currently we have not seen any studies that examine how specific acupuncture points impact dysmenorrhea pain.

Given that acupuncture is becoming more widely adopted in Western, conventional medicine, it is an important healing modality to explore when managing dysmenorrhea.[28] As acupuncture services are increasingly being covered by many medical insurance plans, family physicians should consider this a

viable option for their patients. Like discussion of any therapy, a conversation between the physician and patient on its potential benefits and risks such as soreness and mild bruising at needle insertion sites, should occur.

Yoga

The term "yoga" groups a variety of physical, mental, and spiritual practices originating in ancient India. Traditionally, yoga is a combination of applied philosophy, meditation, physical postures, breathing techniques, and prayer. Modern yoga can combine any or all of these aspects, but the most common forms practiced in the United States, often termed "postural yoga," emphasize postures, breath, and meditation with a lesser focus on philosophy and prayer.[29, 30,31] The variety inherent within yoga makes its benefits difficult to evaluate, but recent studies have shown that it can have numerous health benefits, including cardiovascular and musculoskeletal health as well as mood and mental health. Research shows that it is as safe as or safer than other common forms of exercise, such as running and weightlifting. One review of several studies comparing yoga to other forms of exercise concluded that, when practiced at the same frequency, yoga is at least as effective in terms of health outcomes including cardiovascular, metabolic, cognitive, psychological, and hormonal indicators of health.[33]

Several studies have explored the positive effects of yoga on primary dysmenorrhea in terms of both pain relief, mental health improvement, and quality of life measures; with theorized mechanisms including increased circulation, nervous system stimulation, and endogenous opioid release.[34] One meta-analysis of four studies with 230 total patients reported that yoga was effective for alleviating pain in women with primary dysmenorrhea. One small RCT of 40 participants found a significant decrease in menstrual pain intensity and menstrual distress after 12 weeks of postural yoga.[35, 36] This suggests that yoga, in addition to helping with the somatic symptoms of pain, may also help with relieving the distress and mood symptoms that may come with dysmenorrhea.

Regarding mental health outcomes, yoga has been shown to decrease depressive symptoms, stress, and possibly symptoms of anxiety, all of which are strongly associated with dysmenorrhea.[5,37-39] One 2018 review found that yoga was safe and effective for improving quality of life measures in women with primary dysmenorrhea including sleep, concentration, negative feelings, social relationships, and self-perceived work capacity.[40] Yoga could potentially be used to help manage the psychological effects of dysmenorrhea, although current research needs to be expanded to fully ascertain the full psychological impacts of yoga on individuals with dysmenorrhea.

Space and equipment requirements are minimal for yoga with most yoga practices requiring room only to stand up straight and lay flat on the floor, with a yoga mat used to help with maintaining grip and balance. If in-person yoga classes are inaccessible, there are also many free online tutorials accessible by web search or smartphone applications. Additionally, yoga classes are often accepted by insurance rebate programs, allowing patients to get a discount from their insurance company on classes.

Mindfulness and Meditation

Dysmenorrhea has been shown to have a bidirectional relationship with psychological disorders such as stress, anxiety and depression.[41] Mindful practices have been shown to be effective in reducing feelings of suffering, which can stem from depression and worry.[42] Practices such as meditation stem from Eastern traditions that focus on present moment awareness and observation and cultivate attention to the present moment with openness, acceptance and non-judgment.[43,44] Current clinical uses of mindfulness have been applied to substance use, tobacco cessation, stress reduction and chronic pain.[45-47] A few small studies examining the impact of mindfulness on dysmenorrhea have shown promising results.[48,49]

One 2020 randomized experimental study showed that a three-week mindfulness course, which involved aromatherapy combined with meditation following the "START" method of Stop, Take a deep breath, Accept, Relax, and give Thanks, had significant improvements in quality of life for forty adolescents experiencing dysmenorrhea.[49] No negative side effects occurred with the mindfulness intervention. The benefits of mindfulness for dysmenorrhea may be due to its decrease in pain through deactivating the pain processing networks in the brain, such as the posterior cingulate cortex and medial prefrontal cortex.[50,51]

There are various forms of mindfulness practice. Two types that have been discussed in the context of pain management are Shamatha (focused attention) and Vipassana (open monitoring).[52,53] In Shamatha, the meditating individual sustains attention on a dynamic stimulus, such as the breath. As attention drifts to distracting sensory stimuli, such as pain, there is an acknowledgement of the stimulus with openness and without judgment.[50] Eventually Shamatha practice can transition to Vipassana, which is an open monitoring of feelings that arise, which is thought to increase the coping of pain.[54,55] Studies on meditation and pain have shown that both of these mindfulness practices result in decreased pain ratings, with the greatest pain decrease in advanced practitioners, which studies have defined as having 5 years of mindfulness practice.[52]

Meditation is a low-cost practice with few adverse effects.[56] Current mindfulness studies have been promising for managing chronic pain, with many current published studies utilizing the 8-week mindfulness- based stress reduction (MBSR) program created by John Kabat-Zinn.[42,57,58] Additional studies are needed to explore the impact of mindfulness on dysmenorrhea, as well as to examine the efficacy of specific forms of meditation for dysmenorrhea.

There are numerous free to low-cost ways to access meditation, including Insight, Calm, and Headspace, all available through mobile phone applications. There are also free guided meditation practices of various lengths on YouTube and Spotify. For patients who are interested in in-person mindfulness classes, some yoga studios offer meditation courses and, if available, may offer an 8-week MBSR class.

Supplements and Botanicals

Nutrient supplementation has been shown to aid in symptom relief in cases of primary dysmenorrhea, however mechanisms of action of how specific supplements may help manage dysmenorrhea

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are unclear. Many of the recent studies performed on supplements' effectiveness in treating primary dysmenorrhea have small sample sizes.[11,59] Of all the supplements researched, vitamin D and omega-3 fatty acids ("fish oil") have the most evidence.[11,60]

Vitamin D has been explored as a possible tool for pain management. Low vitamin D levels are associated with worse chronic pain symptoms, and in chronic pain patients treated with opioids, low vitamin D levels are associated with greater pain severity and increased opioid usage.[59] One review stated that patients with chronic pain and serum vitamin D levels under 30 nmol/L would likely benefit from supplementation. Studies have shown that patients with chronic pain and normal vitamin D levels with serum levels >50 nmol/L would likely not benefit from supplementation.[61] Vitamin D has been implicated in regulating inflammatory processes, including those involving prostaglandins, and the female reproductive system, which are the two leading pathophysiological mechanisms currently proposed for dysmenorrhea.[61,62] In clinical trials, vitamin D supplements significantly lowered the severity of pain and systemic symptoms in patients with dysmenorrhea with measurable deficiency in the vitamin.[59,63-65]

While there is no specific dosing for vitamin D supplementation for primary dysmenorrhea based on current research, we would suggest adhering to current guidelines for correcting severe deficiency in vitamin D, which include supplementation with serum vitamin D levels below 30 nmol/L. Physicians and patients can discuss supplementation with vitamin D as well as integrating common dietary sources including fatty fish, egg yolks, some mushrooms, and fortified food products such as milk and cereal.

The role of dietary omega-3 fatty acids in reducing inflammation is well-characterized, and shows promise in addressing dysmenorrhea. They have been shown to decrease risk/symptom severity in patients with cardiovascular and inflammatory illnesses, and show promising results for patients with dysmenorrhea.[66] Supplemental omega-3 fatty acids or "fish oil" decreased pain severity in patients with dysmenorrhea in as few as two menstrual cycles. A double-blind crossover study of 95 women (ages 18-22) showed that women with dysmenorrhea who received a daily dose of omega-3 fatty acids (180mg eicosapentaenoic acid (EPA) and 120 mg docosahexaenoic acid (DHA)) required significantly lower use of NSAIDs to manage their pain symptoms.[67] Another crossover study with 42 adolescents showed that self-reported severity of dysmenorrhea symptoms significantly lowered after two months of taking fish oil (1080 mg EPA, 720 mg DHA, and 1.5 mg vitamin E per day).[68] More research is needed to determine dosages, but a meta-analysis of omega 3 supplementation across a variety of pain conditions suggests that clinical trials administer doses of at least 2.7g of EPA/DHA daily for 3 months in order to demonstrate a significant effect.[69] These levels can be achieved via EPA/DHA supplements, fish oil supplements, or dietary sources such as fish, walnuts, and flaxseed in varying amounts.

While vitamin D and omega 3s have been the two most widely studied supplements in pain reduction for dysmenorrhea, botanical supplements have also been investigated. While herbal medicine shows some promise, many of the studies on herbal management of dysmenorrhea have varied in terms of the herbs used and dosages, making it difficult to determine efficacy and clinical recommendations. Three herbs that have been most examined are fennel, ginger and peppermint. One review paper on herbal medicine treatments for dysmenorrhea, including 25 RCTs, showed that fennel, ginger, and peppermint were comparable to NSAIDs in reduction of pain in primary dysmenorrhea.[70-72] Currently there is no standardized dosage of herbal supplements, although studies have shown positive effects for dysmenorrhea at these dosages: ginger 750 - 2,000 mg per day for the first 3-5 days of menstruation, fennel seed at 1 teaspoon per day for 8 days after the onset of premenstrual signs, and peppermint capsule at three 330 mg capsule for 2 days at the start of menstruation.[75-77] Several other herbs included in this review were effective at reducing pain and other symptoms of dysmenorrhea when compared to placebo. Overall, the methodological quality of the available research is poor, and more research is required.[71]

Finally, traditional Chinese medicine (TCM) often involves the use of herbal medications with or without adjuvant therapies including dietary interventions, acupuncture, and pharmacological therapy.[73] Herbs and adjuvant therapies are often prescribed based on the individual features of a patient's illness using a diagnostic system centered around philosophical theories of Yin/Yang and the Five Elements.[73] Herbal therapies within TCM (and TCM regimens more generally) offer varied and specific treatments to problems we would group under one condition such as "dysmenorrhea." These treatments are also heavily dependent on individual practitioners. As a result, research on TCM treatments is difficult to conduct and standardize as each practitioner practices very differently.[74] A 2008 review of Chinese herbal treatments for primary dysmenorrhea, including 39 RCTs and 3475 patients, reports that Chinese herbal medicine can provide pain relief, improve overall symptoms, and decrease the need for additional medication, with self-designed herbal regimens reportedly more effective than pre-made and mass-produced herbal formulations.[70] While current research is inconclusive, Chinese herbal medicine may be a promising avenue for research in the treatment of primary dysmenorrhea.

Additional research is required before we can determine if herbal supplements are effective. Current studies on herbal supplements have varied dosages.

Conclusion

Multiple complementary alternative methods have been utilized for dysmenorrhea management (Table 1). Therapies such as mindfulness, acupuncture, exercise and yoga, and herbal remedies have shown promise in reducing pain and may potentially improve quality of life. Most of the current studies examining CAM on dysmenorrhea have been small studies, and we believe larger scale randomized controlled trials should be conducted to more comprehensively explore the potential benefits of CAM on dysmenorrhea pain.

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Table 1: Overview of Complementary Alternative Medicine (CAM) Practices and Integration in Medical Practice to Manage Dysmenorrhea

CAM Practice	Background and Origin	Potential Mechanism in Managing Dysmenorrhea	Current Literature Findings	How to Integrate into Patient Care
Acupuncture	Traditional Chinese healing modality where needles are inserted in non-anatomical meridians to support qi energy flow	Modulation of blood flow and increased circulation locally	Large meta-analyses find acupuncture effective in treating chronic pain RCTs have found acupuncture more effective than NSAIDs in treating dysmenorrhea, although pain reduction is maintained for only a short time May reduce systemic symptoms of dysmenorrhea: cramps, headache, mood changes	Family physicians trained in acupuncture can offer therapy to interested patients Family physicians can refer patients to reputable acupuncture practitioners Acupuncture services are increasingly being covered by many medical insurance plans Educate patients on acupuncture, its origins, and potential benefits
Yoga	Physical, mental and spiritual practices that originate in India that commonly involve specific postural exercises and breathing techniques	Increased circulation, endogenous opioid release, regulation of the autonomic nervous system	Small RCT have found yoga to decrease pain and distress in dysmenorrhea Yoga decreases mood symptoms like depression and anxiety, which are seen with dysmenorrhea	Free yoga tutorials online Free yoga tutorials on phone apps Yoga classes and online tutorials can be recommended
Mindfulness Meditation	Eastern traditions that focus on present-moment awareness, non-judgement	Dysmenorrhea has been shown to have a bidirectional relationship with stress, anxiety, and depression Mindfulness can reduce feelings of worry and suffering, which can alleviate dysmenorrhea pain Meditation may deactivate networks in the brain that process pain	Small RCTs have shown improvement in quality of life in patients with dysmenorrhea MBSR has been shown to be effective in managing chronic pain	Encourage patients to use mindfulness apps such as Insight, Calm, Headspace Free online meditation guides Meditation guides on Spotify Meditation classes, such as the 8-week MBSR class
Vitamin D	Supplement	Regulation of the inflammatory processes, decrease inflammation	Low vitamin D level associated with worse chronic pain symptoms Vitamin D significantly lowers pain symptoms in dysmenorrhea in individuals with low vitamin D	Vitamin D supplementation if the patient is deficient < 30 nmol/L Consider assessing vitamin D levels in patients with dysmenorrhea symptoms
Omega 3	Supplement	Regulation of eicosanoids derived from omega-3 FAs, reduction in the inflammatory response	Small RCTs show improvement in dysmenorrhea with supplementation	Omega 3/, fish oil supplementation Recommend dietary omega-3 FAs: fatty fish, flaxseed, walnuts. Consider supplementation of 2.7g of EPA/DHA daily for 3 months.
Botanicals such as ginger, fennel, and peppermint	Botanicals have long been used in indigenous cultures and are commonly consumed today	Mechanism are herb-specific and not yet fully characterized	Some small RCTs have shown decrease in pain symptoms with botanicals, although dosage often varies between studies	Botanical supplementation Currently no standardized dosage for herbal supplements, due to dosage variability in studies Positive effects have been found with: ginger 750 - 2,000 mg, fennel seed at 1 teaspoon per day, and peppermint capsule at three 330 mg capsules per day.

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Review of Contraceptive Options for Women

By Shara Feltheimer, DO; Florence Dasrath, MD; Mark Maloof, DO, and Mary Kristine Ellis, MD

Introduction

Nearly half of all pregnancies, totaling 121 million each year throughout the world, are unintended.[1] Considering that pregnancy poses significant health risks to women and children, it is of utmost importance to prevent pregnancies that are not desired. There are various risks of unintended pregnancy, including higher rates of domestic violence, maternal drug and alcohol use during pregnancy, delayed prenatal care, and low birth weight.[2] To begin contraception counseling, it is essential that practitioners understand the priorities of each woman and fully explore her contraception history. A few basic questions to elicit this information include: which methods have you tried in the past?; why did/ didn't they work for you?; what are your family planning goals?; is there anything you would like to avoid (acne? weight gain?) and finally, how do you feel about bleeding? Some women opt to forego a period while others desire reassurance that they are not pregnant each month.[3]

After a method has been chosen, US MEC (Medical Eligibility Criteria) in app form is useful to rule out contraindications.[4] Unfortunately, physicians may have historically served as barriers which prevent patients from starting their desired method as soon as possible. Doctors have been taught to counsel patients to wait before starting a birth control method until next menses, until a certain amount of time after childbirth, or until a woman finishes breastfeeding out of an abundance of caution. Physicians were concerned that hormonal contraception may mask new pregnancy symptoms and delaying diagnosis, leading to later abortion or later onset of prenatal care. However, studies have proven that combined estrogen/ progestin contraceptives do not cause birth defects[5] and the best time to start a birth control method is as soon as possible. Using the quick start method, most women with a negative urine pregnancy test may begin or start a method of birth control immediately after an office visit, at any point in the menstrual cycle.[6] There are a vast number of methods and backup options appropriate for all women during different stages of the female life cycle which we will detail here.

Natural Family Planning

Natural family planning (NFP) is a practical method for patients who are not candidates for pharmacological interventions or would prefer to avoid side effects from other types of contraception. This method involves using certain predictors such as basal body temperature and cervical mucous consistency to determine when unprotected vaginal intercourse is most likely to result in pregnancy. There are different ways to practice NFP; patients may choose to remain abstinent during their fertile phases or use barrier methods of contraception during those times. Patients may choose to measure a combination of signs and symptoms indicating fertility, or just one.[7] In general, these methods are best suited for those with regular menstrual cycles who are committed to accurately measuring certain parameters and avoiding unprotected intercourse during their fertile periods.

The basis of NFP revolves around determining the "fertile window" of a patient's menstrual cycle which generally lasts for six days, the first five days prior to ovulation and the day of ovulation.[8] During this time, it is important to consider that sperm may live inside a female's reproductive tract for up to five days. The highest likelihood of pregnancy occurring is generally one to two days prior to ovulation, however, it is important to note that ovulation does not always occur on the same day of each cycle.[7]

There are a few methods that can be used with NFP. These methods can be used either independently or combination with each other in addition to "ovulation kits" which are urinary assays for reproductive hormones. The first technique involves measuring basal body temperature. The basal body temperature is generally biphasic meaning that during the luteal phase of the female's hormonal cycle, it is generally about 0.5 degrees Fahrenheit higher than during the follicular phase. Thus, measuring the basal body temperature can be used to identify when ovulation has occurred and to predict future fertile windows.[9] Cervical secretions are often monitored as they change in consistency throughout the hormonal cycle. During the fertile window, there tends to be an increased amount of clear, thin cervical mucous.[10] Timing of the menstrual cycle can be beneficial in predicting the fertile window, as ovulation usually occurs between days nine and sixteen.[11] Fertility awareness-based methods are some of the least efficacious, possibly due to the fact that those using these methods must be diligent in recording and evaluating different parameters of their hormonal cycle. About 24% of individuals using this method will have an unintended pregnancy.[12]

Non-Hormonal Contraception

Nonhormonal forms of contraception include barrier methods, the copper intrauterine device and procedures to ensure sterilization. These methods are better suited for individuals for whom hormonal contraception may be contraindicated, those who would rather avoid possible side effects of hormonal contraception, or individuals who do not wish to have children in the future. Generally, barrier methods are cheaper, and several can be acquired over-the-counter in the United States.

Barrier methods include condoms, the diaphragm, the sponge, and the cervical cap. These methods can all be combined with spermicide to improve their efficacy. The efficacy of each method differs, the failure rates of each method listed is as follows:

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diaphragm (12%), male condom (18%), female condom (21%), cervical cap (17-23%), the sponge (12-24%), spermicide (28%).[12] These methods must be used consistently each time an individual has sex. They are not equally effective in protecting against HIV and other STI's, and the diaphragm must be refitted after childbirth. Using these methods inconsistently may result in higher failure rates. It is important to note that the diaphragm and cap are not recommended under six-weeks postpartum and complete uterine involution must occur for it to be effective. It is also important to note that in certain anatomic abnormalities or cervical malignancies, the cap/diaphragm should be avoided.[13] For those who are HIV positive or are at a high risk of HIV, spermicides and diaphragms (with spermicide), are not recommended because repeated and high-dose use of the spermicide nonoxynol-9 is associated with increased risk for genital lesions, which might increase the risk for HIV infection.[14]

The Copper T 380A intrauterine device (ParaGard) contains no hormones and when inserted, can be left in place for 10 years. It is believed that copper ions may inhibit sperm motility and elicit a certain degree of inflammation that results in a spermicidal environment.[14] Contraindications to IUD insertion include confirmed or suspected pregnancy, copper allergy, genital actinomycosis, history of ectopic pregnancy, history of pelvic inflammatory disease unless subsequent intrauterine pregnancy occurred, immunodeficiency disorders, immunosuppressive therapy, known or suspected pelvic malignancy, postpartum endometritis or septic abortion in previous three months, undiagnosed vaginal bleeding, certain uterine abnormalities, or Wilson's disease. The most common adverse effects of IUDs are cramping, expulsion and bleeding. The copper IUD is also associated with dysmenorrhea or heavy vaginal bleeding.[15] The failure rate of the Copper IUD is 0.8% in the first 12 months making it an extremely effective form of birth control.[16]

Sterilization is a sound choice for those who do not want children, who believe their family is complete and who do not feel outside pressure to undergo these types of procedures. In males, vasectomies are a relatively quick and low-risk procedure. Risks include infection, bleeding, and failure of the procedure itself. It can be performed in a hospital or office setting. The initial cost of such a procedure is higher than other options. It takes several weeks for the procedure to become effective after the sperm has been ejaculated or absorbed.[15] A post vasectomy semen sample should be obtained at 12 weeks to ensure no or rare nonmotile sperm.[17] Tubal sterilization is another form of permanent contraception with a 0.5% failure rate. Tubal sterilization may consist of occluding the fallopian tubes, ligating them, clipping them or removing them altogether. Removal is generally preferred as it results in a decreased risk of ovarian cancer. Risks of such a procedure include damage to surrounding structures of the abdomen, bleeding, and infection.[1]

Short Acting Hormonal Reversible Contraception

There are a number of short-acting reversible contraception options available. Nonhormonal forms such as barrier methods and spermicides are discussed prior. Hormonal options include the combined hormonal contraceptive pill, progestogen-only pill, progestin-only injections, vaginal ring and transdermal patch.

Combined Hormonal Contraceptive Pill

There are numerous types of combined hormonal contraceptive (CHC) pills with varying concentrations of each hormone. This type of birth control is ideal for those who can take the pill at the same time every day. Formulations include cyclic forms where the patient takes the active hormonal pills for 21-24 days of the month followed by a hormone-free pill for 4-7 days, extended cycle form where the hormonal pill is taken continuously for 3 months followed by a week of the hormone-free pills, and continuous forms where the active pill is taken for up to one year.[25]

When starting the combined hormonal pill, it can be initiated at the first day of menses or when first obtaining the pills. When starting on the first day of menses, contraceptive efficacy is achieved fairly quickly, however when starting at other points of the hormonal cycle, it is generally advised to use a back-up form of contraception for seven days to avoid unintended pregnancy.[26] Often patients may forget to take a pill or miss a dose. Generally, if one dose is missed, it can be advised to take that dose when the patient remembers followed by the next dose at the usual time the pill is taken (2 pills in one day). When 2 pills are missed in a row, it is recommended that the patient take two pills when they remember followed by 2 pills the next day. It is also advised to use a backup form of contraception until the start of the next menses.

There are several contraindications to combined hormonal contraception such as smoking (over 15 cigarettes per day) for those over the age of 35 due to increased risk of cardiovascular events. According to the U.S. Medical Eligibility Criteria, this is a grade 3 or 4 meaning the theoretical or proven risks usually outweigh the advantages of using this method.[27] Other contraindications include women with uncontrolled hypertension (systolic blood pressure > 140 or diastolic blood pressure > 90), history of breast cancer, known ischemic heart disease, migraines with auras consisting of visual and neurological symptoms of weakness, endometrial cancer, cirrhosis, hepatocellular adenoma, or malignant hepatoma. Those with thrombogenic mutations; those who have two or more risk factors for cardiovascular disease (such as diabetes, hypertension, smokers); and those with a history of venous thromboembolism (VTE), stroke, breast or endometrial cancer, or valvular heart disease should also be advised against the combined hormonal contraceptive.[27,28] Adverse effects include nausea, headaches, dizziness, spotting, weight gain, breast tenderness and melasma.[28] Adverse effects can be managed by switching to different concentrations of estrogen or different types of progesterone.

Switching to higher estrogen may be beneficial for those who experience breakthrough bleeding, light or absent menstrual flow, or mood irregularities. It is important to note that at 30 years of age, bone density in females begins to decline. Women under 30 years old should take formulations of CHC with at least 20-35 micrograms of estrogen to account for future bone density loss.[31]

Switching to lower estrogen may be beneficial for those who experience new or worsening headaches, breast tenderness, worsening menstrual cramps, endometriosis, or low libido.[30] (Figure 3). For those over 45 years old, lower estrogen concentrations should be used

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Table 1 Summary of Short Acting Reversible Contraception

Short Acting Contraception	CHC	POP	Progestin Injection	Patch	Ring
Formulations	21-24 active pills with 4-7 placebo pills, 21 days continuous with no placebo, 91-day extended cycle pack (84 active pills, 7 inert) (25)	Norethindrone 0.35mg: 28-day continuous pack Drospirenone 4mg: 24 active pills and 4 inert pills Opill- FDA approved OTC birth control	Depot medroxyprogesterone acetate (DMPA) 150 mg IM 104 mg sub-Q	Xulane – Norelgestromin/ ethinylestradiol 150mcg/35mcg Twirla – levonorgestre/ ethinyl estradiol 120mcg/30mcg	Nuvaring Etonogestre/EE 0.12mg/0.015mg per day Annovera (1 ring re-used for a year) Segesterone acetate/ EE 0.15mg/0.013mg per day
Initiation	First day of menses or when pills are first obtained	First day of menses or within 5 days of menses onset	As soon as shot is available or within seven days of menses onset	As soon as patch is available or within seven days of menses onset	As soon as ring is available Within 5 days of menses onset or at onset of menses
How to Use	Take one tablet by mouth daily, skip placebo when skipping periods	Must be taken within 2-3 hours of the same time every day	Self-administered SC every 3 months or IM injections every 3 months	Place on upper arm, buttocks, lower abdomen, upper torso (excluding breasts), one patch per week x 3 weeks. Off 1 week	Insert Per Vagina x 3 weeks, remove during week of menses
U.S. Medical Eligibility Criteria (MEC)	MEC 3 or 4 risk outweigh advantages MEC 1 – no restriction MEC 2- Advantages outweigh risk	History of malabsorptive bariatric surgeries and those taking certain anticonvulsants are advised not to take POPS		Same considerations as CHC	Same considerations as CHC
Side Effects	Common s/e: nausea, headache, spotting, breast tenderness, acne	Breakthrough bleeding, changes to the cycle, acne, ovarian cysts	Menstrual cycle changes, weight gain, headaches, mood changes, bone loss, changes in cholesterol profile	Spotting, breast tenderness	Expulsion of the ring or discomfort with the placement
Missed Dose	1 missed dose- take the dose as soon as you remember, followed by usual scheduled dose 2 missed doses – two pills when you remember, followed by 2 pills the next day		If late (>15 weeks from last injection), pregnancy test is warranted and a backup method for seven days	Delay in beginning first patch- apply as soon as you remember, and use back up method for one week Delay in beginning second or third path in a cycle- back up for seven days or use EC	If the ring is out of the vaginal canal for more than 3 hours, back up is needed until the ring is in place for 7 days
Skipping Periods	By not taking placebo pills	Only on Drospirenone 4mg		Can skip periods up to 12 weeks only then will need a break	
Back Up Method	For 7 days if starting pills at other points of the hormonal cycle. (Not 1st day of menses) Until next menses when a dose is missed	For first 48 hours during initiation if patient is >5 days from menses If not taken within 2-3 hours' time frame, back up recommended for 48 hours after	If initiated more than seven days from onset of menses	If initiated more than 5 days from menses, back up recommended through first seven days of use	See Missed Dose section
Special Considerations		Option for postpartum/ breast feeding	Option for postpartum/ breast feeding		

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in order to decrease the risk of venothromboembolism. Those over 45-years-old are more likely to have other risk factors contributing to an increased risk. Because the exact age of fertility loss is unknown, it is recommended that hormonal contraception be continued for those 50-55 years old to prevent unwanted pregnancy.[37] For those taking these medications, weight and BMI should be monitored as well as potassium levels and the ability to drink at least 6-8 glasses of water for those initiated on drospirenone.

Progesterone Only Pill

Progesterone only pills (POP) are another option for contraception and are generally suited for those who cannot use combined hormonal contraception due to contraindications or for those who wish to avoid the estrogen component of the combined pill. The two most common types of progestin pills either contain norethindrone 0.35mg per pill taken continuously or 4 mg drospirenone pills with four hormone free pills in a pack. It is possible to skip these inactive pills in order to prevent bleeding. When starting the progestin pill, it is recommended to start on the first five days from menses onset while using a backup form of contraception for the first 48 hours. If started after the first five days of menses onset, backup contraception must also be used to prevent pregnancy. Progestin pills are different from combined oral contraceptives in that they must be taken within 2-3 hours of the same time every day. If this window is missed, a backup form of contraception must be used for at least 48 hours after the missed dose is taken. The most common adverse reaction includes changes to the menstrual cycle and breakthrough bleeding. Other reported adverse reactions include acne and ovarian cysts. Contraindications include known or suspected pregnancy, undiagnosed abnormal uterine bleeding, breast cancer, acute liver disease, benign or malignant liver tumors, severe liver cirrhosis, history of bariatric surgery and those taking certain antiepileptic agents.[4] Progestin-only pills are an option for those breastfeeding.

Opill

Opill, the first FDA approved over the counter birth control pill, is progestin only. It is contraindicated in women with breast cancer, abnormal uterine bleeding, benign or malignant liver tumors and acute liver disease.[22] With perfect use—meaning people never forget to take a pill and always take them at the same time every day—fewer than 1 in 100 women get pregnant during the first year of using progestin-only pills.[23]

Vaginal Ring

The vaginal contraceptive ring uses combined hormonal components to prevent pregnancy. The ring is placed for three weeks and removed for one week during which time bleeding is expected to take place. The overall failure rate is 0.65 pregnancies per 100 women. If the ring is out of the vagina for more than three hours, a backup form of contraception is needed until the ring has been in place for seven days. Common adverse reactions are expulsion of the ring or discomfort with its placement. The ring should be avoided in the same patient population for which combined oral contraceptives are contraindicated.[29]

Patch

The contraceptive patch can be placed on the upper arm, buttocks, lower abdomen, and upper torso (excluding the breasts) and works in a similar mechanism of action as combined oral contraceptive pills. One advantage of the patch over oral contraceptives is a higher rate of medication adherence. It is applied once per week for 3 weeks followed by one patch-free week. It is important to note that the patch is not a reliable long-term contraceptive choice. When used for longer than 12 weeks consecutively, the risk of thrombotic events increases significantly, so it is not recommended for continuous use.[36] Side effects include spotting and breast discomfort.[29]

Long-acting Reversible Contraception

Long-acting reversible contraception is an excellent choice for those who do not wish to become pregnant for an extended period and may have difficulty adhering to daily pills. Options for long-acting contraceptive use include the intrauterine device (progestin-only vs. copper) the progestin-only injectable and the hormonal implant.

The copper IUD is a hormone-free contraceptive option and is discussed above. Hormonal IUDs approved in the US include: Mirena, Skyla and Liletta . The Mirena and Liletta release 20 mcg of levonorgestrel per day while Skyla releases 13.5mcg of levonorgestrel.[41-43] The Mirena was previously approved for contraceptive use up to 5 years, recently the FDA has increased that amount of time to 8 years.[43] The Liletta is approved for up to 6 years while the Skyla is approved for up to 3 years.[41-43] The advantage of hormone-containing IUDs over the copper IUD is that it can shorten the flow and length of menses as well as the cramping associated with menses. Up to 20% of patients become amenorrheic with this contraception. Similar to the copper IUD, contraindications include confirmed or suspected pregnancy, ectopic pregnancy, current pelvic inflammatory disease, known or suspected pelvic malignancy, undiagnosed vaginal bleeding, and certain uterine abnormalities. Adverse reactions include possible expulsion, ectopic pregnancy, acne and headaches.[29]

Progestin-only injectables can be taken once every three months and are an appropriate option for those breastfeeding. In general, these injectables may reduce the risk of seizures and may have protective effects against pelvic inflammatory disease, as well as ovarian and endometrial cancers. Possible adverse reactions include changes in the menstrual cycle, weight gain, headaches, changes in cholesterol profile, mood changes, and bone loss.[29] Studies have shown that using the progestin-injectable for over two years may result in decreased bone mineral density.[40]

The hormonal implant is placed within the arm every 3 years and is also a progestin-only option. While FDA approved for 3 years, studies have shown that it may be effective for a longer amount of time.[38] It may cause changes in menses which could be preferable for those with heavy menses or who wish to shorten the duration and flow of their menses. Adverse reactions include tenderness at implant site, hair loss, spotting, and weight gain. Complications include difficulty with removal, migration of the implant and infection or bleeding at the implantation site.[29]

Postpartum Contraception

There are several options available for postpartum contraception. For most women, it is safe to use progestin-only contraception. Low dose progestins are not found to have a significant thrombotic risk and therefore deemed to be safe in the postpartum period.[32] While the evidence regarding breastfeeding and hormonal contraception is largely inconclusive, a meta-analysis from 2015 showed no significant change in breastfeeding duration with those taking progestin-only contraception. Other studies have found no significant change in milk production with those taking progestin contraceptives.[33] Estrogen-containing contraceptives should be avoided within the first three weeks postpartum because of an increase in pregnancy-induced thrombotic risks; however, can be started without restriction following this three-week period.[32] A progestin or copper IUD can be inserted immediately following birth, however within the first 48-hour postpartum period, expulsion rates are generally higher. IUDs can be placed after placental delivery. In general practice, these IUDs are placed 4-6 weeks postpartum to avoid these higher rates of expulsion.[34,39] There is conflicting evidence regarding breastmilk production and its association with the Mirena IUD, however copper IUDs are generally thought not to affect production.[34]

Lactation amenorrhea is an option to prevent pregnancy in those exclusively breastfeeding. To ensure the best protection against pregnancy in this patient population, it is crucial that mothers do not go more than 4-6 hours without breastfeeding. This method is only effective up to six months postpartum and the patient must be amenorrheic for the entire duration.[35]

Post-abortive Contraception

Evidence supports the safety of beginning hormonal contraception immediately after medication and aspiration abortion, no matter what type of procedure was performed and whether or not there were complications. Copper and progestin IUDs can be safely inserted at the time of aspiration abortion, with only a slightly increased risk of expulsion.[18] Contraceptive implants should be initiated on the day of mifepristone administration for medication abortion. Depo medroxyprogesterone acetate (Depo-Provera) may be given at the time of mifepristone administration.[19]

Emergency Contraception

Emergency contraception is a key element in preventing unplanned and unwanted pregnancies, however access to such methods and information regarding these methods may be limited. Of the five options for emergency contraception, two pills are FDA approved. Oral levonorgestrel 1.5 mg as a single dose (Plan B One-Step or generic equivalents) was initially approved by the FDA in 1982, the only absolute contraindications being known or suspected pregnancy or allergies to the ingredients.[44] It is effective up to 72 hours after unprotected sex and has been shown to prevent up to 84% of unexpected pregnancies. It can be purchased over the counter by individuals over seventeen years of age, but requires a prescription for those under seventeen years old.[44] However, studies have recently demonstrated that oral levonorgestrel was no more effective than placebo for women with BMI of 26 kg/m^2 or greater.[45] The second FDA approved emergency contraception is oral ulipristal acetate (UPA) 30 mg (Ella) taken as a single dose.[45] It is effective up to 120 hours following unprotected sexual intercourse, but does require a prescription. It is also contraindicated in those with known or suspected pregnancy.[46] Oral ullipristal acetate has been shown to be effective in preventing pregnancy in women up to a BMI of 35 kg/m$^{2.4}$ Both of these pills work by disrupting ovulation, however oral ulipristal acetate may be more effective in preventing pregnancy than oral levonorgestrel because it disrupts the ovulation process after the luteinizing hormone surge in the ovulatory process.[47,48]

The other forms of emergency contraception include the Copper T 380A intrauterine device (Paraguard), the 52-mg levonorgestrel-releasing intrauterine system (Mirena), and combination oral contraceptive pills (Yuzpe regimen).[49-50] The copper IUD is approved by the CDC for emergency contraception and can be inserted up to 120 hours after unprotected intercourse. It does not have restrictions on BMI, however obtaining access to such devices may be difficult. It is not only toxic to sperm cells, but may prevent implantation within the uterus. Contraindications include known pelvic inflammatory disease, distortions in uterine anatomy, pelvic malignancy or known pregnancy.[49] The levonorgestrel IUD is not as widely accepted as a form of emergency contraception because it has not been endorsed by major medical societies such as the American College of Obstetricians and Gynecologists or the Centers for Disease Control and Prevention. This form of emergency contraception has not been studied as well as the others and the impact of BMI on efficacy is not well known.[50] The final form of emergency contraception is the Yuzpe method consisting of 100 µg of ethinyl estradiol and 0.5 mg of levonorgestrel taken together, followed by a second dose of both hormones in 12 hours.[51] There are no absolute or relative contraindications, but it does have a higher risk of adverse reactions such as nausea. It can be used up to 72 hours after unprotected intercourse. It is only effective if follicles are not already well developed and is the least effective form of emergency contraception.[52] The effects of BMI on this form of contraception are also not well studied.

Conclusion

After the physician and patient jointly agree on a birth control method, the contraception conversation can be revisited if the chosen method is not working for the patient. Switching between methods is fairly easy using Figure 2.[24] Health care providers can be reasonably certain that a woman is not pregnant if she has no symptoms or signs of pregnancy and meets the criteria in Figure 1.[21] Even if a patient might possibly be pregnant, studies show that combined estrogen/ progestin contraceptives do not cause birth defects[5] As a result of recent political realities, there is an increasing need to expand access to a host of contraceptive options. Given the varied political climates in different regions in the country, online birth control prescription services such as Pandia Health, Nurx, Lemonaid and the Pill Club have emerged as new tools to ensure women have access to contraceptive care. The success of these platforms, coupled with the decades of research highlighting the

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Figure 1
A health care provider can be reasonably certain that a woman is not pregnant if she has no symptoms or signs of pregnancy and meets any one of the following criteria:

- is ≤7 days after the start of normal menses
- has not had sexual intercourse since the start of last normal menses
- has been correctly and consistently using a reliable method of contraception
- is ≤7 days after spontaneous or induced abortion
- is within 4 weeks postpartum
- is fully or nearly fully breastfeeding (exclusively breastfeeding or the vast majority [≥85%] of feeds are breastfeeds), amenorrheic, and <6 months postpartum

"How to Be Reasonably Certain a Woman Is Not Pregnant - US SPR." ***Centers for Disease Control and Prevention***, 27 Mar. 2023, www.cdc.gov/reproductivehealth/contraception/mmwr/spr/notpregnant.html.

safety of these medications, underscore the fact that in many circumstances birth control prescriptions do not require an in-person office visit. Removing the requirement of an in-person visit may significantly improve access to contraceptive care, as office visits are at times prohibitive for women, in terms of both time and finances. A recent important decision by the FDA to make the progestin only pill readily available over the counter will hopefully continue to increase the accessibility of reproductive care for thousands of women.

Figure 2

Switching FROM:	Switching TO: Pill	Patch	Ring	Progestin Shot ("Depo")	Progestin Implant	Hormone IUD Kyleena, Skyla	Hormone IUD Liletta, Mirena	Copper IUD
Pill 	**No gap:** take 1st pill of new pack the day after taking any pill in old pack.	Start patch **1 day before** stopping pill.	**No gap:** insert ring the day after taking any pill in pack.	Get first shot **7 days before** stopping pill.	Insert implant **4 days before** stopping pill.	Insert IUD **7 days before** stopping pill.	Insert IUD **up to 5 days after** stopping pill.	Insert copper IUD **up to 5 days after** stopping pill.
Patch 	Start pill **1 day before** stopping patch.		**No gap:** insert ring and remove patch on the same day.	Get first shot **7 days before** stopping patch.	Insert implant **4 days before** stopping patch.	Insert IUD **7 days before** stopping patch.	Insert IUD **up to 5 days after** stopping patch.	Insert copper IUD **up to 5 days after** stopping patch.
Ring 	Start pill **1 day before** stopping ring.	Start patch **2 days before** stopping ring.		Get first shot **7 days before** stopping ring.	Insert implant **4 days before** stopping ring.	Insert IUD **7 days before** stopping ring.	Insert IUD **up to 5 days after** stopping ring.	Insert copper IUD **up to 5 days after** stopping ring.
Progestin shot ("Depo") 	Take 1st pill **up to 15 weeks after** the last shot.	Start patch **up to 15 weeks after** the last shot.	Insert ring **up to 15 weeks after** the last shot.		Insert implant **up to 15 weeks after** the last shot.	Insert IUD **up to 15 weeks after** the last shot.	Insert IUD **up to 15 weeks after** the last shot.	Insert copper IUD **up to 16 weeks after** the last shot.
Progestin implant 	Start pill **7 days before** implant is removed.	Start patch **7 days before** implant is removed.	Start ring **7 days before** implant is removed.	Get first shot **7 days before** implant is removed.		Insert IUD **7 days before** implant is removed.	Insert IUD **up to 5 days after** implant is removed.	Insert copper IUD **up to 5 days after** implant is removed.
Hormone IUD 	Start pill **7 days before** IUD is removed.	Start patch **7 days before** IUD is removed.	Start ring **7 days before** IUD is removed.	Get first shot **7 days before** IUD is removed.	Insert implant **4 days before** IUD is removed.			Insert copper IUD **right after** hormone IUD is removed.
Copper IUD 	Start pill **7 days before** IUD is removed.	Start patch **7 days before** IUD is removed.	Start ring **7 days before** IUD is removed.	Get first shot **7 days before** IUD is removed.	Insert implant **4 days before** IUD is removed.	Insert hormone IUD **right after** copper IUD is removed. Use back-up method for **7 days.**	Insert hormone IUD **right after** copper IUD is removed.	

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How to Switch Birth Control Methods - Reproductive Health Access Project, www.reproductiveaccess.org/wp-content/uploads/2014/12/switching_bc.pdf. Accessed 21 May 2023.

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Figure 3

Side effect	Estrogen	Progestin	Androgen	Notes
Acne	Higher estrogen	–	Lower androgenicity	
Break Through Bleeding (BTB)	Higher estrogen	Higher progestin potency	Lower androgenicity	
Absent or too light menstrual flow	Higher estrogen	–	–	Lower progestin potency
Depression, moodiness, irritability	–	Lower progestin potency	–	Monophasic
New or worsening headaches	Lower estrogen	Low progestin potency	–	If neurologic symptoms or migraine with aura – STOP estrogen containing OCP ASAP
Breast Tenderness/ Soreness	Lower estrogen	Lower progestin potency	–	If related to menses, consider skip placebo/bleeds.
Severe Menstrual Cramps	–	Higher progestin potency	–	
Endometriosis	Lower estrogen	Higher progestin potency	Higher androgenicity	–
Nausea	Lower estrogen	–	–	First try taking it with largest meal of day or right before going to bed
Libido	Lower estrogen	–	Higher androgenicity	

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Fertility Care in Primary Care

By Chelsea Faso, MD and Heather Stevens, MD

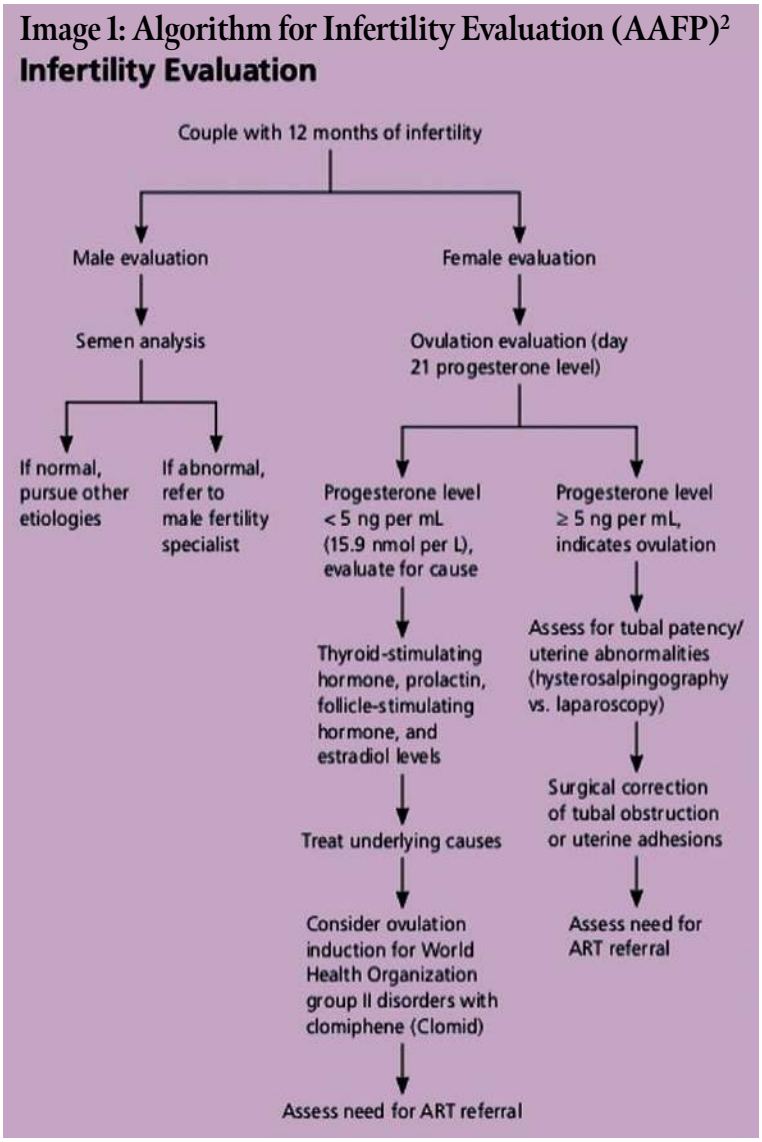
In this article we acknowledge the use of gender-binary terms in current literature, and we acknowledge that these terms are limited, as not all people who ovulate identify as women/female and not all people who produce sperm identify as men/male. We'd like to highlight our use of "female" and "male" as referring to reproductive anatomy or sex assigned as birth and not gender identity.

Introduction

Clinical infertility affects about 10 to 15 percent of heterosexual couples, and the CDC estimates about 11% of females and 9% of males of childbearing age struggle with infertility.[1,2,3] Use of infertility services has grown in the United States including the use of assisted reproductive technology (ART), increasing approximately 25% in the last decade.[4]

Most insurances cover diagnostic workup, but most state-based insurances do not typically cover fertility treatments because they are not considered medically necessary.[3] Only 15 states require private insurers to cover some infertility treatment, with New York having a mandate for fertility coverage in employment-based insurance in companies with over 100 employees, although this is limited to three cycles of IVF.[5] New York is the only state with Medicaid coverage requirements for fertility treatment, but this is limited to 3 cycles of fertility drugs.[3] Although infertility treatment using ART may be limited by insurance, New York insurance law mandates coverage for diagnostic workup and prescription drug coverage for infertility, and coverage should not be limited to the specialist of the practicing clinician. Experts in reproductive endocrinology (REI) and obstetrics & gynecology agree that in many cases, it is appropriate for primary care physicians to initiate the infertility evaluation.

Image 1: Algorithm for Infertility Evaluation (AAFP)[2]



Lindsay TJ, Vitrikas KR. Evaluation and treatment of infertility. Am Fam Physician. 2015 Mar 1;91(5):308-14.

The reproductive freedom of historically marginalized populations, communities, and individuals is limited when infertility services are only available to those who can afford them, and the American Academy of Family Physicians (AAFP) believes pregnancy and reproductive health services are essential to general health care and should be covered under all insurance plans.[6] Many family medicine physicians currently provide a wide range of reproductive health care to patients who may not otherwise have access, including prenatal care, long acting reversible contraceptives (LARCs), vasectomy procedures, and labor and delivery. Starting the conversation about fertility and first steps of diagnosis with a trusted primary care physician can increase access, equity, and alleviate barriers for our patients seeking to grow families. Lack of insurance coverage is still a barrier that prevents many family medicine physicians from offering these services.

Definitions

Infertility is clinically defined as the inability to achieve pregnancy within 12 months of regular sperm introduction for females under the age of 35, within 6 months if age 35-39, or sooner if age 40 and above.[2] In cis-gendered heterosexual couples, most pregnancies (85-90%) occur during the first six menstrual cycles of attempted conception, with a conception rate of about 20% per month.[7] Causes of infertility include a broad range of factors including female factors (37%), male factors (8%), a combination of factors (35%), and unexplained factors (5%).[8] It is important to note that this definition does not define infertility criteria for gender minority or single people seeking pregnancy.

When to Start Workup

Workup should begin once a patient meets clinical criteria for infertility.[9] Workup should begin immediately for females aged 40 and older, as the rates of infertility decline rapidly after this age. Also consider immediate workup for those in need of sperm

donors (single people capable of pregnancy, same-sex couples) or those with risk factors for infertility including previous ovarian or tubal surgery, exposure to cytotoxic drugs such as chemotherapy, exposure to pelvic radiation, autoimmune disease, family history of early menopause or premature ovarian failure, endometriosis, testicular trauma, adult mumps, or evidence of sexual dysfunction.

The workup may involve enhanced coordination with local laboratories, radiology centers, and possibly specialists, depending on availability in a practitioner's area. The workup for females and males is described separately below, but it is suggested to initiate workup simultaneously as about 35% of infertility cases are due to a combination of factors.[8]

For those who have not yet met the clinical definition of infertility, it is not recommended to initiate evaluation with labs or imaging. For females, evidence of functional ovulation is an excellent proxy for fertility. This is best demonstrated by regular monthly menstrual cycles with *molimina*, which includes experience of chest tenderness, ovulatory pain, or bloating.

Female Infertility

History & Exam

Elements of history gathering and examination are shown in Table 1.

Labs & Imaging (Table 2, Table 3)

The general approach to clinical workup of female factor infertility involves evaluating four main physiological and anatomical factors: ovulation, ovarian reserve, uterine anatomy, and tubal patency.

Laboratory infertility workup involves evaluation of ovulation and ovarian reserve. A history of oligomenorrhea or amenorrhea is clinically sufficient to establish anovulation, and further testing of ovulatory status is not needed.[9] Ovulation can be confirmed by measuring a serum mid-luteal serum progesterone (MLP). This test is best measured one week prior to menses, around cycle day (CD) 19 through CD 23. A MLP level above 3-5 ng/mL suggests presence of ovulation. MLP levels above 10-12 ng/mL are usually needed to sustain pregnancy.[10] If an MLP level is not suggestive of ovulation, lab workup for anovulation should follow, including a thyroid stimulating hormone (TSH), prolactin level, and workup for hyperandrogenism or PCOS.[11]

Ovarian reserve can be assessed by measuring serum follicle stimulating hormone (FSH) and estradiol (E2) on CD 3-5 or a measurement of anti-mullerian hormone (AMH) at any point in a cycle. For those with irregular cycles, these labs can be drawn at baseline at any point in the cycle. Adequate reserve is evidenced by an FSH less than 10 mIU/L, E2 less than 80 pg/mL, or AMH greater than 1 but less than 3.5 ng/mL. Greater FSH values may suggest premature ovarian failure, and AMH levels above range may suggest PCOS.[12, 13]

Imaging workup includes determination of ovarian reserve as noted above and serves to determine tubal patency and uterine anatomy. Ovarian reserve may also be assessed on imaging, by measuring an antral follicle count on transvaginal/intracavitary ultrasound (TVUS). This is a measurement of the number of follicles that measure 2-10 mm in both ovaries and counts above 5-7 are suggestive of adequate reserve.[14]

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Table 1. History & Examination Elements for Infertility Workup[1,2,9]

Female Factor	Male Factor
Medical History: sexually transmitted infections, pelvic inflammatory disease, abnormal pap smears and any follow up treatment, hyper/ hypothyroid symptoms, galactorrhea, hirsutism, chemo/radiation therapy, autoimmune disease, uterine fibroids, ovarian cysts, uterine polyps **Surgical History:** prior abdominal, uterine, or pelvic surgery **Obstetric History** **Menstrual History**: menarche, cycle length, presence of molimina, dysmenorrhea, oligo/ amenorrhea, menopausal symptoms **Sexual History**: frequency of sperm introduction, dyspareunia **Family History:** Fragile X, premature ovarian failure, infertility **Lifestyle:** occupational/environmental exposures, exercise, stress, diet, smoking, alcohol	**Medical History:** sexually transmitted infections, endocrine disease, chemo/radiation therapy, autoimmune disease, trauma **Sexual Development:** testicular descent, pubertal development, loss of body hair/decrease in shaving frequency **Sexual History:** frequency of sperm introduction **Exposure to Testicular Toxins**: alcohol, tobacco, cannabinoids, chronic opioids, anabolic steroids, corticosteroids
Elements of Examination	
BMI Extremes **Hypogonadic Hypogonadism:** primary amenorrhea with incomplete secondary sexual characteristics **Turner Syndrome:** short body habitus, square chest, absent periods **Endocrinopathy:** thyroid exam, breast exam for galactorrhea **Androgen Excess:** hirsutism, acne, male pattern baldness, virilization **Chronic Pelvic Inflammatory Disease (PID) or Endometriosis:** tenderness/masses in adnexae/posterior cul-de-sac, uterosacral ligaments, or rectovaginal septum **Mullerian Anomaly:** vaginal/structural abnormality **Uterine Anatomical Anomaly:** uterine enlargement, irregularity, lack of mobility	**BMI Extremes** **Androgen Deficiency:** atypical genitalia, sexual dysfunction, loss of secondary sex characteristics **Iron Overload:** skin hyperpigmentation **Cushing's Syndrome/Disease:** thin skin, ecchymoses, broad/purple striae **Testosterone Deficiency:** loss of pubic/axillary/facial hair **Scrotal Exam:** testicular size (normal length >3.6 cm, volume >15 cc via Prader orchidometry), large varicocele

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Hysterosalpingogram (HSG, aka fluorosonogram) is a fluoroscopy contrast-enhanced x-ray view of the uterus and fallopian tubes and is the standard of care for determining tubal patency and identifying occlusions or adhesions. This study has a 65% sensitivity and 83% specificity to detect tubal patency.[15] An HSG transmits fluoroscopic dye through a transcervical catheter that outlines the ovarian cavity and tubal patency as the dye passes through fallopian tubes and spills into the abdomen. It is most ideal to perform this study within seven days of menses to avoid interrupting a desired pregnancy.

Saline infused sonohysterography (SIS) or hysterosalpingo-contrast sonography (HyCoSy) is an ultrasound study that uses infusion of saline fluid and air bubbles via transcervical catheter to view anatomy of uterus and adnexa. This imaging modality is increasingly utilized, as it has high diagnostic accuracy for tubal occlusion (sensitivity 92% and specificity 95%), is thought to be better tolerated than HSG, and can be more useful than HSG to identify intrauterine structures such as uterine polyps.[16] This study is also most ideal to perform within seven days of menses.

When available, follicle monitoring may be able to identify successful recruitment of a dominant follicle for ovulation. A TVUS can be used on CD 11 through 13 to identify any follicle >11 mm.[14] Coordinating this ultrasound at the ideal moment in a menstrual cycle may provide a significant barrier, and therefore is not routinely recommended in ovulation induction protocols.

Any detection of tubal obstruction or atypical uterine anatomy (septate uterus, uterine fibroids distorting uterine cavity) may warrant MRI for further evaluation, and referral to REI would be indicated, as in-vitro fertilization (IVF) is generally the preferred pathway for infertility treatment when these factors are identified.

Medical Management

Management of infertility depends on the root cause, and most causes can be categorized into ovulatory dysfunction (21%), tubal damage (14%), uterine factors (6%), or cervical factors (3%).[17]

Treatment of ovulatory dysfunction can be offered in the primary care setting. The World Health Organization classifies infertility due to ovulatory dysfunction into four types: Hypogonadotropic Hypogonadal Anovulation (WHO Class 1, 5-10%, ex. excess/low body weight, decreased GnRH, low FSH/low Estradiol), Normogonadotropic Normoestrogenic Anovulation (WHO Class 2, 70-85%, ex. PCOS, low FSH), Hypergonadotropic Hypoestrogenic Anovulation (WHO Class 3, 10-30%, ex. primary gonadal failure), and Hyperprolactinemic Anovulation (Other).[18] Females who have a BMI outside of target range (20-25 kg/m2) may benefit from weight loss or weight gain to restore ovulatory function. In those with PCOS and BMI above 29, a 5-10% body weight loss can restore ovulation in 55-100% of people within 6 months, and offers an inexpensive low-intervention method for restoration of ovulatory function.[19] It is important to note that trials of weight loss intervention for infertility have not shown improvements in live birth rates, and therefore obesity should not be a criteria to deny access to fertility care or treatment, and readiness for weight loss interventions should be assessed using shared decision making, balancing evidence-based medical risks and patient autonomy.[20]

Insulin sensitizing agents like metformin (Glucophage) increase in menstrual cyclicity and enhanced spontaneous ovulation in PCOS, but do not increase live birth rates compared to ovulation induction.[21] Metformin is therefore not recommended as routine for ovulation induction except in egg producers with glucose intolerance, as it could be used to facilitate weight loss and regular menstrual cycles.

Table 2: Diagnostic Labs for Female Infertility - Assessment of Ovulation and Ovarian Reserve[2, 9-13]

Lab	When to Check	Interpretation
TSH	Baseline**	
Prolactin	Baseline - CD2-4 (if regular cycles)	Inhibits release of GnRH from pituitary, prevents ovulation
FSH	Baseline - CD2-4 (if regular cycles)	Good ovarian reserve = FSH < 10 IU/L Increased level = reproductive aging
LH	Baseline - CD2-4 (if regular cycles)	
E2	Baseline - CD2-4 (if regular cycles)	Elevated E2 will suppress FSH, if >60-80 pg/mL, then FSH is unreliable per ACOG
AMH	Baseline/Any CD	Marker of ovarian reserve Low AMH (<1 ng/mL) = poor ovarian reserve <0.5 is premature ovarian failure or menopause Elevated is >3.5, consider PCOS
MLP	CD19-23	>3-5 ng/mL = ovulation present >12 level to sustain pregnancy

*CD = Cycle Day, TSH = Thyroid stimulating hormone, FSH = Follicle Stimulating Hormone, LH = Luteinizing Hormone, E2 = Estradiol, AMH = Anti-Mullerian hormone, MLP = Mid-Luteal Serum Progesterone

**If amenorrhea/irregular menses, can check baseline labs at any point

Clinicians may attempt to induce ovulation medically in anovulatory people (WHO Class 2) using letrozole or clomiphene citrate. Medications that induce ovulation increase the risk of multiple pregnancy and ovarian hyperstimulation syndrome. Patients using these agents should be counseled about these risks. Patients who do not achieve ovulation after three to six cycles should be referred to an infertility specialist for further treatment.

Ovulation Induction (Table 4)

Letrozole (Femara) has become the preferred method for ovulation induction and has been well studied and used off label for about 10 years. The American College of Obstetrics and Gynecology (ACOG) has published recommendations for the use of letrozole as an ovulation induction agent in people with PCOS.[22] As an aromatase inhibitor, letrozole blocks estrogen biosynthesis, therefore reducing negative estrogenic feedback at the pituitary, promoting FSH secretion, ovarian follicular development, and ovulation. Compared to ovulation induction with other agents (namely clomiphene), letrozole has a shorter half-life, therefore has less anti-estrogenic effect, and by allowing natural negative feedback mechanisms to kick in sooner, letrozole is more likely to promote mono-follicular ovulation (lower risk of multiple gestation), and has reduced anti-estrogen effects on endometrium (thinned lining) and cervical mucus (prevents development of mucus consistency optimal for sperm transport) – factors that aid in optimal pregnancy conditions. Letrozole demonstrates clinical superiority for ovulation induction compared to clomiphene. A randomized control trial comparing ovulation induction with letrozole versus clomiphene citrate in PCOS demonstrated that letrozole induction was superior in measured birth rates (27.5% vs 19.1%) and ovulation rates (27.5% vs 19.1%).[23,24]

Letrozole is given as a 2.5 mg daily dose for five days on CD 3 through CD 7 following spontaneous menstruation or progestin-induced bleed. If ovulation is achieved (as measured by MLP on CD 19-23), the 2.5 mg dose can be continued for the following cycles. If there is no evidence of ovulation, the dose may be increased to 5 mg daily for the next cycle. The maximum recommended dose is 7.5 mg, as higher doses are associated with thinning of endometrium, which may limit success of implantation. Once ovulation is achieved on an effective dose, the dose can be continued for 3 to 6 cycles. Encourage

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Table 3: Diagnostic Imaging for Female Infertility – Assessment of Uterine Anatomy and Tubal Patency[2, 14-16]

Imaging	When to Check	Interpretation
Transvaginal Ultrasound (TVUS)	Baseline for antral follicle count, anatomy	Antral follicle count. Count all follicles b/t 2-10 mm in both ovaries <5-7 = low
Hysterosalpingogram/ Fluorosonogram (HSG)	CD7-10	Uterine anomalies Tubal patency
Saline Histogram (SHG), Hysterosalpingo-contrast sonography (HyCoSy)	CD7-10	Uterine anomalies Tubal patency

Table 4. Ovulation Induction Agents[22-28]

Letrozole (Femara)	Mechanism: Aromatase inhibitor Dose: 2.5 - 7.5 mg daily x 5 days for 3-6 cycles Use during CD 3-7, sperm introduction CD 11-21 Start at lowest dose, continue dose at which ovulation is achieved Advantages: (Compared to Clomiphene Citrate) Clinically superior (live birth rate 27.5% vs 19.1%, ovulation rate 61.7% vs 48.3%), shorter half-life of ~45 hours, lower risk hyperstimulation, lower risk of multiple gestation, reduced anti-estrogen effects on endometrium and cervical mucus Disadvantages: Off label Cost: 2.5 mg (per each) $10.41 - $18.13
Clomiphene Citrate (Clomid)	Mechanism: Selective Estrogen Receptor Modulator (SERM) Dose: 50 - 150 mg daily x 5 days for 3-6 cycles Use during CD 5-9, sperm introduction CD 14-19 Start at lowest dose, continue dose at which ovulation is achieved Advantages: FDA approved Disadvantages: Anti-estrogenic effects on endometrium and cervical mucus at higher doses, long half-life of ~2 weeks, higher risk of teratogenicity, anti-estrogenic hot flashes and mood swings, risk of multiple gestation and ovarian hyperstimulation Cost: 50 mg (per each) $4.76

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sperm introduction every other day starting 5 days after the last cycle dose of letrozole (CD 11). Patients can target cycle days of highest fertility by using an ovulation predictor kit (OPK) to detect urinary LH surge. The day of LH surge and the two days following are the days of highest fertility. Common side effects of letrozole include mild hot flashes and arthralgias.

Clomiphene citrate (Clomid) is an FDA approved agent for ovulation induction and has been used for about 40 years. Clomiphene is a selective estrogen receptor modulator (SERM), with estrogen antagonist and agonist effects in the body. The primary site of action is the hypothalamus where clomiphene blocks the negative feedback effect of circulating endogenous estradiol, promoting increased gonadotropin release, increased FSH and LH, ovarian follicular development, and ovulation. At other sites such as the uterus, cervix, and vagina, clomiphene has an anti-estrogenic effect with a longer half-life compared to letrozole, reducing the normal endometrial thickening and uterine volume increases during the menstrual cycle, and possibly reducing cervical mucus quality and quantity at higher doses.

Clomiphene is given as a 50 mg dose for five days starting on CD 5 after spontaneous bleeding or progestin-induced withdrawal bleed. The dose can be increased to 100 mg/day if no ovulation in the first cycle, then increased to a maximum suggested dose of 150 mg daily. Once ovulation is achieved, the effective dose can be continued for 3 to 6 cycles. Encourage sperm introduction every other day starting 5 days after the last cycle dose of clomiphene (CD 14). In cases of PCOS, clomiphene induced ovulation at a rate of 80%, and resulted in a cumulative pregnancy rate of 30-40%.[25] Common side effects include hot flashes and mood swings. There is a low (<1%) risk of ovarian hyperstimulation, a syndrome of serum shifts into third spaces such as the abdominal cavity.[26] Compared to spontaneous ovulation and pregnancy, clomiphene is associated with a higher risk of multiple gestations (7% overall, twins 6.9-9%, triplets 0.3-0.5%, quadruplets 0.3%, quintuplets 0.13%), and this should be considered in those at risk for high-risk pregnancies.[27,28]

Further Management of Infertility

Cases of infertility due to tubal occlusion, uterine anomalies, endometriosis, and unidentified causes should be managed by OB/GYN and REI colleagues, usually with intrauterine insemination (IUI) or ART including IVF.

Male Factor Infertility

History & Exam

Elements of history gathering and examination are shown in Table 1.

Labs & Imaging

Semen analysis and gonadal function are initial steps in infertility workup for males. A semen analysis may be performed by a local clinical laboratory that offers the service or a specialty care clinic such as Urology or REI.

Semen analysis samples should be collected after 2 to 7 days of abstinence and assessed within 1 hour of collection. A normal semen analysis would demonstrate the following: volume 1.5 mL or greater, sperm concentration of at least 15 million/mL, total sperm number of at least 39 million per ejaculate, morphology of at least 4% normal forms, vitality of at least 58% live sperm, progressive motility of at least 32%, and total motility (progressive and non-progressive) of at least 40%.[29] Any abnormal findings should be followed up with a repeat sample in three months, as new sperm generates every two to three months.[11] Persistent irregularities after more than one specimen indicates referral to REI for possible IUI or IVF. Any concern for obstruction leading to azoospermia (low sperm count), should be examined by a fertility specialist for imaging such as scrotal or transrectal ultrasound.

Gonadal function can be measured using total testosterone (8-10AM), FSH, and LH. Values out of reference lab values would indicate referral and further workup by urology or REI.

Management

Treatment to increase fertility depends on the etiology. Medical management in the primary care setting may involve treatment of secondary etiologies including underlying endocrinopathies or other chronic conditions. Gonadotropin therapy replacement therapy may also be considered for secondary hypogonadism (low testosterone, low FSH/LH). Although not supported by strong evidence, counseling around environmental toxin exposures and lifestyle changes is recommended (avoid tobacco, cannabis, excessive alcohol intake, avoiding tight fitting clothing/avoiding saunas/hot baths). In cases of varicocele with abnormal semen analysis, there is conflicting data for successful fertility after surgical repair for large varicoceles.[30] With REI, azoospermia can be managed by sperm retrieval and IVF.

General Fertility Tips

For anyone attempting pregnancy or undergoing infertility workup and treatment, counseling about general fertility practices is recommended.[31] This includes teaching of timed sperm introduction/timed intercourse (every 1-2 days around expected time of ovulation), folic acid supplementation, prenatal vitamins, and avoidance of teratogenic agents. Although not supported by strong evidence, there are some recommendations for fertility counseling including: encourage healthy weight and consider target BMI (>19 kg/m2 and <30 kg/m2), limiting caffeine intake (less than 3 cups/day), avoid smoking, alcohol, and recreational drugs, and checking if commercially available vaginal lubricants interfere with fertility. Counseling about ovulation tracking and fertility awareness is also recommended. Patients should be counseled on ovulation tracking using apps. Ovulation predictor kits can measure the cycle LH surge in the urine which is usually positive 24 hours before ovulation. Fertility is highest on the day of LH surge and the two days following. Monitoring for cervical mucus changes can also identify highest fertility days, as high estrogen at mid-cycle produces clear, copious, elastic quality mucus optimal for sperm transport. Monitoring basal body temperature can detect when ovulation has already occurred and may not be useful at identifying when to introduce sperm.

Equitable Fertility Care/Areas for Further Research & Advocacy

Infertility has a disproportionate impact on Black females of reproductive age.[32] Sexual and gender minorities and single individuals may also need fertility assistance for family building

but do not always meet definitions of clinical infertility or iatrogenic infertility to qualify them for infertility services.[33] Sexual and gender minorities, individuals who are not married, individuals with lower incomes, and individuals with disabilities face heightened barriers and discrimination in accessing infertility care.[33,34] SisterSong defines Reproductive Justice (RJ) as "the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities."[35] By expanding access to fertility care in the primary care setting, we support the full embodiment of reproductive justice, by supporting those seeking to build families despite intersecting of barriers to care.

Further research is needed to better understand the demand and accessibility for infertility services in cis-gendered and in gender minority populations. As the diagnosis of infertility has been recently recognized as an insurance billable medical diagnosis, more advocacy for expansive insurance coverage of fertility care diagnostic and treatment coverage is needed, as even fertility medication can still prove costly when used for multiple cycles. Grants may exist locally to support those with financial need for fertility care services, but these can vary by state and can have restrictions on who qualifies, highlighting equity concerns (excluding single persons for example).

Conclusion

Diagnostic workup for infertility and medical management of ovulatory dysfunction can be accessible in the primary care setting. The ability to have and care for the family that you wish for is a fundamental tenant of RJ. Family medicine providers have the opportunity to provide fertility workup, offer patient centered infertility care, and advocate for expanded access to fertility care for our communities.

Clinician Resources and Practice Guides:

American Society for Reproductive Medicine:
https://www.asrm.org/news-and-publications/practice-committee-documents/
https://www.reproductivefacts.org/

AAFP:
https://www.aafp.org/pubs/afp/issues/2015/0301/p308.html
https://www.aafp.org/pubs/afp/issues/2007/0315/p849.html

ACOG:
https://www.acog.org/womens-health/faqs/treating-infertility

American Urological Association:
https://www.auanet.org/guidelines-and-quality/guidelines/male-infertility

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Integrating Reproductive Justice and Trauma-Informed Care into Teaching and Practice

By Amy LaCount, MD; Heather Stevens, MD; Liza Brecher, MD; H. Reeve Bright, MD; Chelsea Faso, MD; Samantha Glass, MD; Ifechukwude Ikem, MD; Ivonne McLean, MD and Cait Weber, MD

Introduction

As one year passes since the harrowing fall of Roe v. Wade in June of 2022, and a seemingly ceaseless wave of restrictive legislation passes around the country, it is more vital than ever to utilize our role as clinician educators to teach the fundamental principles of reproductive justice (RJ) and trauma-informed care (TIC). We, as family physicians, are uniquely positioned to utilize tenets of RJ and TIC as tools of resistance against increasingly restrictive access that harms our patients, as well as our trainees. By grounding our teaching in a fuller understanding of the racist history of reproductive health care, which necessitated the reproductive justice movement, we can better navigate being primary care providers to many of our patients who experience oppression due to their identities and experiences. Similarly, using a trauma-informed framework when approaching our patient interactions, as well as our teaching experiences, will ensure a safer environment that avoids re-traumatization for all. Finally, deepening our engagement with RJ and TIC, both in teaching and practice, will empower us in our fight for reproductive rights.

Some medical texts cite J. Marion Sims as the father of gynecology – these texts require rewriting to honor Anarcha, Lucy, and Betsey as the mothers of gynecology.[1] Sims experimented on 12 enslaved Black women at a Montgomery hospital between 1845 and 1849; history only remembers three of their names. On Anarcha alone, he performed 30 unimaginably painful surgeries without any anesthesia. Years of brutal experimentation led to him "perfecting" his surgery for vesicovaginal fistula, and Sims went on to later perform this surgery on white women with anesthesia. Sims and his peers propagated the belief that Black women's bodies "were somehow 'super' in their abilities to transcend pain," as described by Cooper Owen in *Medical Bondage*, who coined the term "medical superbodies."[2] This concept elucidates the racism entrenched in the medical industrial complex; Black women in a 2019 study were found to be 40% less likely than their white counterparts to receive pain medicines during episodes of acute pain.[3]

Origins of Reproductive Justice Movement

In 1976, the Hyde Amendment passed, prohibiting the usage of federal funds for abortion care. This legislation disproportionately affected people of color, a dissenting opinion from Justice Thurgood Marshall stating that the amendment was "designed to deprive poor and minority women of the constitutional right to choose abortion."[4] Years of activism culminated in the foundation of the Black Women's Health Initiative in 1984, which focused on the multiple forms of oppression faced by Black women, including race, gender, class, sexual orientation, geographic location, and age.[5] The Initiative focused on advocacy, education, and public health, using a method called "re-evaluation counseling" for Black women to process the sociopolitical conditions that made it impossible for them to achieve true reproductive freedom. At the time, the reproductive rights movement was led by upper and middle- class white women, and centered on the idea of "choice." It did not consider the social, political, and economic inequalities that unjustly impacted marginalized people, thus limiting their ability to have choices. In 1994, a group of twelve women gathered at the Pro-Choice Alliance Conference in Chicago, Illinois and established the Women of African Descent for Reproductive Justice. Using the framework of human rights as defined by the United Nations, they linked reproductive rights with social justice to create the term reproductive justice. Three years later, SisterSong was formed by 16 organizations of four "mini-communities": Indigenous Peoples and Native American, African American, Latinx, and Asian American and Pacific Islander. SisterSong defined reproductive justice as "the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities."[6]

The term reproductive justice spread, and in 2006, qualifications were added in order to avoid misappropriation: that RJ be intersectional, that it be rooted in both the local and global community, and that RJ analysis be centered on marginalized communities most affected by reproductive injustice. Teaching the principles of RJ requires a lens of structural competency, defined by Hansen and Metzel as the "trained ability to discern how a host of issues defined clinically as symptoms, attitudes, or diseases also represent the downstream implications of a number of upstream decisions about such matters as health care and food delivery systems, zoning laws, urban and rural infrastructures, medicalization, or even about the very definitions of illness and health."[7] A willingness to acknowledge the privilege that we have as physicians, as well as trainers, and further interrogate these interconnected systems of power and oppression, is crucial to the advancement of the RJ movement.

Principles of Trauma-Informed Care

Trauma is defined by the *Substance Abuse and Mental Health Services Administration* as "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life-threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being."[8] Trauma is extremely prevalent, presenting with an array of overlapping symptoms in the body and mind. Clinical presentations can be vague, ranging from fatigue to

abdominal pain, and symptoms may also suggest correlation with mental illnesses.[9] It is also likely that many patients do not feel comfortable disclosing their trauma within the medical field, with its history of medical violence and the reality of medical racism, classism, ableism, homophobia, and transphobia. The environment of medical care can be triggering, charged by a substantial power differential between physician and patient. Seeking reproductive care is a vulnerable experience for many patients, and can potentially be re-traumatizing.[10] Additionally, as more patients became exposed to severe illness following the COVID pandemic, medical trauma is now an even more urgent concern.[11]

The CDC and SAMHSA's National Center for Trauma-Informed Care (NCTIC), have identified six principles that guide a trauma-informed approach,[7] including:

Principles of trauma-informed care	
Safety	*Prioritize safety of patients and staff.*
Trustworthiness & transparency	*Make systems transparent so patients and staff can trust in and feel safe in their workplace.*
Peer support	*Link survivors to other with shared experience.*
Collaboration & mutuality	*Minimize administrative hierarchy and create a culture of shared decision-making between patients and clinicians.*
Empowerment, voice & choice	*Ensure patients, clinicians and other staff feel free to speak and seek their needs without fear of repercussion.*
Cultural, historical & gender issues	*Educate clinicians and staff on pertinent past and present systemic injustice so everyone has a shared mental model of different potential sources of trauma patients and colleagues may experience*

Owens. Trauma-informed care for all. Am J Obstet Gynecol 2022

As clinician educators, we have a responsibility to carve out the space to discuss these principles, and incorporate them into our teaching and practice.

Best Practices for Clinical Encounters using Trauma-Informed Care Principles

From Cahill and Doyle 2021 'Trauma-informed abortion care' principles:[12]

Safety - personal, psychological, physical

- Positioning of patient and provider, instrument visibility
- Support person
- Meet patient dressed, patient moves own clothing when possible
- Introduce entire team including learners

Empowerment

- Patient should be offered control in all settings
- Screen for trauma, ask about prior exams/procedures
- Explain purpose, allow refusal, obtain consent, shared decision making
- Ask patient what would make them more comfortable
- Preferred language
- Self-placement of instruments
- System for/words for patient to say stop/slow down

Healing

- Acknowledge historic trauma and state goal of rebuilding trust and avoiding re-traumatization
- Validate discomfort, range of normal responses
- Establish norms and understanding of confidentiality
- Encourage patient to identity info about strength, superpowers, support systems

Case Scenario

A 24-year-old nonbinary patient comes into the office for a wellness exam. The patient has a cervix, and is due for a Pap smear. When offered, the patient hesitantly agrees. fter speculum placement, the patient becomes visibly uncomfortable and asks to terminate the exam prior to the Pap collection. How could we have more appropriately addressed this patient's health care needs? How would the encounter for cervical cancer screening or pelvic exam be improved through a trauma-informed lens?

Discussion

Invasive exams such as Pap smears can be a dysphoric experience for gender-diverse patients, and a potentially retraumatizing experiences for survivors of sexual violence. The above 'trauma-informed abortion care' principles can be applied to our case. It is essential to open the patient encounter with compassion and humility, trying to give power back to the patient by allowing them to steer their visit. Physicians should elicit previous history of reproductive health care in a safe environment, while the patient is fully clothed. This history-taking is not an attempt to recount previous traumatic experiences (though we should be prepared to listen and support patients if they divulge such information). During discussion, indications for the Pap smear should be clarified, going over risks, benefits and alternatives, with the opportunity for patients to refuse and give true consent. This is a time to listen to any helpful or harmful experiences that can change the approach to the exam. Some examples might include mirroring patient language - avoiding gendered terms like "vagina" and using terms such a front hole, or opening.[13] Patients may prefer to have a chaperone, may want to place the speculum themselves, or may prefer to obtain a self-collected Pap smear. Rescheduling the patient so that they can return better prepared, or so that they can come back with a support person, are both ways to promote patient autonomy and safety.

How would our case change if a medical trainee was also involved in our patient encounter, and they were triggered to remember trauma from their past? Vicarious trauma is an occupational challenge for providers; it is necessary to give ourselves time and space to process and heal, so that we can develop resiliency and become better practitioners for our communities.[14]

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Avoiding Activating Language; Adopting Neutral Language

TIC Language and Practice	
Instead of this ...	*Try this ...*
"You will feel my hand"	"You will feel my glove"
"You will feel a poke/pinch/etc"	"I am placing the pain medicine, you may feel some sensations with this" "I am taking the pap now"
"I am going to insert the speculum"	"I am going to advance the speculum"
"Everything looks good"	"Everything looks healthy and normal"
"Can you spread/open your legs further?" "Relax" Or pushing legs open	"Let your knees fall out to the sides" "Allow your bottom to melt into the table" "Loosen your leg muscles" Can use nuanced language "like a butterfly/pages of book" but remember these phrases can be difficult to interpret
Minimal/no gel for paps	Sufficient gel, warmed gel, avoid tip of speculum, wipe off excess gel before use

Conclusion

As clinician educators, we have the power and privilege of introducing the concepts of RJ and TIC to medical students, residents, and other trainees, empowering learners to develop patient-centered skills and habits. Providing trauma-informed care with a reproductive justice framework is a constant effort that requires continuous learning — by instilling the importance of these principles in our learners, modeling this approach to care for our colleagues, and remaining open and humble through our patient encounters, we can promote cultural changes in our institutions.

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How Victorian Doctors Learned Midwifery

By Thomas Rosenthal, MD

Throughout history, wise women sought assistance from more experienced women during labor, delivery, and the immediate postpartum period. For most everyone, growing up on farms where acts of animal procreation were a regular occurrence, sexuality was not taught, it was observed. Dr. John Roberton authored one of the earliest books on midwifery based on years of experience as a consultant at London's Lying-in-Hospital.[1] He was among the first to document that nursing delayed pregnancy and, noting that human fecundity lasted only half the natural life span, declared that "God intended women to domesticate and guide humanity across the generations."

Another popular textbook, DeWees's textbook of midwifery, claimed that headache, pelvic pains and lassitude 'common to the female,' resolved with the onset of menstrual secretions. He concluded that the purpose of the catamenia (i.e. menses) was to relieve the excess blood common to the female gender. DeWees was the first to link menstruation to activity within the ovary and to suspect that semen had a unique influence on this activity.[2]

Neighborhood midwives handled ninety-five percent of all deliveries, asking for help from a physician only in difficult births. With rare exception, all physicians were male, but they were stronger and had more surgical training. By 1813, the double blade Chamberlen forceps expanded the possibilities for a successful delivery and the potential role for doctors. But, how were men going to learn the skills of midwifery?

This question fell to Professor James Platt White in the early days of the University of Buffalo. Responsible for training twenty-two graduates each year, in 1853 he offered free medical care to a patient if she consented to allowing medical students in their second (and last) year of course work to observe her delivery.

Following protocols established in Europe, White had his patient move into quarters at the medical college under the guardianship of the janitor's wife. When her labor commenced, the graduating class assembled in the surgical theater and, one by one, Professor White guided them through vaginal examinations as labor progressed. Care was taken to avoid overexposing the woman and once the infant's head was at the external os, the students were permitted to witness the passage of the head over the perineum as Dr. White effected a safe delivery. Mother and child made rapid convalescence.

The next day, Dr. White's demonstration made the front page of several Buffalo newspapers and was re-printed in Philadelphia and New York. A few days later, a scathing critique signed "L" declared both Dr. White and his demonstration depraved and immoral. The critique was so bitter that Dr. White sued Dr. Horatio N. Loomis, the alleged author, for libel. The four-day trial made international headlines with each side leaking daily summations to the press. Counsel for Dr. Loomis described Dr. White's demonstration as debauched, but claimed that a Rev. John E. Robie, not Loomis, had authored the critique. Judge Mullett's jury instructions gained their own headline, "Public opinion has never been a reliable agent in the administration of justice since it profaned judgment and insulted heaven by crying 'Crucify Him! Crucify Him!'." Confusion about the author won Dr. Loomis an acquittal, but popular opinion vindicated Dr. White.[3]

Through much of the nineteenth-century, medical students learned the basics of obstetrics and midwifery on manikins. For millennia, midwives had managed labor with a healthy respect for the energies of nature, calling on physicians for sporadic cases of obstructed labor. Once called, physicians were expected to confirm the presenting part and apply forceps or dismember the fetus with

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a cephalotribe (forceps with teeth) or a crotchet hook. Caesarian sections, described by Jacob Rufer in the sixteenth century, carried a sixty percent mortality until antiseptic techniques were introduced late in the nineteenth century.

Dr. Jabez Allen's first obstetrical consultation may have been on Altie Persons, wife of a prominent and wealthy banker in East Aurora, NY. The attending midwife described a prolonged and arduous labor in which the child refused to enter the pelvic inlet. She feared the mother would die unless the fetus was dismembered and extracted.

As he had been trained, and to eliminate iniquitous eye contact with the mother during exams, Dr. Allen placed the woman on her left side facing away from him and began his examination. Finding the infant in a transverse lie with a presenting shoulder, the young doctor's mind churned to the edge of panic. After a few controlled breaths, he spoke in a voice so calm he surprised even himself. Delivery might be possible if the fetus could be repositioned.

What he did not explain was that he had read about repositioning in DeWees, but his only experience performing such a maneuver was on his father's farm when he had once reached into a cow's womb and repositioned a calf to a deliverable presentation.

Dr. Allen dosed the mother with laudanum (After 1848, chloroform or ether would be used in 50% of deliveries) and released ten ounces of blood by venesection to blunt the mother's pain. He next lubricated the vagina with fresh lard and inserted his left hand through the mostly dilated cervix into the womb. The intrusion triggered a forceful contraction that he feared might paralyze his hand, but once it relaxed, he accomplished repositioning in relatively short order. As this was the woman's fifth term pregnancy, the delivery of a baby boy quickly followed.

The infant was limp and blue and showed no spontaneous efforts to breathe. Dr. Allen wiped the infant's face and applied mouth to mouth stimulation. The effort quickly induced the child to take his own breath and within two minutes, the child produced a modest cry, announcing his intent to survive.

The midwife gave the child a tablespoon of molasses in warm water to purge the meconium as Dr. Allen returned his attention to the mother and delivered an already separated and complete placenta. Firm abdominal massage coaxed a decisive contraction that controlled the residual bleeding.

Dr. Allen thanked the midwife for her astute concerns and credited her with the successful outcome. For the next two weeks, Dr. Allen made daily calls on Mrs. Persons. He worried the extra manipulation might put Altie at risk for childbed fever, but mother and child did well. The Persons' stately home was on Main Street and had a long sidewalk leading to the front door. Being seen walking up that sidewalk was good for Dr. Allen's business.

Dr. Allen concerned himself with the occasional melancholia women experienced following childbirth. It affected genteel women and poor woman equally. Also called puerperal insanity, depression was common, but it could present as overexcited, aggressive, and disruptive behavior. Benjamin Rush believed puerperal insanity responded to bleeding, though Dr. Allen preferred removing the woman from all irritating influences. On at least one occasion, a new mother told Dr. Allen that she preferred the pains of labor to the agony of melancholia.

Dr. Allen's tactful regard for the Persons' midwife generated a positive reputation among the local midwives and many more referrals. Having patients who could afford his fees, like the Persons, made it possible for Dr. Allen to serve those who could only offer barter for his services.

Many of Dr. Allen's patients delivered seven or more children. Those with resources subscribed to a magazine published in Utica, NY, called *Mother's Magazine*. Another magazine, *Advice to Mothers* published by William Buchan, offered six rules for raising children: be fair, be there, don't wobble, don't pretend to be perfect, don't be too serious, and be polite.

Motherhood earned its honorable status justly. Repeated pregnancies and the demands of childcare became frightfully evident when the 1830 census revealed that only 2% of women were over the age of 65. Statistics have improved, and the services of a family doctor, female and male, remain at the essential interface of psycho-social medical care.

An excerpt from Bloodletting and Germs: A Doctor in Nineteenth Century Rural New York *by Thomas Rosenthal MD. (Awarded the 2022 Gold Medal for Cultural Fiction by Reader's Favorite.)*

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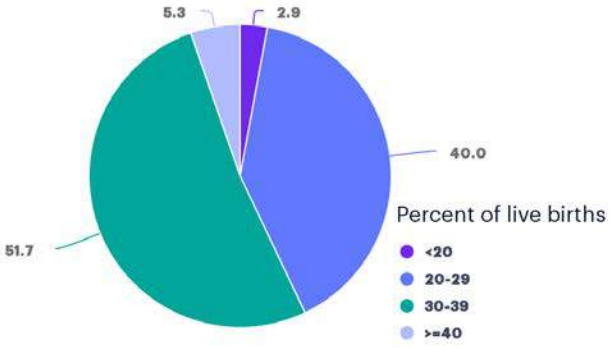
Family Medicine Perspective:
The Intersection of Delayed Childbearing and An Evolving Political Landscape

By Sara Paul, MD, FAAFP; Natalie Buslach, MD and Sokkha Hak, DO

Introduction

Women older than the age of 35 at the time of delivery are identified as having advanced maternal age (AMA). Per the ACOG's Obstetric Care Consensus, this is an arbitrary threshold that was selected due to evidence of declining fertility and increasing risk of adverse fetal outcomes.[1] Historically, in the 1970s the age defined as AMA was 35 years based on the age at which there is increased risk of a fetus being affected by trisomy 21 and the procedure-related risk of pregnancy loss with amniocentesis which were equivalent to 1:200. However, it appears that specific maternal and fetal complications occur more significantly beyond the age of 40.[2,3] Antepartum care, genetic testing, and close monitoring throughout pregnancy can help reduce potential pregnancy complications. In New York State (NYS), approximately 51.7% of live births occurred in women ages 30-39 and 5.3% in those older than 40 years between 2018 to 2020 (Figure 1).[4] With a majority of live births occurring in individuals over the age of 30, it is paramount to discuss reasons for this and outcomes of delayed childbearing. Furthermore, family medicine physicians are at the front line of primary care to counsel on concerns for AMA patients and delayed childbearing in a post *Roe v Wade* era.

Figure 1. March of Dimes. "Percentage of Births by Maternal Age: New York, 2018-2020 Average."



March of Dimes | PeriStats, www.marchofdimes.org/peristats/data?reg=36&top=2&stop=5&lev=1&slev=4&obj=3&sreg=36. Accessed 22 May 2023.

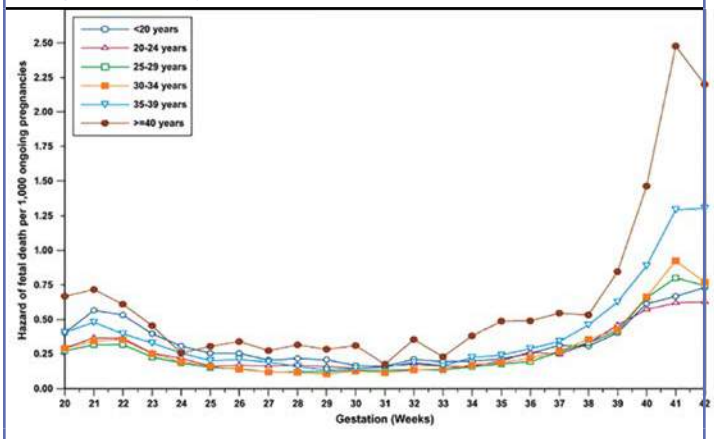
Trends in Delayed Childbearing

Studies on AMA have been conducted since the concept of "elderly primigravida" was introduced in 1950.[5] As more people delay childbearing, there is no consensus on the ideal age for childbirth. However, the term "advanced maternal age" emerged due to the increased likelihood of complications faced by women conceiving at or after 35 years of age, such as gestational diabetes, preeclampsia, chromosomal abnormalities, and an increased likelihood of cesarean section deliveries.[1] Fecundability decreases at approximately the age of 32 and further declines by the age of 37, as oocytes age and become more susceptible to chromosome segregation errors during meiosis. With higher rates of aneuploidy and spontaneous abortion as women age, achieving a live birth becomes less likely (Figure 2).[1]

Societal trends and cultural factors have contributed to a rise in pregnancies among women of AMA. New York City was the first United States (US) epicenter during the COVID-19 pandemic; fertility rates rapidly declined 20% in the first year of the outbreak, but a rebound in fertility rates was observed following the first wave.[6,7] Khan et al concluded that women of high-income, highly educated, and non-Hispanic whites were less likely to consider or attempt pregnancy during the pandemic.[8] In the post-pandemic world, this could lead to expanding the prevalence of patients delaying childbearing in the future.

Factors like pursuing higher education, career advancement, attaining financial stability, delayed marriages, and the search for a suitable partner have influenced the average age of childbearing in many countries.[9] Reproductive autonomy, aided by the availability of safe, effective, and reversible contraception has also played a role in women's decision to delay childbearing. Assisted reproductive technologies, such as in vitro fertilization (IVF), offer additional methods to achieve pregnancy and may contribute to delayed childbearing. Regardless of age, healthcare providers should closely monitor and address potential risks to ensure the well-being of both the woman and the neonate throughout pregnancy.

Figure 2. Risk of Fetal Death per 1,000 Ongoing Pregnancies by Week of Gestation.



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Effects of Delayed Childbearing: Declining Fertility and the Role of Primary Care Work-Up

Family physicians are uniquely positioned to assist patients in their journey towards conception. Infertility is defined as the inability to achieve pregnancy within 12 months of unprotected, regular sexual intercourse or having a known decreased capacity to reproduce.[10] Ovulatory disorders, endometriosis, pelvic adhesions, tubal blockage, and uterine/adnexal abnormalities are among several conditions that contribute to infertility with ovulatory disorders being the most common cause.[11] For unknown causes of infertility, evaluation is warranted after 12 months in females <35 years of age, at 6 months for females >35 years, and immediately for females >40 years of age.[10] Earlier evaluations are recommended for women with any of the above preexisting health conditions. Male evaluation is also recommended at the time of female evaluation. Etiologies of infertility are found in most cases, but unexplained infertility accounts for 15% of infertile couples.[12]

The patient's history should elucidate whether the individual has anovulatory or ovulatory menstrual cycles. If this cannot be determined, a morning serum progesterone on day 21, during the luteal phase of the menstrual cycle, may provide further clarity. For women with irregular menstrual cycles, a progesterone level should be drawn a week prior to their expected menses and repeated weekly until they experience menses.[13] Progesterone levels > 3 ng/mL indicate that ovulation has likely occurred, while those below this threshold may indicate the patient has anovulatory cycles (Table 1) (Figure 3).[12]

Ovulatory disorders account for 25% of the identifiable causes of female infertility. This includes hypothalamic amenorrhea and functional amenorrhea seen in women with the female triad or disordered eating.[11] Polycystic ovarian syndrome (PCOS) is the most common cause of ovulatory dysfunction and affects 70% of individuals who are anovulatory.[12] Atypical congenital adrenal hyperplasia (aCAH) and Cushing syndrome should also be considered when assessing for PCOS. Evaluation for thyroid dysfunction and prolactinemia may be warranted if clinically indicated.[10-12]

For women with ovulatory cycles, further testing may be indicated to assess anatomical causes of infertility which includes tubal patency with a salpingohysterogram and transvaginal ultrasound or sonohysterogram for fibroids and congenital uterine abnormalities.[11,12] Endometriosis and pelvic adhesions should also be considered. Evaluation of a woman's ovarian reserve can assist in guiding discussions on achieving pregnancy given a patient's age and use of artificial reproductive technology (ART).[13] This predominantly assesses the serum levels of follicle stimulating hormone (FSH), estradiol (E2), and anti-mullerian hormone (AMH). Inhibin B and the clomiphene challenge test previously used to assess ovarian reserve are not recommended.[10]

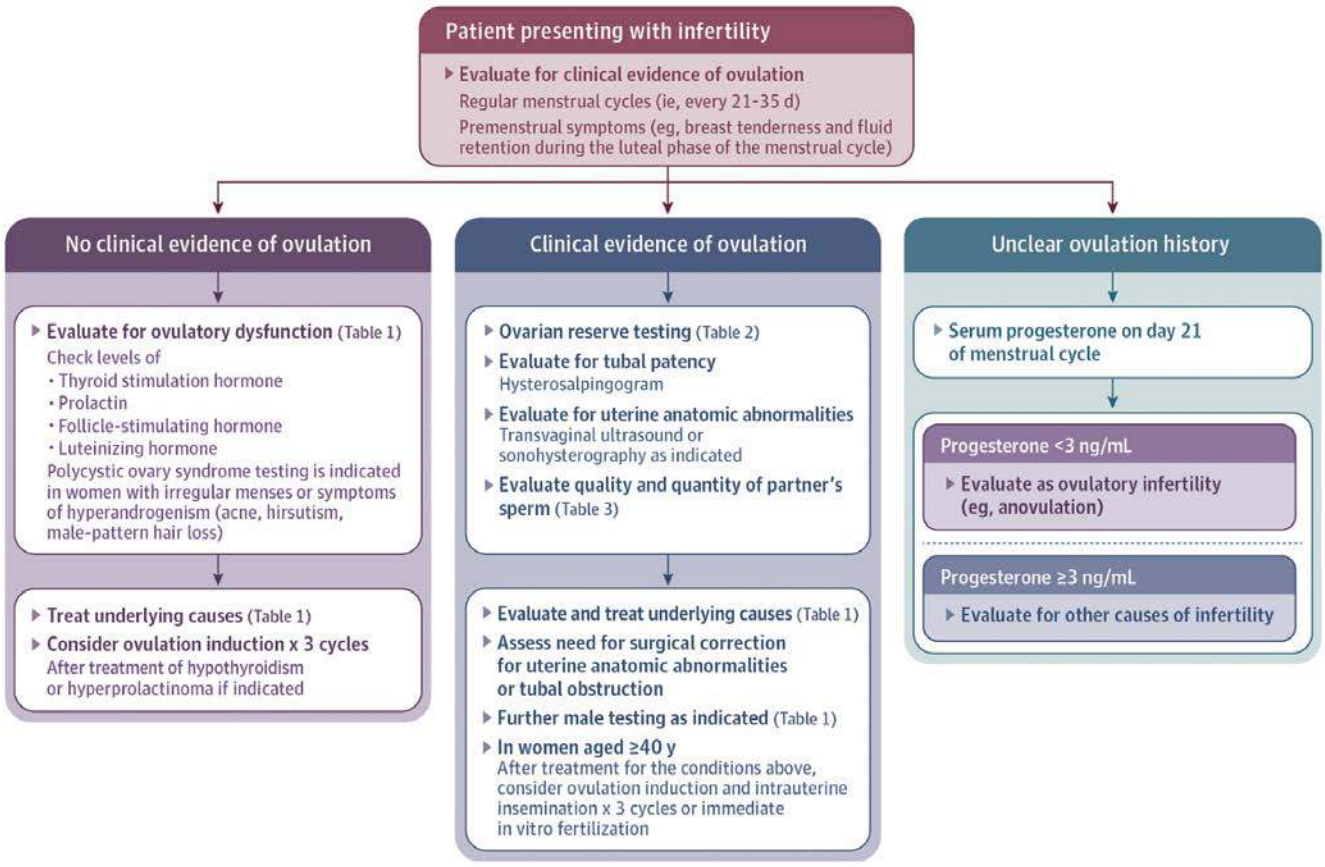
Management of fertility in most of these conditions involves treating the underlying disorder. ART is a potential avenue to assist women who have had difficulty conceiving on their own. However, most women are unaware of the age-related decline in success rates that accompany AMA when using ART.[14,15] There is a decline in success rates of ART with each year of female age 40, which is particularly evident in women over 40.[15]

Table 1. Laboratory Tests Used for Fertility Testing

Laboratory Test	Normal Values	When to Measure	Important Points
Follicle Stimulating Hormone (FSH)	5–20 mIU/L	Follicular phase, days 2–3 of menstrual cycle	FSH values >10 IU/L predict poor response to ovarian stimulation (1) FSH values >18 IU/L predictor of poor pregnancy outcome (2)
Estradiol (E2)	20–400 pg/mL	Follicular phase, days 2–3 of menstrual cycle	Helpful in combination with FSH to establish baseline ovarian reserve Use with monitoring of COH. Low risk of OHSS with E2 value <3000 pg/mL
Anti-Müllerian Hormone	0.9–9.5 ng/mL	Not cycle dependent so can be measured at any time	Low values (0.2–0.7 ng/mL) predict poor response to COH but are not useful in predicting pregnancy (6)
Inhibin B	<139 pg/mL during the follicular phase	Follicular phase, days 2–3 of the menstrual cycle	Serum levels <45 pg/mL have been associated with poor response to gonadotropins (9)
Progesterone	Follicular phase: <3 ng/mL Secretory phase: 5–30 ng/mL	One week prior to expected menses to assess for ovulation	Values <3 ng/mL during the secretory phase indicate anovulation
Lutenizing Hormone (LH)	5–20 mIU/mL	Mid-follicular phase	Studies vary in regard to clinical value of LH
Abbreviations: COH: controlled-ovarian-hyperstimulation; OHSS: ovarian hyperstimulation syndrome.			

Delaney, Abigail, et al. "Fertility Testing." ***AACC***, www.aacc.org/cln/articles/2012/november/fertility-testing. Accessed 22 May 2023.

Figure 3



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Summary of Recommendations for Family Medicine Practice: Antepartum Care

Once pregnancy is achieved, it is essential for family physicians to care for these patients using guidelines focused on prenatal care for women older than 35 years. Pregnancy counseling should aim to reduce the risk of adverse health effects for the woman and neonate by optimizing care, addressing preexisting conditions, mitigating modifiable risk factors, conducting screenings and tests, and providing education. Research suggests that AMA pregnancies are associated with greater maternal morbidity and mortality disparities.[16,17] Therefore, it is important to provide comprehensive pregnancy counseling recommendations through shared decision-making.

Key recommendations to consider for antepartum care outline by organizations such as ACOG and USPSTF:

- **A daily low-dose aspirin for reduction of pre-eclampsia for pregnant individuals aged 35 or older in the setting of at least one other moderate risk factor. (GRADE 1B)[1]**
  To reduce the risk of preeclampsia, ACOG and USPSTF strongly advise that individuals with a high risk of preeclampsia should start taking low-dose aspirin therapy between 12-16 weeks of pregnancy and continue until delivery.[16] Women aged 35 or older during pregnancy are at an increased risk of developing preeclampsia, which subsequently increases the likelihood of hypertensive disorders during pregnancy.[17] When evaluating preexisting conditions, important high-risk factors to consider include a history of preeclampsia, chronic hypertension, diabetes, kidney disease, and autoimmune disease.[16]
- **Discussion of prenatal genetic screening and diagnostic testing options for all individuals regardless of age or risk factors. (GRADE 1A)[1]**
  As a woman ages, there is an increased risk of aneuploidy and spontaneous abortion with declining fertility.[1] Research indicates that the likelihood of a trisomy 21 birth increases from approximately 3% among younger women in their 20s to around 30% among older women in their 40s.[18]
- **Proceed with delivery in well-dated pregnancies at 39 0/7 -39 6/7 weeks of gestation for individuals 40 years and older due to increasing rates of neonatal morbidity beyond this gestational age (GRADE 1B)[1]**
  In low-risk pregnancies, it is generally advised to consider inducing labor at 41 weeks of gestation or later. However, as the gestational age goes beyond 39 weeks, the risk of fetal mortality increases. The ARRIVE study (A Randomized Trial of Induction Versus Expectant Management) revealed no significant difference in primary perinatal outcome between women who had an induction verses expectant management.[19] However, the study did reveal that inducing labor at 39 weeks of gestation reduced rates of cesarean delivery and hypertensive disorders of pregnancy.[19,20]

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Impact of the Supreme Court of the United States (SCOTUS) Decision on Abortion Access and Implications for Delayed Childbearing

Women in later decades are directly and indirectly affected by the recent SCOTUS decision to overturn *Roe vs Wade*. As previously discussed, women are choosing to delay childbearing, partly due to increased reproductive and fertility options. In 2019, 83,946 neonates, which comprise about 2.2% of all US births, were conceived via IVF.[21] The recent SCOTUS decision may have unintended implications on IVF and cryopreservation if the definition of personhood changes – if abortion bans are written to grant embryos the legal standing of people, then embryos will be protected under state law from the moment of fertilization.

It is important to note that the possibility of pregnancy remains until women achieve menopause. A 1995 survey revealed 51% of pregnancies among women 40 and older are unintended. A large majority of these women become pregnant because they incorrectly believe reduced fertility means they no longer need contraception.[22] The implications of the reduced or eliminated reproductive health care access carries an increased burden and health risk for women later in life who unintentionally become pregnant. It is of utmost importance that family physicians continue to address contraceptive needs and education to midlife women who are still within the pre- or perimenopausal period, especially in a time where reproductive healthcare options are more limited than 50 years ago.

On one side, abortion bans beginning at fertilization may force parenthood and on the other side, these same laws may prohibit people from becoming parents.[21] These are important topics that family physicians need to be aware of so appropriate counseling and support can be offered to such patients.

Leading the Way: The Essential Role of Family Practice in Driving Societal Transformations

The need for systemic change in American society is two-pronged. Does society allow individuals who want to conceive the ability to do so and to raise their children responsibly and safely? If an individual does not desire to become pregnant or to proceed with pregnancy, are individuals able to access needed services?

To answer the former, NYS offers paid family leave for eligible part-time and full-time employees for a total of 12 weeks which increased from 10 weeks in 2021. This legislation grants bonding leave, allowing caregivers dedicated time to spend with a newly born, adopted, or fostered child while guaranteeing job security and continued insurance coverage upon their return. Overall, studies have shown that parental leave is protective against poorer mental health for mothers in the post-partum period, especially paid leave of at least 2–3 months.[23] As working parents must adapt to day-care and childcare hours, timely communication of work hours and on-call schedules is crucial. Developing family-friendly workplace policies, such as having breast-pumping breaks and increasing the number of on-site childcare facilities may help to facilitate a more balanced work-life for parents.

Regarding the latter, emergency contraception, such as Plan B, has been available over the counter (OTC) for more than a decade. ACOG recognizes the utility of increasing access to contraception OTC to overcome patient barriers obtaining an initial prescription, refills, and physician appointments.[24] Starting in November 2024, new legislation will empower pharmacists in NYS to dispense oral contraceptive pills, vaginal rings, and hormonal patches.

Conclusion

As family medicine physicians, we play a key role in not just caring for patients choosing to delay childbearing, but also to provide appropriate counseling and optimize medical care for patients of AMA. Patients choosing to postpone childbearing has been a topic for over 70 years and will continue as an increasingly critical topic for family physicians to review with their patients. In the changing healthcare landscape of the post *Roe v Wade* era, it is the responsibility of family physicians to take the lead, model comprehensive care, and counsel at all stages of a woman's life, including those who choose to delay childbearing.

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How and When Should Clinicians Bring Up Sexual Health Concerns with Their Female Patients?

By Hope Daskalakis; Pebble Kranz, MD, FECSM, IF and Mathew Devine, DO

Women's sexual health and satisfaction has long been overlooked. Current attention in the medical sphere is almost exclusively focused on aspects of women's sexual health that impact reproduction and sexually transmitted infection (STI) status. However, this same spotlight has not been centered on women's sexual satisfaction and pleasure, even though we know that sexual health is fundamental to health and happiness for most people! Sexual dysfunction is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a significant impairment of sexual response and pleasure or as pain during intercourse, causing persistent (>6 months) and clinically significant stress.[1] The true prevalence of sexual dysfunction in the female population in the United States is difficult to measure. This is due in part to underreporting, shame and stigma surrounding the topic, and lack of research. Some studies have even shown that up to half of women report having at least one sexual problem.[2,3]

As the main stewards of preventative care, family medicine physicians should ask patients about their sexual health and satisfaction. This will accomplish a few different things. First and foremost, having this discussion in the office will destigmatize the topic of sexual health for women and their clinicians. Patients want their clinicians to bring up the topic, and it is our hope that women will start to come to their annual visits expecting and prepared to discuss their sexual health concerns. This practice would be the first step in claiming women's' sexuality as a topic of medical importance, and decrease the probability that patients learn about their sexual health from erroneous internet sources that could be harmful. It is the clinician's responsibility to initiate discussions surrounding the sexual health of their patients. We hope this article will assist clinicians in guiding their patients through these conversations habitually and with ease. This will lead to happier patients with better health outcomes.

Every person deserves to experience sexual satisfaction in their lives that is safe, consensual, and fun. It is unfortunate that seeking help for sexual health dysfunctions is taboo and linked to shameful emotions for many people. When clinicians let patients know that sexual pain is never normal, and that to have comfortable, pleasurable sexual engagement there must be arousal, they are subverting harmful messages. There is so much misinformation that has been passed down through generations of women, and perpetuated in mainstream media that is not in women's' best interest. If the basics of female sexual satisfaction aren't even acknowledged by medical literature, what chance does the media have to get it right? Take the clitoris, for example, which we now know and understand is the center of female pleasure, and has been omitted from medical texts for years. It wasn't until the early 2000's that the underlying structure of the clitoris was described in anatomy texts and found to have erectile tissue comparable in structure and function to the penis.[4] Although the clitoris is now relishing in its much-needed limelight within medical texts, there are still names of female pelvic organs that remain censored from mainstream media. Words describing female pelvic organs are also commonly used incorrectly in society. For instance, the word "vagina" is a commonly used misnomer for the external female genital tract.[5]

The International Society for the Study of Women's Sexual Health (ISSWSH) developed a Process of Care (POC) for identifying sexual concerns in women. It has two arms, one core protocol for every PCP to adopt, and another advanced protocol for clinicians who have more experience in sexual medicine topics. In this paper, we're showcasing the core level protocol.

Barriers to Sexual Health Discussion in Clinic

According to a study done by Katie Ryan et. al., "embarrassment" and "nervousness" are the most common barriers to discussing sexual concerns among a group of patients (a majority of which were women) in the United States.[6] Women continue to face stigma and shame regarding their sexual health in our society today. Many women struggling with sexual dysfunction understand that something is wrong, but they may be discouraged from asking for help because of the long history of medical neglect that surrounds these topics. Some of the most common problems concerning women include lack of arousal and painful intercourse - two things that a woman may blame herself for and try to overcome alone, instead of bringing it up to her clinician.

Before the Interview

Before we address sexual health screening and the interview process, we want to remind clinicians that asking these questions is important for every single female patient, regardless of their own personal biases of who may benefit from such counseling. Patients who are widowed, with physical or mental disabilities, or elderly should not be exempt from the interview.

The clinician might preface the conversation by saying, "This is something I ask all my patients, because we know from studies that sexual concerns are common and can be quite distressing for women." Secondly, when the clinician is comfortable speaking about this topic, the patient will feel more at ease. Being able to use specific language about sexual function with ease is particularly important. When vague questions about sexual function are posed, clinicians will get vague and unhelpful responses from patients. We recommend clinicians practice saying words like "orgasm", "clitoris", "sexual play" out loud before the visit, and consider in advance how they will pose questions about various aspects of sexual function, to

help them be sure they won't stutter or seem uncomfortable in front of a patient. For example, do you have any specific concerns with sexual desire, arousal, or orgasm? Do you experience pain with any aspect of sexual play? It is equally important to be comfortable with allowing patients to use their own language for sexual function-- "coming," "finishing," "getting wet." Over time, the clinician should become more and more comfortable having these types of conversations- even if they may seem awkward at first.

Implementing a self-administered questionnaire that patients can fill out while waiting may be very helpful to get them thinking about issues they may be facing. This is a great resource because it may take some time and thought for the patient to acknowledge they have a problem they'd like to discuss. There are many recommended screeners, one of them specific to the sexual desire concerns is the Decreased Sexual Desire Screener, shown below.[7] It is important to note that when a screener is used, the clinician must address the concerns raised during the visit. When we ask patients to complete a screener and then don't follow up on their answers, we are communicating that we don't care about their concern.

Decreased Sexual Desire Screener

To be discussed with your health care provider.

Each question is answered Yes or No.

1. In the past, was your level of sexual desire or interest good and satisfying to you?
2. Has there been a decrease in your level of sexual desire or interest?
3. Are you bothered by your decreased level of sexual desire or interest?
4. Would you like your level of sexual desire or interest to increase?
5. Please circle all the factors that you feel may be contributing to your current decrease in sexual desire or interest:
   a. An operation, depression, injuries, or other medical condition
   b. Medications, drugs, or alcohol you are currently taking
   c. Pregnancy, recent childbirth, or menopausal symptoms
   d. Other sexual issues you may be having (pain, decreased arousal, or orgasm)
   e. Your partner's sexual problems
   f. Dissatisfaction with your relationship or partner
   g. Stress or fatigue

The Interview

The ISSWSH Process of Care recommends using a screening tool or statement and then implementing a four-step model. As a primary screening question, clinicians can ask, "Are you sexually active?" If the answer is yes, they may continue with "When was the last time you had sex, and did you enjoy it?" or "Do you have any concerns that you would like to discuss?"

There is a four-step model described by the ISSWSH that is outlined below in a table format.[8] Step 1 is to elicit a sexual problem history, inclusive of a timeline, impact and distress, and potentially contributing factors such as medications, medical issues, and other physiologic changes that might impact sexual function. This isn't the time to make a diagnosis, but instead to allow the patient to express their concerns and emotions, and to hopefully uncover the impact of this problem on the patient's life. Step 2 is to name and validate the importance of the patient's sexual dysfunction. The clinician may try to reframe the sexual problem or concern if needed, as some patients may present a problem or concern that might be a consequence of something else without realizing it. Step 3 involves empathetic listening. This may seem obvious in other health-related conversations, but clinicians should be reminded of the courage and tenacity it takes women to speak about these topics and ask for help, so clinicians should be as empathetic and positive as they can.

Step 4 involves an assessment and treatment or referral. Care should be taken to make sure the patient doesn't feel like they are being brushed off if the plan is to refer them elsewhere for management of their condition. It is very important here to validate their concerns and be sure to follow-up at the next visit about how things are going. The clinician may also take this time to counsel the patient regarding how important sexual satisfaction is, and that the patient should take the referral seriously.

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Four-Step Model for Assessing for Sexual Health Dysfunction	Description	Tools & Examples
Step 1: Elicit a narrative from the patient	Help the patient to discover and describe their distress, functional impairment, and the extent the problem is affecting their life	Use open-ended questions Use patient-centered language Be curious
Step 2: Name and (re)frame attention to the sexual problem or concern	Name and validate the importance of the sexual problem	"It seems to me that in addition to your <initial complaint>, what you've just told me about your <sexual concern or problem> is just as painful, important, and worthy of attention"
Step 3: Empathetic witnessing	Patient-centered view and approach	"I am impressed with how committed you are to addressing <the sexual problem and its effects on your relationship/life> despite how difficult that is. You are <really beginning to take steps/ determined> to try and solve <this problem>"
Step 4: Referral or assessment and treatment	Consider referrals to pelvic floor specialists, sexual health therapists, or sexual medicine specialists	Validate concerns Be sure to follow-up with the patient at the next visit

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After a thorough sexual health interview with a patient, a clinician may make a preliminary assessment and manage on their own if they can. It is important to understand that sexual health concerns have a biopsychosocial etiology. Sexual dysfunction problems may be multifactorial in nature, or even situational. It is recommended that the clinician focus on a core level of treatment within their scope of practice. This includes evaluating medical causes for the patient's symptoms. Clinicians should look into the patient's medication list and be aware of certain medications which may affect desire, arousal, or orgasm. These include medications used to treat depression, antihypertensives, and antihistamines. If patients are postmenopausal with genitourinary syndrome of menopause (GSM), they may present with lack of desire, which can be a consequence of a change in genital arousal. Proper treatment of GSM can enhance arousal and as a result, concerns about desire may resolve. Medical conditions such as depression, cardiovascular disease, thyroid disease, and so many others can also contribute to sexual dysfunction. Chronic medical conditions can affect a woman's self-confidence and self-image, which may be negatively impacting her sexual function. Infectious, inflammatory, neoplastic, and neurologic causes should all be ruled out.

Conclusion

Family medicine clinicians are unique in that they can follow the same patients for many years, so judgment can be discerned as to when to have a patient fill out a screener, when to have an in-depth conversation regarding sexual function and health, and when to have shorter discussions for acute problems. Whatever the clinician's preference of when to initiate these conversations, and at what frequency, we believe them to be a necessity and vital to be brought up by the clinician. The POC outlined previously is great to have in a clinician's toolkit to identify sexual problems in their female patients and provide basic management and referral when appropriate.

Sexual medicine is a relatively recent field with a growing body of scientific knowledge about sexual anatomy, physiology, function, and dysfunction. Sexual medicine specialists provide biopsychosocial evaluation and treatment of sexual concerns. When sexual concerns become complex, sexual medicine specialists may be helpful referral resources. ISSWSH Fellows (IF), Fellows of the European Committee on Sexual Medicine (FECSM) or medical clinicians who have certification as sexuality counselors (CSC) through the American Association of Sexuality Educators, Counselors, and Therapists (AASECT) have devoted time and attention to developing this knowledge.

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Medical Students' Perspectives in New York State on Dobbs v. Jackson Women's Health Organization

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Introduction

In 1973, the US Supreme Court decided in Roe v Wade that women alongside their physicians have a constitutionally protected right to have an abortion in the early stages of pregnancy. This right was upheld, with some restrictions, in 1992 in Planned Parenthood of Southeastern Pennsylvania v Casey. On June 24, 2022, the Supreme Court announced Dobbs v. Jackson Women's Health Organization – a ruling that overturned these two cases previously upholding the constitutional right to abortion and perpetuating differential standards of care across the US.[1]

The potential impact this decision has had on practicing physicians and medical students who wish to pursue careers that deal with abortion related healthcare and decision making cannot be ignored. Across the subspecialties of medicine, those at the forefront of providing comprehensive reproductive care to women, are significantly affected by this decision, and this includes family medicine. The attitudes of medical students in pursuing a career in family medicine during this time are unknown, as many considerations factor into specialty decision making. In comparison to many states across the country that are upholding the Dobbs decision, New York State is one of the few where reproductive laws and access to abortion care is protected.[2]

We were interested in better understanding current medical students' perspectives on the Dobbs decision across New York State. To do this, an anonymous REDCAP survey was sent to students enrolled in medical schools across New York State to examine (1) specialty and geographic preferences prior to and following the Dobbs decision and (2) medical students' level of concern regarding criminal or civil charges for physicians who provide abortion care in various scenarios. This review will highlight those findings and discuss the impact this may have on students wishing to pursue a career in family medicine in the post- Dobbs era.

Methods

An anonymous REDCAP survey was designed to achieve the objectives above. First, basic demographic information about the medical students completing the survey was collected including the participant's expected graduation year from medical school, state in which their medical school is located and preferred personal pronouns (Figure 1). Second, survey respondents indicated specialty and geographic preferences prior to, and following the Dobbs decision to gauge attitudes and opinions regarding how Dobbs may have influenced their career goals (Figure 2, Figure 3, Figure 4). Finally, medical students addressed their level of concern about various scenarios regarding criminal or civil charges for physicians who provide abortion and fertility care (Figure 5).

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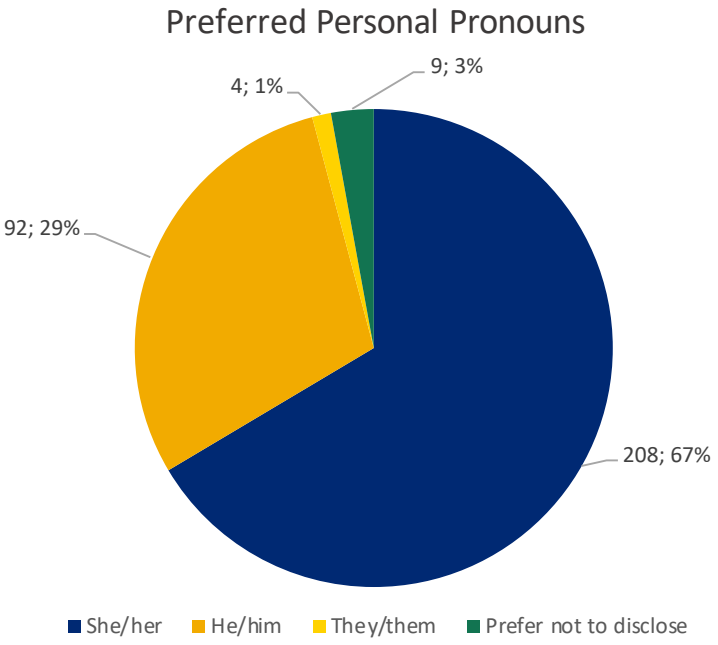
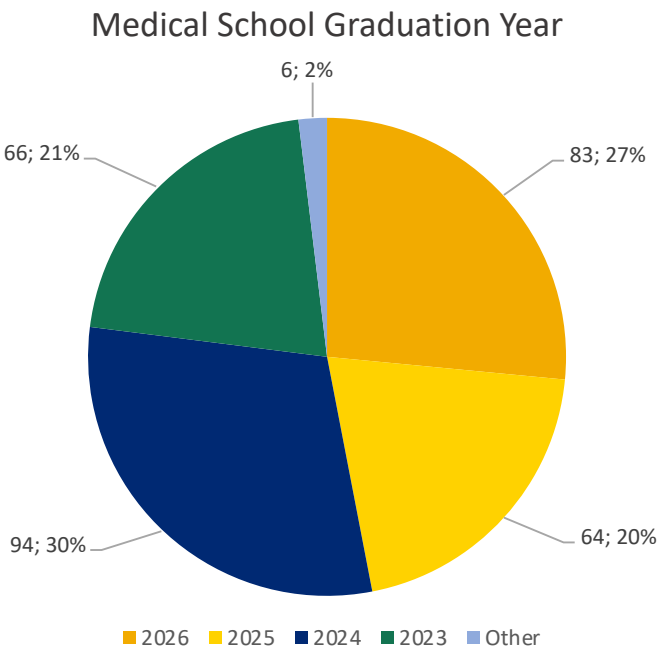
Figure 1. Demographics of NYS medical students that completed the survey (n = 313)





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Beginning in December 2022 through April 2023, the research team at the Jacobs School of Medicine and Biomedical Sciences contacted medical schools via email or phone to gauge medical student survey participation. The survey was sent via official, university-maintained email listservs and if needed private messaging platforms unique to medical students (e.g. GroupMe, Whatsapp, Microsoft teams), using an IRB approved standardized template. Attempts to contact all medical schools in New York State were made.

Results

Nine medical schools across New York State were contacted and successfully confirmed that the survey was sent to their medical student classes. Only students that indicated enrollment at a medical school in New York State were included in the data analysis. Overall, a total of 313 participants completed the survey anonymously.

Demographic characteristics of those who completed the survey are highlighted in Figure 1. Overall, students who completed the survey identified using "she/her" pronouns were over-represented (n=208, 66.5%). Students across all four years of medical school completed the survey and all classes were well-represented in the survey data. Participants with an expected graduation in 2024, current MS3 students, had the highest percentage of survey completion (n=94, 30.0%) and second highest being those expected to graduate in 2026, current MS1 students (n=83, 26.5%).

A chi-square test of independence yielded no significant difference in geographic preference pre- or post- Dobbs decision ($p > 0.200$). However, there was an increase in the number of students preferring the Northeast and Northwest regions and a decrease in the number of students preferring the Southeast region (Figure 2).

Additionally, a chi-square test of independence found no significant difference in specialty choice pre- versus post-Dobbs ($p > 0.999$). Figure 3 shows specialties which experienced a net change in preference. Specialties with no net change in preference (family medicine, general surgery, internal medicine, neurology, orthopedic surgery, otolaryngology, pathology, physical medicine and rehabilitation, plastic surgery, radiation oncology, urology, and vascular surgery) are not visualized. Figure 4 breaks down specialties most involved in reproductive health care. An equal number of students indicated specialty preference of family medicine both before and after Dobbs (n=17, 5.4%). Specialty preference for obstetrics and gynecology additionally showed a small increase; before Dobbs (n=35, 11.2%) and after Dobbs (n=38, 12.1%). Students who indicated pursuing a specialty "Undecided, unrelated to reproductive healthcare" showed a decrease post-Dobbs; before Dobbs (n=47, 15.0%) and after Dobbs (n=39, 12.5%) reflecting a 2.5% decrease.

The percentage of students who indicated being "Very Concerned" as opposed to "Not Concerned" and "Somewhat Concerned" regarding various scenarios regarding criminal or civil charges for physicians who provide abortion and fertility care is highlighted in Figure 5. Over 50% of students indicated a level of "Very Concerned" for providing abortion care in the setting of fetal demise (n=182, 58.1%), ectopic pregnancy (n=190, 60.7%), elective termination of pregnancy (eTOP) in the first trimester (n=238, 76.0%), eTOP in the second trimester (n=259, 82.7%), eTOP in the setting of rape/incest in the first trimester (n=235, 75.1%), eTOP in the setting of rape/incest in the second trimester (n=258, 82.4%) and in the setting of maternal/fetal health concerns (n=250, 79.9%). In the setting of early pregnancy loss, almost half indicated a level of being "Very Concerned" (n=155, 49.5%). In the remaining two scenarios, students responded at a rate of 40.3% (n=126) in the setting of molar pregnancy and 30.4% (n=96) in the setting of assisted reproductive technology (ART) involving stored embryos.

Discussion

The Dobbs v. Jackson Women's Health Organization ruling will have profound implications on medical education, as well as residency training across the US for years to come. The American Medical Association estimates that more than 70.77% of US medical students are located in states that currently ban or severely restrict abortions.[3] According to the American Association of Medical Colleges, during the 2023 match there was a decrease in the applicants across specialties in the states with abortion bans and gestational limits compared to states without gestational limits or bans.[4] New York is one of the 17 states including the District of Columbia that currently have laws that protect the right to abortion.[5]

Our survey, which reached nine medical schools across New York State, offers some insight into career selection towards or away from reproductive healthcare fields, motivations to pursue residency in a particular geographic region, and widespread opinions on criminal/civil charges for providers in the post-Dobbs era among future physicians. Although there is no significant difference in geographic preference in our data, there appears to be a trend towards regions with a larger number of states which protect the right to abortion and, likewise, a shift away from regions with states which traditionally do not protect the right to abortion. Likewise, although there is no significant difference in specialty preference, intention to pursue careers related to reproductive health care did show an increase. Concern for physicians facing future civil and criminal charges in practice relating to abortion and reproductive healthcare is strongly evident in our data.

The highest number of survey participants came from the class of medical students expected to graduate in 2024, which is the next class to be applying for residency. This likely reflects that those students are thinking about this topic more when deciding how and where to apply to residency. Our survey also shows that students had less concern for civil/criminal charges regarding care in ART and molar pregnancy. This may possibly be due to lack of education on these topics in the medical education curriculum. Assisted reproductive technology has entered more of an elective space over the past several years and the ethics and concerns with the practices are on the table in many states.[6]

One limitation of our survey is the strong bias of responses from participants who identify using "she/her" pronouns. This likely can be explained by the direct impact the Dobbs decision has on people who identify as female and have concerns regarding the future of their own access and care regarding reproductive healthcare. Additionally, in the survey response, specialty bias is apparent as well. Obstetrics and gynecology, outside of those who indicated undecided, received the highest response rate. People who wish to enter fields directly impacted by the Dobbs decision may have felt stronger about completing the survey. While our results only capture a segment of medical students across New York State, it is clear that medical students are concerned and thinking about what practicing medicine will look like in a post-Dobbs era.

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Figure 2. Net change in geographic preference of medical students for residency training after the Dobbs decision (n = 313)

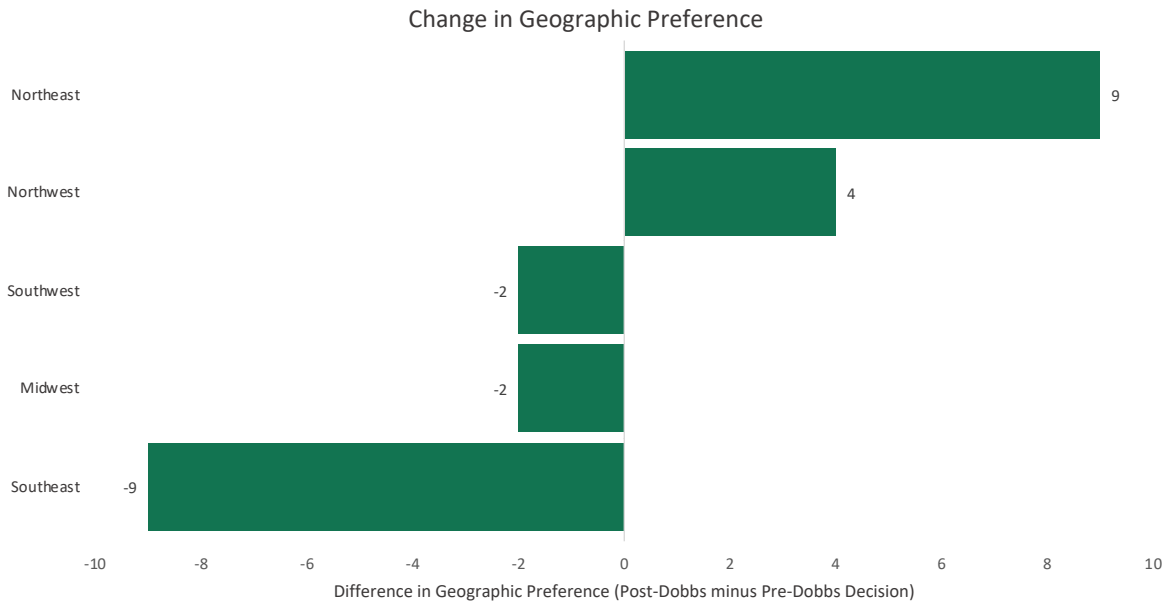

Figure 3. Net change in specialty preference of medical students after the Dobbs decision (n = 313)

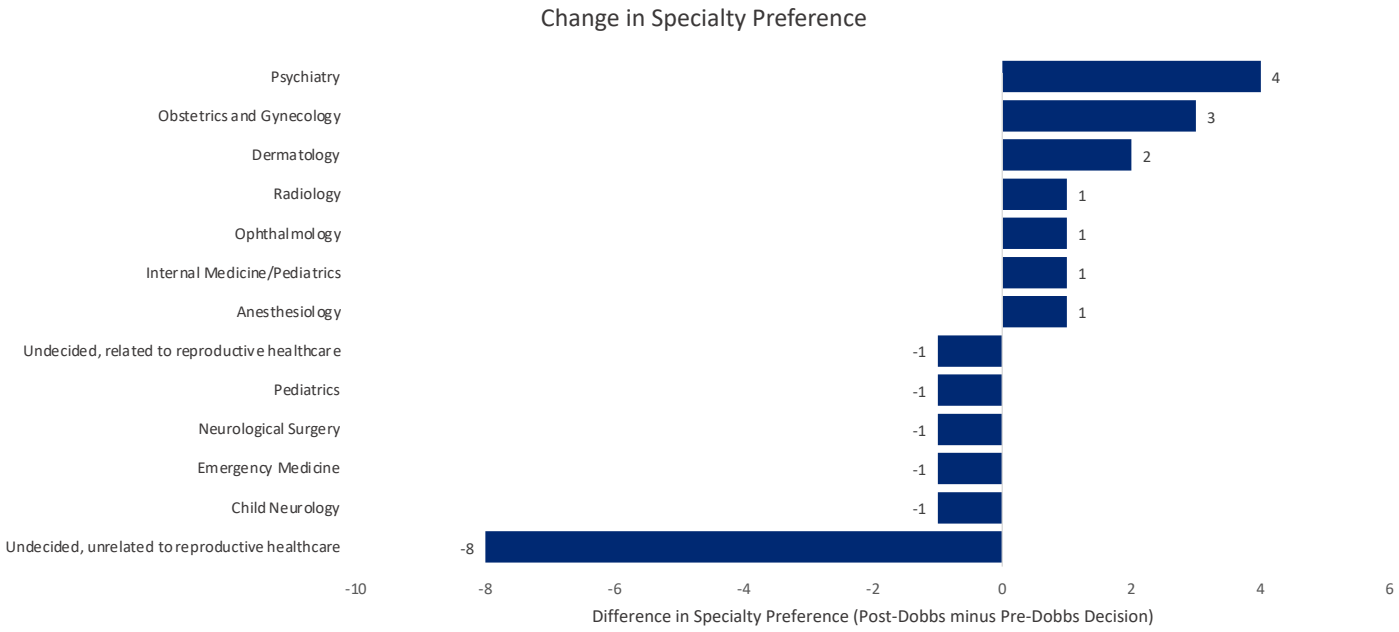

Figure 4. Specialty preference of NYS medical students (n = 313) both before and after the Dobbs decision in fields related to reproductive health care.

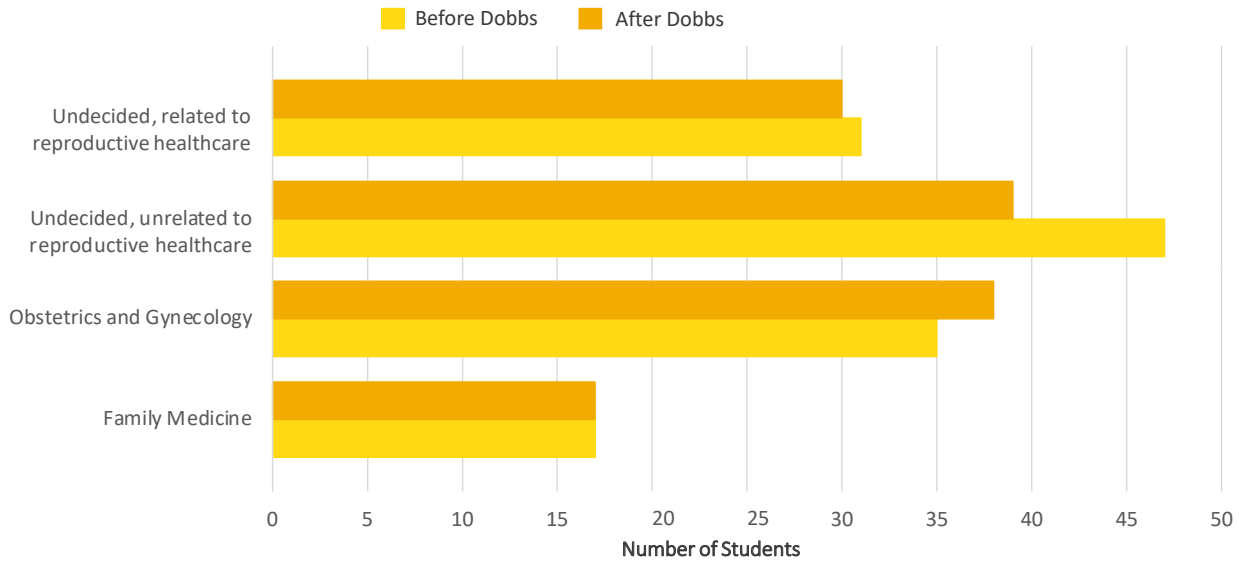

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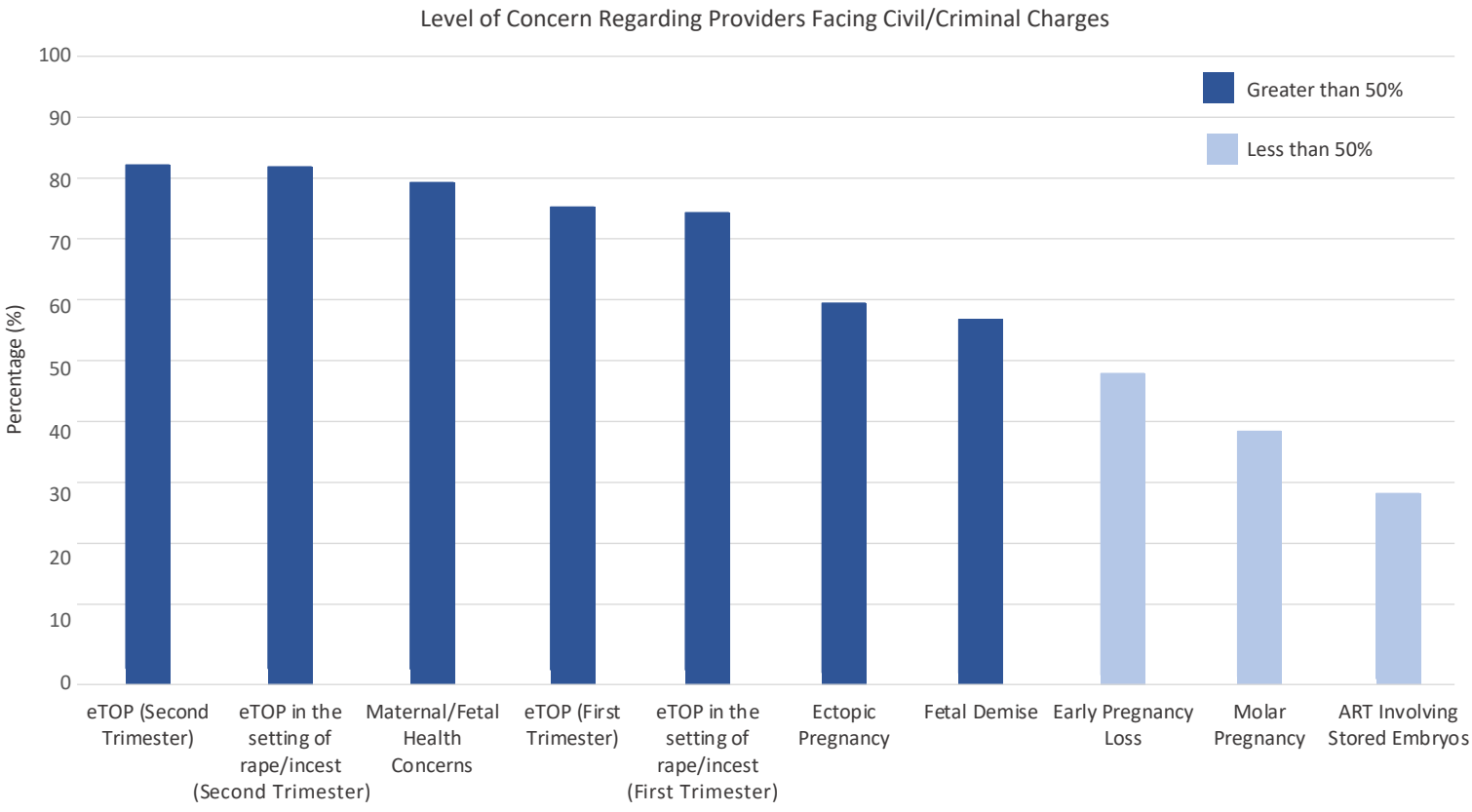
Figure 5. Percentage of NYS medical students (n = 313) who are "Very Concerned" that providers may face civil/criminal charges in various scenarios regarding reproductive healthcare. eTOP = elective termination of pregnancy; ART=assisted reproductive technology.



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