FALL 2023
VOL. 18 – NO. 3

JLGH

a record of
MEDICAL PROGRESS

The Journal of Lancaster General Hospital

Penn Medicine
Lancaster General Hospital

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FROM THE EDITOR'S DESK

On Delaying or Avoiding the Use of Opioids

Corey D. Fogleman, MD, FAAFP
Editor in Chief

The article by Dr. Jon Lepley on page 84 of this issue highlights that restrictions regarding chronic therapy for opioid use disorder have been lifted and suggests ways to unlock barriers to treatment. We are excited to have Dr. Lepley offer this narrative to *JLGH* readers. Further, we welcome all providers who have not yet received their X-waiver to join those who work in Addiction Medicine and all colleagues already in the thick of the fight in the opioid epidemic.

Undoubtedly, chronic pain and the use of opioids to treat it have contributed to this problem. Pain that lasts beyond the time of normal tissue healing, or longer than three months, puts our patients at risk for chronic pain medication use.[1] At least 20% of the U.S. population — representing 50 million adults — report suffering from chronic pain; the numbers are likely higher.[2,3]

But there are viable alternatives. The first recommendation within the 2022 CDC Clinical Practice Guideline for Prescribing Opioids for Pain reminds us to initially consider non-opioid therapies, as they are at least as effective as opioids for acute pain. Further, it states that clinicians should maximize use of non-pharmacologic therapies, such as heat therapy, acupressure, spinal manipulation, remote electrical neuromodulation, massage, and exercise therapy.[4]

Other guidelines make similar suggestions — that manipulative therapies, heat, exercise, and acupuncture should be considered early, if not first, in the management of chronic pain.[5-7] Many of our patients may benefit from and can even pursue non-pharmacologic and adjunctive therapies independently. Self-referrals to physical therapy, as well as spinal manipulation and acupuncture, can be appropriate, although reimbursements for specific therapies often need the secondary approval of a physician or are not covered at all. This is a snag that policymakers would do well to reconsider so that our clinical colleagues can practice at the highest level of their licenses.

September is Pain Awareness Month, and in October we celebrate Physical Therapy Month and Acupuncture Awareness, so it seems a good time to thank our colleagues in these practices and think about how we can safely help our patients negotiate pain syndromes.

Throughout Penn Medicine Lancaster General Health, we have 16 outpatient physical therapy (PT) centers available to work with us and for our community. While fast-track back-pain referrals have made access easier, many of our patients still don't feel they have the time, the copay, or the energy to engage in the therapy they need. Thus, efforts are warranted to decrease barriers and increase research to improve access and integrate the use of social determinants of health into the assessment and treatment design in these practices.

For example, wait times in Lancaster for an initial outpatient PT assessment can approach two weeks, so more physical therapists need to be hired. Further, while efforts to change the delivery model for PT during the SARS-CoV-2 pandemic led to telehealth PT — which was well received locally and nationally[8] — there is a looming deadline to pandemic-era approval of such modalities. Unless the Expanded Telehealth Access Act (H.R. 3875) is approved, this meaningful option will go away in December 2024.

More efforts to innovate and eliminate barriers are in order. Once our colleagues in the Physical Medicine and Rehabilitation department are appropriately staffed, they would do well to connect with those in LG Health's Research Institute and the Center for Health Care Innovation to work on innovative care models to increase access and effectiveness of care.

Robust data demonstrate that acupuncture and massage can have significant impact on the lives of patients either alone or when combined with other modalities.[9,10] Data support acupuncture use in chronic pain and a variety of syndromes, including as treatment for migraine, fibromyalgia, and chronic back pain.[11-13]

LG Health's Holistic Therapy program employs four traditionally trained acupuncturists, along with nearly 35 massage therapists; wait times for each are very minimal. Legislation is still not adequate to allow these

health care professionals to care for everyone, however. Changes to allow government-funded insurance recipients the option to have acupuncture and massage therapy for acute and chronic pain could decrease inappropriate and dangerous pharmacologic prescribing.

As cooler weather approaches and the leaves change, let's think about ways we can better approach the treatment of chronic pain and opioid use disorder, and expeditiously connect our patients with the safest modalities available. We hope you enjoy this issue of *JLGH*.

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JLGH Summer 2023 Recap

Q&A for Extended Learning

The Summer issue of The Journal of Lancaster General Hospital *offered scientific reports on emerging tickborne diseases in Pennsylvania and the importance of trauma-informed care in medical practice, along with a quiz from Pharmacy Services on pharmacological resources available for providers. Review the questions and answers below to see how much you remember from the issue. Need a refresher? All issues of* JLGH *are available online at JLGH.org.*

Q **The Pennsylvania Department of Health released new guidelines on emerging tickborne diseases in the state. These include Heartland virus and spotted fever rickettsiosis. What's an appropriate treatment for the latter?**

A The best initial treatment for spotted fever rickettsiosis in adults is 100 mg of doxycycline daily for five to seven days.

Q **The Summer issue included a report on pediatric medical traumatic stress and trauma-informed care (TIC). In what ways can understanding adverse childhood events (ACEs) help when treating the patient?**

A Understanding the history of a patient's ACEs may help to reduce the risk of unnecessary tests when evaluating ongoing symptoms and help to institute appropriate treatment without delay.

Q **The issue also included a study on the use of TIC in the NICU. What findings from the study's qualitative analysis did the authors suggest could improve TIC practice in the NICU?**

A 1. Being aware of a patient's trauma history.
2. Enhancing support to infant and parent.
3. Expanding TIC education, including education of new staff and parents, and continuing education for everyone.

Q **LG Health's Ambulatory Pharmacy Services resource to help educate providers regarding pharmaceuticals can be found where?**

A "Pearl of the Week" can be found under the Pharmacy tab on the StarNet Physician page. More than 50 are available, with the newest offering considerations on QT prolongation and migraine treatment.

Updates in the Treatment of Sexually Transmitted Diseases

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Sexually transmitted infections (STIs) represent a major burden of morbidity and mortality in the United States. In 2018, there were an estimated 26.2 million new STI diagnoses in the nation, almost half of these among persons ages 15-24.[1] STIs increase rates of infertility, ectopic pregnancy, cancer, and adverse birth outcomes. In addition, several STIs increase the risk of human immunodeficiency virus (HIV) transmission.[2]

In this article, we review the most clinically relevant updates from the 2021 Centers for Disease Control and Prevention (CDC) STI Treatment Guideline Update, as well as commonly asked questions regarding STI screening, diagnosis, and follow-up.

Of note, this article is not comprehensive, and an in-depth discussion of syphilis and HIV screening and treatment is beyond its scope. Please refer to the Fall 2022 *JLGH* article on syphilis[3] and the full CDC STI Treatment Guidelines[4] for further information.

Who should be screened for STIs?

The CDC recommends screening all adults at least once for HIV and hepatitis C. Other STI screening should be based on an individual and population-based risk assessment. A useful guide for risk assessment is the CDC's Five Ps method for collecting an accurate sexual history: partners, practices, protection from STIs, past history of STIs, and pregnancy intention. See Fig. 1 on page 68 for further information.[5]

Table 1 on page 71 summarizes screening recommendations for special populations. In addition, all patients with exposure or symptoms concerning for an STI or requesting STI evaluation should at minimum have testing for chlamydial and gonococcal infections in all sites of exposure, HIV, and syphilis. Testing for other STIs should be offered depending on symptoms and risk assessment.

How should clinicians perform screening for gonorrhea and chlamydia?

Clinicians should screen for chlamydia and gonorrhea at any site of possible infectious exposure with nucleic acid amplification testing (NAAT). When screening for gonorrhea and chlamydia, clinicians should offer screening at all sites with possible infectious exposure. Gonorrhea can affect the oropharynx, and both chlamydia and gonorrhea can affect the urogenital region and the anorectal region. Chlamydia can be found in the oropharynx, but the clinical significance is unknown. Negative testing in one site does not indicate that testing is negative in all sites, and pharyngeal and rectal testing may be positive even in the setting of negative urine testing.

KEY TAKEAWAY

Gonorrhea can affect the oropharynx, and both chlamydia and gonorrhea can affect the urogenital region and the anorectal region. Chlamydia can be found in the oropharynx, but the clinical significance is unknown. Negative testing in one site does not indicate that testing is negative in all sites, and pharyngeal and rectal testing may be positive even in the setting of negative urine testing.

Testing for oropharyngeal gonorrhea should be offered to all patients who practice receptive oral intercourse, and testing for anorectal chlamydia and gonorrhea should be offered to all patients who practice receptive anal intercourse. Clinicians can consider offering rectal gonorrhea and chlamydia testing to all women irrespective of participation in anal intercourse as positive results may be seen even in the absence of reported anal intercourse.[6,7]

The preferred method of testing for chlamydia and gonorrhea in all sites is with NAAT rather than culture.[8] For women, urogenital chlamydial and gonococcal infections can be diagnosed with NAAT vaginal or cervical swabs or first-void urine. Patient-collected vaginal swabs have equivalent sensitivity and specificity to clinician-collected swabs.[9] For men, urogenital chlamydial and gonococcal infections can be diagnosed

with NAAT first-void urine or urethral swab. Anorectal infection can be diagnosed with rectal NAAT swab; patient-collected rectal swabs have comparable efficacy to clinician-collected swabs.[10]

What are the updated recommendations for treatment of chlamydia?

Doxycycline 100 mg twice daily for seven days is the preferred regimen for treatment of urogenital and anorectal chlamydial infections in all patients.

Previously, single-dose azithromycin was the preferred treatment for chlamydial infections; however, studies show that doxycycline is more effective than azithromycin in treating anorectal chlamydia and chlamydia in men.[11,12] While azithromycin retains good efficacy in treating urogenital chlamydia in women, studies show high rates of concurrent anorectal chlamydia in women diagnosed with urogenital chlamydia, even in women who do not report receptive anal intercourse.

Inadequately treated anorectal infections increase transmission risk and place women at risk for reinfection through autoinoculation from the anorectal site. Because of the improved coverage for both urogenital and anorectal infection, treatment with doxycycline is now preferred.

The preferred treatment for non-pregnant adults and adolescents for chlamydial infection in any site is:

- Doxycycline 100 mg twice daily for seven days.

Alternative regimens are:

- Azithromycin 1 g in a single dose.
- Levofloxacin 500 mg daily for seven days.

Fig. 1. The Five Ps Approach to Taking a Sexual History

Partners	• Are you currently having sex of any kind? • What is the gender(s) of your partner(s)?
Practices	• To understand any risks for sexually transmitted infections (STIs), I need to ask more specific questions about the kind of sex you have had recently. What kind of sexual contact do you have or have you had? — Do you have vaginal sex, meaning "penis in the vagina" sex? — Do you have anal sex, meaning "penis in rectum/anus" sex? — Do you have oral sex, meaning "mouth on penis/vagina"?
Protection from STIs	• Do you and your partner(s) discuss prevention of STIs and human immunodeficiency virus (HIV)? • Do you and your partner(s) discuss getting tested? • What protection methods do you use? In what situations do you use condoms?
Past History of STIs	• Have you ever been tested for STIs and HIV? • Have you ever been diagnosed with an STI in the past? • Have any of your partners had an STI? ***Additional questions for identifying HIV and viral hepatitis risk:*** • Have you or any of your partner(s) ever injected drugs? • Is there anything about your sexual health that you have questions about?
Pregnancy Intention	• Do you think you would like to have (more) children in the future? • How important is it to you to prevent pregnancy (until then)? • Are you or your partner using contraception or practicing any form of birth control? • Would you like to talk about ways to prevent pregnancy?

Adapted from Centers for Disease Control and Prevention.[5]

Azithromycin should still be used for pregnant adults or if adherence to a multiday regimen is a significant concern.

Because doxycycline is highly efficacious for treatment, a test of cure is not required except in pregnancy, but because of high risk for reinfection, persons treated for chlamydia should be offered repeat testing in three months.

What are the updated recommendations for treatment of gonorrhea?

Ceftriaxone 500 mg IM (or 1 g IM if patient's weight is greater than or equal to 150 kg) is now the recommended treatment for oropharyngeal, urogenital, and anorectal gonococcal infections.

Gonorrhea has developed significant antibiotic resistance over the past 30 years, which has affected the treatment of this common infection. Gonorrhea now has significant fluoroquinolone resistance, and rates of resistance to cephalosporins and azithromycin are rising.[13,14]

Due to the rapidly rising rate of azithromycin resistance in gonococcal infections and rising azithromycin resistance in other pathogens (such as *M. genitalium* and enteric pathogens), the CDC now recommends against dual therapy for gonorrhea with ceftriaxone and azithromycin. The recommended dose of ceftriaxone for treatment has also increased due to increased gonococcal resistance to cephalosporins.

The preferred treatment regimen for uncomplicated gonococcal infections of the urogenital or anorectal region in adolescents and adults is:

- Ceftriaxone 500 mg IM for patients weighing less than 150 kg and ceftriaxone 1 g IM for patients weighing more than 150 kg. Doxycycline 100 mg twice daily for seven days should be administered if chlamydial infection is not excluded.

Alternative regimens include:

- Cefixime 800 mg oral once (if ceftriaxone is not available or not feasible as cefixime has lower efficacy than ceftriaxone).
- Gentamicin 240 mg IM in a single dose **PLUS** azithromycin 2 g orally in a single dose (in persons with a cephalosporin allergy).

Oropharyngeal gonorrhea, while usually asymptomatic, may be a major source of infection transmission and is more difficult to treat. Cefixime has limited efficacy for the treatment of oropharyngeal gonorrhea. The only reliable regimen for treatment is:

- Ceftriaxone 500 mg IM in a single dose for persons weighing less than 150 kg and 1 g IM in persons weighing more than 150 kg.

Test of cure is not required for urogenital or anorectal infections except during pregnancy. Test of cure is recommended in oropharyngeal gonorrhea infections 7-14 days after treatment, given lower efficacy of treatment. Persistent positive tests should undergo confirmatory gonococcal culture to evaluate for antimicrobial susceptibility. Thayer Martin Agar culture plates are available by request from the LG Health laboratory. All persons with gonococcal infection should be retested in three months to evaluate for reinfection.

What are the updated recommendations for treatment of pelvic inflammatory disease (PID)?

Treat patients with pelvic inflammatory disease with metronidazole in addition to agents treating gonococcal and chlamydial infections.

Pelvic inflammatory disease encompasses multiple inflammatory conditions of the upper female genital tract and can increase risk of infertility and pelvic pain in women. Though STIs, especially chlamydia and gonorrhea, are often associated with PID, the proportion of PID related to these infections has decreased. Currently, only approximately 50% of current PID cases are associated with gonorrhea or chlamydia.[15]

Other vaginal flora are increasingly associated with PID, including anaerobic bacteria and *Gardnerella vaginalis, H. influenzae,* and enteric gram-negative bacteria. The preferred treatment for PID thus not only includes agents that treat chlamydial or gonococcal infections, but also agents that treat these anaerobic organisms.

For severely ill patients requiring hospitalization (including persons with severe illness, tubo-ovarian abscess, pregnancy, or poor response or inability to tolerate outpatient regimen), preferred parental treatment options include:

- Ceftriaxone 1 g IV every 24 hours **PLUS** doxycycline 100 mg oral or IV every 12 hours **PLUS** metronidazole 500 mg oral or IV every 12 hours.
- Cefotetan 2 g IV every 12 hours **PLUS** doxycycline 100 mg oral or IV every 12 hours.
- Cefoxitin 2 g IV every 6 hours **PLUS** doxycycline 100 mg oral or IV every 12 hours.

If tolerated, clinicians should give doxycycline and metronidazole in oral form rather than IV. The preferred regimens for outpatient treatment for persons with mild to moderate PID include:

- Ceftriaxone 500 mg IM in a single dose (or 1 g IM if patient's weight is greater than or equal to 150 kg) **PLUS** doxycycline 100 mg orally twice daily for 14 days **PLUS** metronidazole 500 mg orally twice daily for 14 days.
- Cefoxitin 2 g IM in a single dose and probenecid 1 g orally administered concurrently **PLUS** doxycycline 100 mg orally twice daily for 14 days **PLUS** metronidazole 500 mg orally twice daily for 14 days.
- Other parental third-generation cephalosporin **PLUS** doxycycline 100 mg orally twice daily for 14 days **PLUS** metronidazole 500 mg orally twice daily for 14 days.

Fluoroquinolone-based regimens are an alternative for cephalosporin-allergic patients; however, there are high rates of gonococcal resistance to fluoroquinolones. Fluoroquinolones may be used if the individual risk and community prevalence of gonococcal infections are low and close follow-up is possible. Options include:

- Levofloxacin 500 mg orally daily **PLUS** metronidazole 500 mg orally twice daily for 14 days.
- Moxifloxacin 400 mg orally daily for 14 days.

What are the updated recommendations for the treatment of trichomoniasis?

Metronidazole 500 mg twice daily for seven days is now the preferred treatment for *Trichomonas vaginalis* infection in women. *Trichomonas vaginalis* is the most common nonviral STI worldwide; it affects 3.7 million people in the United States. Infections are frequently asymptomatic, and untreated infection might last for months to years.

Trichomoniasis is commonly diagnosed using wet prep microscopy; however, sensitivity of this technique is low (44% to 68%).[16] Microscopy must be performed immediately after collection because sensitivity drops to 20% within one hour of collection.[17] NAATs are highly sensitive at detecting trichomonas infections. Data show that multi-dose metronidazole in women results in an increased rate of cure compared to single-dose metronidazole.[18]

The preferred treatment regimen for adolescent and adult women is:

- Metronidazole 500 mg orally twice daily for seven days.

The preferred treatment regimen for adolescent and adult men is:

- Metronidazole 2 g orally in a single dose.

An alternative regimen for both men and women is:

- Tinidazole 2 g orally in a single dose.

A review of alcohol consumption during metronidazole treatment showed no animal or clinical studies providing convincing evidence of disulfiram-like interactions between alcohol and metronidazole. Refraining from alcohol use while taking metronidazole or tinidazole is unnecessary.

It is recommended to retest sexually active women with trichomoniasis approximately three months after initial treatment, regardless of partner treatment status, because of high rates of reinfection. A test of cure is not recommended for men due to insufficient data.

What should providers consider when encountering recurrent urethritis or cervicitis?

Consider *Mycoplasma genitalium* as a cause of recurrent urethritis or cervicitis.

Mycoplasma genitalium is an increasingly recognized pathogen causing urethritis among men. It represents 15% to 20% of non-gonococcal urethritis and 40% of persistent or recurrent urethritis. *Mycoplasma genitalium* has also been associated with PID, preterm delivery, spontaneous abortion, and infertility in women, although data remain limited. Men with recurrent non-gonococcal urethritis and women with recurrent cervicitis should be tested for *M. genitalium* using an FDA-cleared NAAT.

Table 1. **STI Screening Recommendations for Special Populations**	
Population	**Screening Recommendations for Asymptomatic Patients**
Anyone age 13-64	• Screen for HIV at least once in lifetime.
Anyone age 18+	• Screen for hepatitis C once in lifetime, except in settings where rate of positivity is less than 0.1%.
Women	• Test annually for gonorrhea and chlamydia in sexually active women under 25 years and in women at increased risk over 25 years.* • Consider pharyngeal gonorrhea and anorectal chlamydia and gonorrhea testing depending on exposure and reported sexual behaviors. • Screen for syphilis if at increased risk.** • Consider hepatitis B screening in women at high risk.***
Men who have sex only with women	• Consider screening for chlamydia, gonorrhea, and syphilis in high-prevalence settings or if other epidemiologic risk factors are present.**
Men who have sex with men (MSM)	***For sexually active MSM, screen at least annually for:*** • Gonorrhea and chlamydia at any site of exposure. • HIV. • Syphilis. *Consider screening every 3-6 months for persons at higher risk (such as those on HIV pre-exposure prophylaxis or those with multiple sexual partners).* ***For sexually active MSM, screen at least once for:*** • Hepatitis B (HBsAg, anti-HBcAb, anti-HBsAb). • Hepatitis C.
Transgender and gender-diverse patients	• Screening recommendations should be adapted based on anatomy and risk factors (e.g., annually screen for chlamydia and gonorrhea for transgender men and gender-diverse people with a cervix under age 25 years). Consider screening at pharyngeal and rectal sites, and yearly for syphilis, depending on reported sexual behavior and exposure.
Pregnant women	***At first visit, screen for:*** • Gonorrhea and chlamydia for all pregnant women under 25 years, and women 25 years and older with increased risk.* • Syphilis, HIV, and hepatitis B (HBsAg) in all pregnant women. • Hepatitis C in all pregnant women, except in setting where the HCV positivity rate is <0.1%. ***Repeat testing for the following in third trimester:*** • Gonorrhea and chlamydia in women under 25 years, or women 25 years and older with increased risk.* • Syphilis and HIV if at increased risk (recommended for all women in Pennsylvania).** ***Repeat testing for the following at delivery:*** • Syphilis and hepatitis B if increased risk (repeat syphilis testing recommended for all women in Pennsylvania).** • Rapid HIV testing if not previously screened for HIV.
Persons with HIV	***At first visit in sexually active individuals, screen for:*** • Syphilis. • Gonorrhea and chlamydia at any site of contact. • Trichomonas in sexually active women. • Hepatitis B (HBsAg, anti-HBcAb, anti-HBsAb). • Hepatitis C. ***Annually screen for:*** • Syphilis, gonorrhea, and chlamydia at any site of exposure. • Trichomonas in sexually active women. • Hepatitis C in men who have sex with men.

**Risk factors for chlamydia and gonorrhea in women over 25 years include: the presence of another STI, new sex partner, more than one sex partner, a sex partner with concurrent partners, a sex partner who has an STI, inconsistent condom use when not in a mutually monogamous relationship, history of exchanging sex for money or drugs, or a history of incarceration.*
***Risk factors for syphilis include history of incarceration, presence of other STIs or partner with STIs, sex in exchange for money or drugs, or living in a community with a high syphilis morbidity.*
****Risk factors for hepatitis B include more than one sex partner in the past six months, evaluation or treatment for an STI, past or current injection drug use, or hepatitis B positive sex partner.*

Source: Centers for Disease Control and Prevention.

Clinicians can consider testing women with PID for *M. genitalium*. At LG Health, order an "unidentified lab" and specify "*Mycoplasma genitalium* PCR," which can be performed on an endocervical, vaginal, urethral, or urine specimen. Note that *M. genitalium* has significant antibiotic resistance.

The preferred regimen for treatment if *M. genitalium* resistance testing is not available (such as at LG Health) is:

- Doxycycline 100 mg orally twice daily for seven days, followed by moxifloxacin 400 mg orally daily for seven days.

How should providers follow-up after treatment of gonorrhea or chlamydia?

Patients should abstain from sexual intercourse after treatment for gonorrhea or chlamydia for at least seven days after the initiation of treatment, until symptoms have resolved if present, and until completion of treatment by sexual partners. All persons diagnosed with an STI should be tested for chlamydia and gonorrhea in any susceptible site, as well as for HIV and syphilis if not already tested.

Repeat testing for gonorrhea and chlamydia infections in three months is recommended because of high rates of reinfection. HIV pre-exposure prophylaxis should be offered to any person who is HIV negative with an increased risk of HIV transmission, including any person diagnosed with syphilis or gonorrhea and any man who has sex with men who has anorectal chlamydia. Refer to the CDC Pre-Exposure Prophylaxis for the Prevention of HIV Infection in the United States guidelines for further information.[19]

What partner services should be available for patients?

Most health departments routinely provide partner services to patients with syphilis and newly diagnosed HIV but may not offer partner services for patients diagnosed with other STIs. Providers should encourage all patients with STIs to inform their sexual partners from the past 60 days of positive STI testing.

Expedited Partner Therapy (EPT) should be used by providers as a harm-reduction technique to treat sexual partners of persons with chlamydia or gonorrhea who are not able or not likely to seek treatment. This reduces rates of transmission and reinfection. EPT is permissible in Pennsylvania.

The preferred regimen for EPT for chlamydial infections is doxycycline 100 mg orally twice daily for seven days. The preferred regimen for EPT for gonococcal infections is cefixime 800 mg orally once. Note that cefixime has decreased efficacy compared to injectable cephalosporins, and thus efforts should be made to connect patient with treatment prior to prescribing EPT for gonococcal infections.

Packaged medication or prescriptions provided for EPT should be accompanied by educational material that includes treatment instructions, warnings about the medication (including safety in pregnancy), health counseling, and a statement advising that partners seek medical evaluation for STI testing.

Limited data are available regarding EPT for gonococcal or chlamydial infections among men who have sex with men (MSM). Persons in this population have a higher rate of coexisting STIs such as syphilis or HIV, which may not be detected if comprehensive STI testing is not obtained. The CDC recommends shared clinical decision-making regarding EPT and encourages connecting patients for comprehensive STI screening in the MSM population.

KEY TAKEAWAYS

Clinicians can consider testing women with PID for M. genitalium. *At LG Health, order an "unidentified lab" and specify "*Mycoplasma genitalium *PCR," which can be performed on an endocervical, vaginal, urethral, or urine specimen. Note that* M. genitalium *has significant antibiotic resistance.*

Providers should encourage all patients with STIs to inform their sexual partners from the past 60 days of positive STI testing. Expedited Partner Therapy should be used by providers as a harm-reduction technique to treat sexual partners of persons with chlamydia or gonorrhea who are not able or not likely to seek treatment.

CONCLUSION

STIs remain highly prevalent and have great morbidity and mortality in the United States. This article emphasizes important updates in treatment recommendations for STIs and offers tips for ensuring all patients presenting for STI evaluation receive comprehensive evaluation and treatment.

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A Flare-up of Waldenström Macroglobulinemia after a Second SARS-CoV-2 Vaccine

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INTRODUCTION

This scientific report describes a patient diagnosed with Waldenström macroglobulinemia in 2002. The patient was being treated with ibrutinib, an oral Bruton tyrosine kinase inhibitor, since September 2014. Her disease was stable on ibrutinib for more than six years.

Two weeks after receiving the second Moderna SARS-CoV-2 vaccine in February 2021, the patient developed a near-fatal flare-up of her Waldenström macroglobulinemia which required urgent chemotherapy for recurrent pleural effusions and a yearlong rehabilitation. Her Waldenström macroglobulinemia stabilized after eight rounds of chemotherapy.

CASE REPORT

The patient was initially seen in the office on May 13, 2002, as a new patient with severe fatigue and was found to have normochromic normocytic anemia (Hgb 9.7 g/dl, MCV 91 fl), an increased erythrocyte sedimentation rate of 130 mm/Hr, and increased total protein of 10.1 g/dL (ref. 6.4-8.9 g/dL). A serum protein electrophoresis (SPEP) and quantitative immunoglobulins revealed an IgM level of 7,340 mg/dl (ref. 50-300 mg/dl) with normal IgA and IgG levels. Her viscosity on presentation was elevated at 3.4 (ref. 1.5-1.9). Urine immunofixation was negative. Bone marrow biopsy was performed, with results consistent with a Waldenström macroglobulinemia.

The patient was initially treated for the newfound diagnosis with fludarabine-based chemotherapy in June 2002. She also underwent plasmapheresis because of neurologic symptoms due to her elevated viscosity level on June 26, 2002. She was next treated with Rituxan® as a single agent weekly for four weeks during periodic flare-ups of her Waldenström macroglobulinemia until January 27, 2011; with Treanda® and Rituxan® from November 22, 2011, to February 17, 2012; and with a dexamethasone/rituximab/cyclophosphamide regimen starting on February 28, 2014.

After her treatments, her IgM level declined to approximately 1,200 mg/dl. Finally, on September 4, 2014, after her IgM level started rising and then increased to a new level of 2,470 mg/dl, she was started on ibrutinib, an oral Bruton tyrosine kinase inhibitor approved for Waldenström macroglobulinemia.

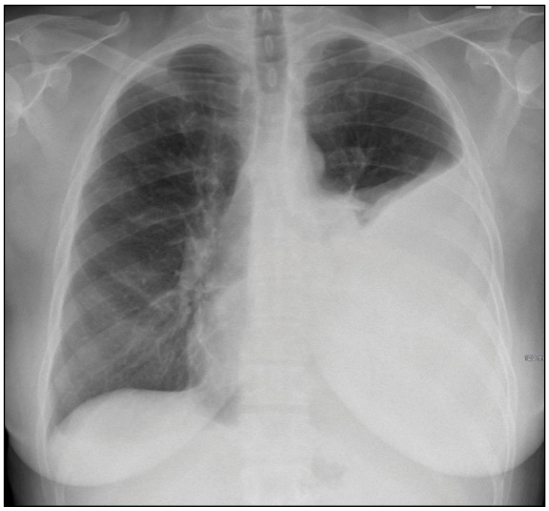

Fig. 1a. March 2021 —
CXR revealing a large left pleural effusion.

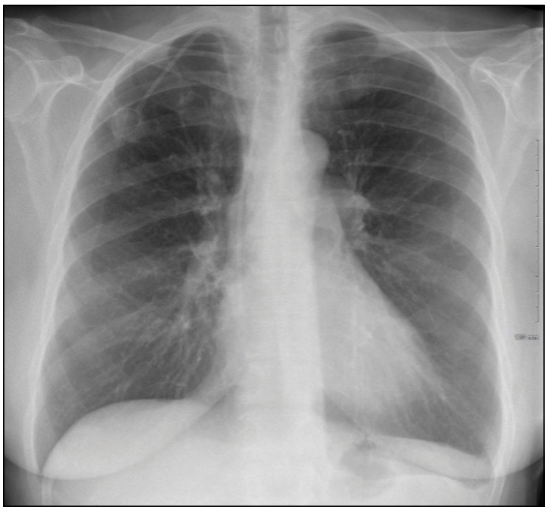

Fig. 1b. September 2022 —
CXR showing resolution of fluid.

For the next six years, the patient remained stable and asymptomatic on ibrutinib with no changes in her regimen. Her IgM level was also stable, declining after initiation of ibrutinib and ranging between 600 and 1,200 mg/dl during the entire course of this therapy. Additionally, in 2016 she was found to have hypogammaglobulinemia, which can be associated with lymphomas. For this associated diagnosis, intravenous immunoglobulin (IVIG) was initiated on October 31, 2016; she received this every three to four weeks continuously. She was on ibrutinib with stable IgM levels until March 2021.

The patient received her first Moderna SARS-CoV-2 vaccination on January 30, 2021, and her second Moderna SARS-CoV-2 vaccination on February 27, 2021. Her IgM level rose to 1,511 mg/dl on March 12, 2021. Her Hgb declined to 10.3 g/dl, as noted in our clinic on March 12, 2021. Prior to this decline, her hemoglobin had been approximately 12 g/dl, and she reported increasing fatigue at that office visit. No therapeutic intervention was executed at that time.

She was seen again in clinic on March 26, 2021, with shortness of breath with exertion and difficulty leaning forward. She noted her heart racing with exertion, and she denied being feverish. Her primary care physician had already prescribed antibiotics for bronchitis; she had completed the regimen but said she still felt "terrible." She had lost eight pounds over a two-week timeframe, and her pulse ox was 94% resting but decreased to 90% with ambulation. The patient was found to have a new pleural effusion on chest X-ray at that time (see Fig. 1a).

She was set up for an outpatient thoracentesis that was supposed to take place a few days later, but due to progressive shortness of breath, she was admitted to Penn Medicine Lancaster General Hospital (LGH) March 28-29, 2021, for symptoms related to her large left-sided pleural effusion. She underwent a left-sided thoracentesis by Interventional Radiology at LGH; 1,100 mL of fluid was removed. The cytology was positive for a kappa light chain restricted B-cell leukemia/lymphoma dim CD 10+, consistent with relapsed Waldenström macroglobulinemia.

From March 31-April 11, 2021, she was admitted to LGH for fevers and dyspnea. A CT scan of the chest during that admission revealed:

> Large LEFT pleural effusion. Extensive adenopathy is noted in the chest. The largest nodes are in the axilla bilaterally. Lymphoma or other lymphoproliferative process should be strongly considered. Tissue diagnosis is recommended.

She then underwent a CT abdomen/pelvis on April 1, 2021, which revealed:

> Bilateral retroperitoneal adenopathy consistent with the history of lymphoma. Subcutaneous soft tissue nodule likely representing a tumor deposit is also noted in the RIGHT buttock [see Fig. 2a above and Figs. 3-5 on pages 76-77].

Prior to this CT scan, she had never had adenopathy noted on a CT scan.

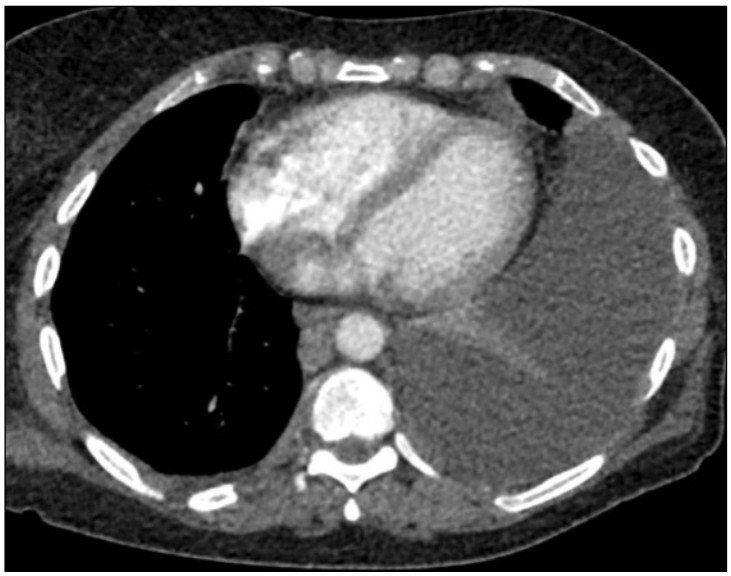

Fig. 2a. March 2021 — CT with large left pleural effusion.

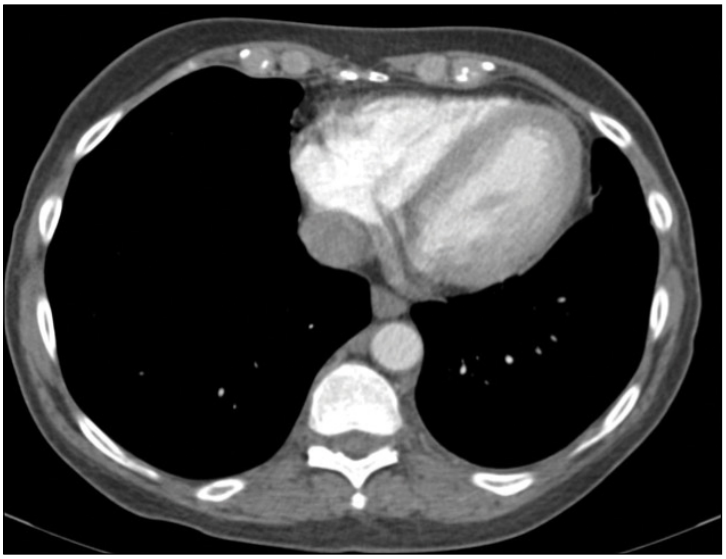

Fig. 2b. December 2021 — CT showing resolution of pleural effusion.

Due to her recurrent pleural effusion, during the admission she underwent a repeat thoracentesis by Interventional Radiology on April 1, 2021, which revealed 1,580 ml pleural effusion. Cytology was positive for B-cell leukemia/lymphoma. Interventional Radiology also performed a lymph node biopsy and bone marrow biopsy; both were consistent with relapsed Waldenström macroglobulinemia (see Figs. 6-8 on page 78). Her ibrutinib was discontinued at this time due to treatment inefficacy. Ongoing fevers while hospitalized — likely related to lymphoma — improved with Rituxan®/Bendeka® chemotherapy, which was initiated on April 2, 2021, while hospitalized. Unfortunately, the patient also developed acute kidney injury, thought to be related to a combination of tumor lysis syndrome and NSAID usage. Her creatinine had risen to 1.8 mg/dl. She was given one dose of rasburicase, and allopurinol was initiated. She required two more thoracenteses on April 5 and April 9, 2021.

The patient was discharged home on April 11, 2021. Unfortunately, she was readmitted for the third time to LGH with shortness of breath and recurrent left pleural effusion due to Waldenström macroglobulinemia from April 15-17, 2021. A pigtail catheter was inserted, and 1.6 L of pleural fluid was removed immediately. A mediport was also placed. An oxygen walk study demonstrated that she required 2L oxygen at all times, and this was initiated. The patient's spouse was taught to drain the patient's pigtail every two days; she was initially draining about 20 ml/hour. Due to progressive anemia, she also required blood transfusions. After she received three cycles of Rituxan® and Treanda®, she was finally admitted for the fourth and last time on May 26, 2021, with anasarca. She was aggressively diuresed and discharged home on diuretics.

She continued chemotherapy every three weeks at the Lancaster Cancer Center after her initial treatment in April at LGH. She completed a total of eight cycles of Rituxan®/Treanda® on September 1, 2021. CT scans of the chest, abdomen, and pelvis were completed on June 22 and September 16, 2021 (see Figs. 3-5). These revealed:

> Improving mediastinal, hilar, axillary, and supraclavicular lymph nodes. Improvement in adenopathy of the abdominal and pelvic regions. There was improvement in the right gluteal mass.

After the CT scans, different options were discussed with the patient including watchful waiting; Rituxan®;

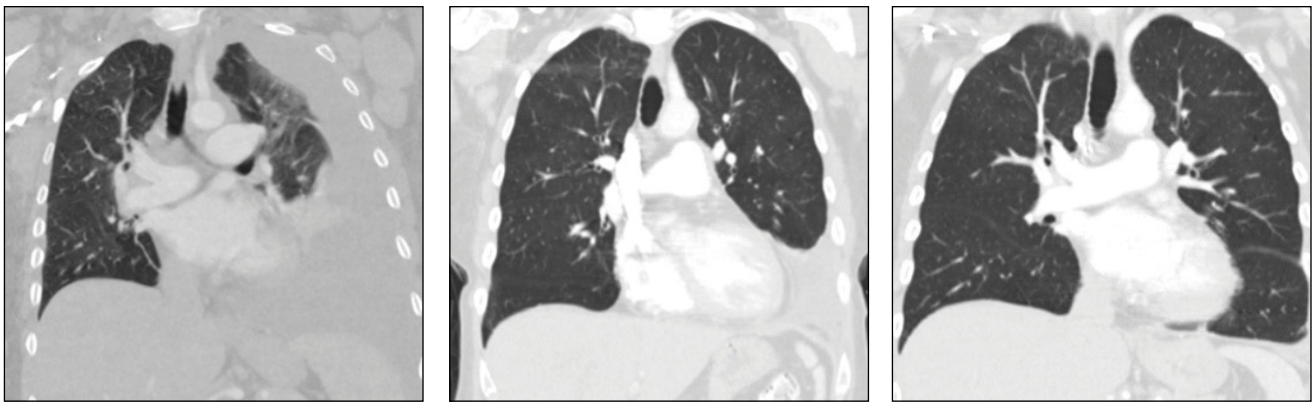

Fig. 3. Chest: March 2021 (left), September 2021 (center), and December 2021 (right) — Improving CTs.

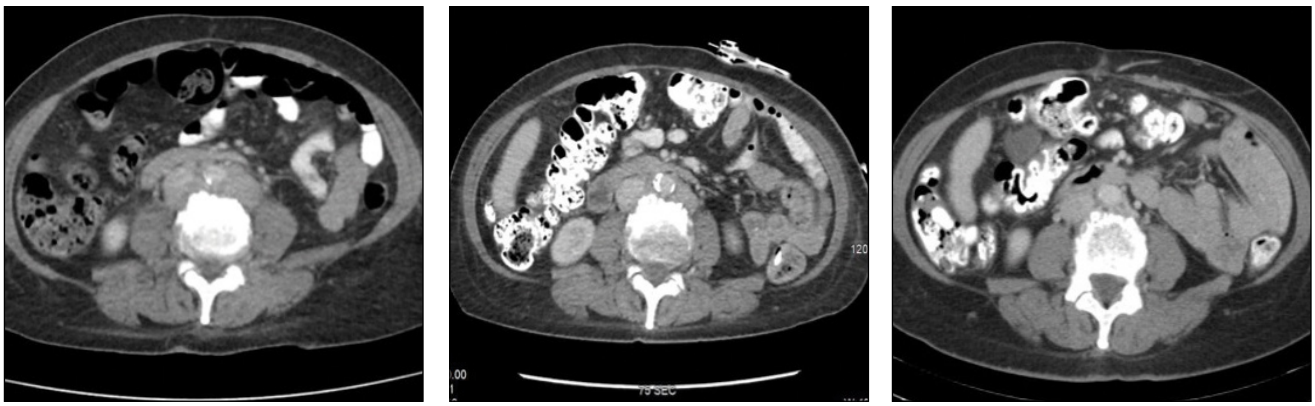

Fig. 4. Abdomen: April 2021 (left), June 2021 (center), and December 2021 (right) — Paraaortic retroperitoneal adenopathy decreasing in size over time.

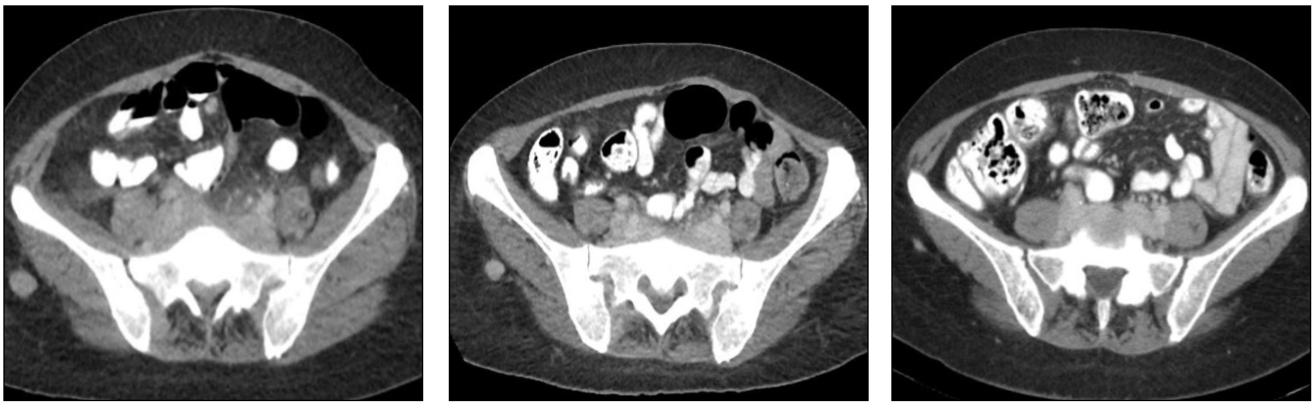

Fig. 5. Pelvis: April 2021 (left), June 2021 (center), and December 2021 (right) — Right gluteal mass decreasing in size over time.

more cycles of Treanda®/Rituxan®; and the addition of a new BTK agent, Brukinsa®. The patient chose watchful waiting, monitoring of her IgM levels and viscosity monthly, as well as undergoing a CT scan 12 weeks later to follow-up on her adenopathy. Other options would have been considered if she developed increasing pleural effusion, increasing adenopathy, or increasing creatinine levels, but these did not occur. She continued to have fluid drainage of her pleural catheter of about 300 ml/week until November 2021, at which time her fluid drainage ceased completely. Her catheter was removed in November 2021 by Interventional Radiology. CT scans in December 2021 revealed no further evidence of disease (see Figs. 2a and 2b on page 75, Figs. 3-5, and Fig. 9 on page 79).

Since December 2021, the patient's IgM level has been stable in the 500s (see Fig. 10 on page 79) and her viscosity has been normal. Her last Hgb was 12.4 g/dl, and her creatinine was 1.2. She has been off all therapy for her Waldenström macroglobulinemia since her flare-up, and her functional status as well as the state of her disease have reverted to baseline. Her most recent chest X-ray was free of a pleural effusion (see Fig. 1b on page 74).

DISCUSSION

This patient had a flare-up of her Waldenström macroglobulinemia two weeks after receiving her second Moderna SARS-CoV-2 mRNA vaccination, having had stable disease for over six years. The mRNA vaccines allow cells to make proteins to trigger an immune response inside the body. This immune response, producing antibodies, is protective.[1] More specifically, on an immunological level, mRNA SARS-CoV-2 vaccines are reported to induce T follicular helper cells (Th) with a Th1 functional profile, which is associated with selective generation of neutralizing antibodies and which stimulate germinal center B-cells, long-lived plasma cells, and memory B-cells; therefore, these vaccines induce a stronger germinal center reaction than recombinant protein vaccines.[2] However, the continuous stimulation of T- and B-cells by mRNA SARS-CoV-2 vaccines can trigger aberrant inflammatory responses, leading to lymphoma or accelerating its progression.[3]

Waldenström macroglobulinemia is an indolent B-cell lymphoma; its progression is usually gradual over time. However, the overstimulation of the T- and B-cells by the mRNA SARS-CoV-2 vaccine can transform an indolent lymphoma into a rapidly progressive process, such as the disease process that occurred in this case.[3]

In addition, benign reactive lymphadenopathy is a common adverse event associated with mRNA vaccines. A nationwide surveillance study from Israel found that the mRNA vaccine (Pfizer-BioNTech) is associated with a 2.4 times increased risk of lymphadenopathy compared to no vaccine, with an excess of 78 cases per 100,000 vaccines.[4] A meta-analysis of nine studies examining changes in 18F-FDG PET/CT scans after SARS-CoV-2 (mainly mRNA) vaccination revealed that 37% of vaccine recipients developed axillary lymphadenopathy on the same side as the shot due to vaccine-related immune responses.[5] Since such vaccine-related axillary lymphadenopathy is similar to certain cancers, it is sometimes misdiagnosed as cancer. Patients at risk of cancer spread to axillary lymph nodes — e.g., breast cancer, melanoma, and lymphomas — are thus advised to get vaccinated in the arm opposite the cancer side.[5]

Unfortunately, mRNA SARS-CoV-2 vaccine-related benign reactive lymphadenopathies can be

indistinguishable from pathologic, neoplastic lymphadenopathies, and the clinician must rely on the clinical scenario. Therefore, patients with SARS-CoV-2 vaccine-related lymphadenopathy should receive comprehensive care and follow-up.

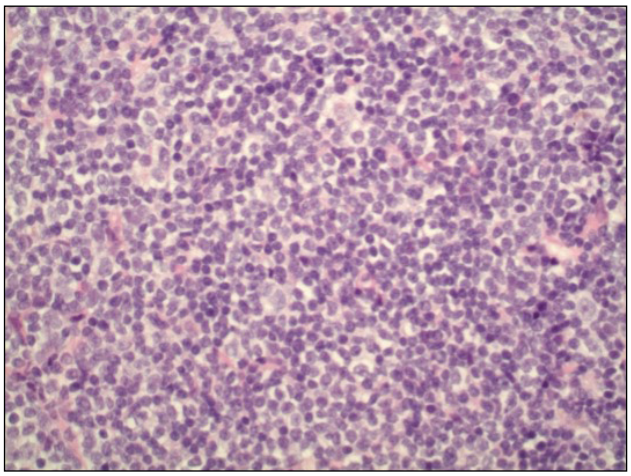

Fig. 6. Waldenström macroglobulinemia invading the lymph node.

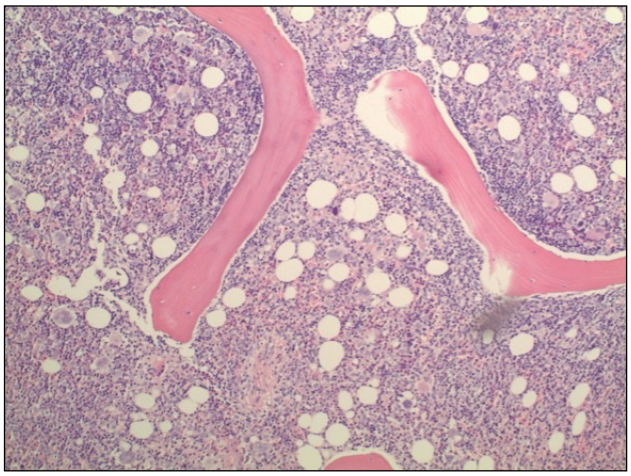

Fig. 7. Waldenström macroglobulinemia involving the bone marrow (paratrabecular infiltrates).

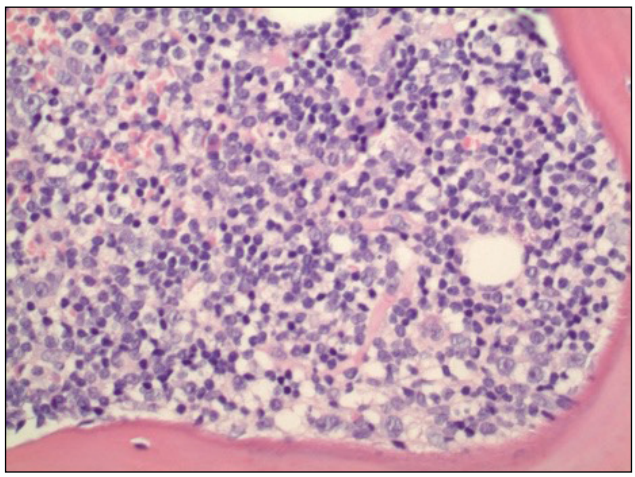

Fig. 8. Magnified view of paratrabecular involvement of bone marrow.

Recommendations by the Canadian Society of Breast Imaging, Society of Breast Imaging, and European Society of Breast Imaging for the treatment of lymphadenopathy after the administration of mRNA SARS-CoV-2 vaccines advise waiting and monitoring for four to six weeks.[6-8] Opinions differ, however, on whether a long-term observation is acceptable for distinguishing benign from neoplastic lymphadenopathy, since lymph node swelling after the administration of mRNA SARS-CoV-2 vaccines has been reported to persist for more than four weeks in 20% to 50% of patients in the United States, depending on the study.[9-10]

In particular, lymphadenopathy in an atypical region (such as the upper cervical region), involvement of multiple lymph nodes, and extraordinary enlargement of lymph nodes may need to be observed for a shorter duration of approximately four weeks before treatment, as recommended by the three societies above.[6-8] On the contrary, lymphomas that are relatively benign and have a long progression — as seen in this case — pose a risk of misdiagnosis or a missed diagnosis if the lymphoma flare develops after vaccination.[3] Therefore, careful observation is recommended in the case of post-SARS-CoV-2 vaccination lymph node enlargements, even if they occur four to six weeks after the second vaccination.[3]

Finally, certain mutations within the lymphomas might make them more sensitive to mRNA vaccines. A 2018 study showed that mice with RHOA G17V and TET2 mutations developed lymphoma upon immunization with sheep red blood cells, and it was the RNA present in the sheep's red blood cells that was responsible for the immunization.[10]

There have been other incidental case reports in the literature of B- and T-cell lymphomas that have occurred or flared after mRNA SARS-CoV-2 vaccinations. Examples of these include a case report describing a rapid progression of marginal zone B-cell lymphoma after SARS-CoV-2 vaccination, as well as a recurrence or progression of a CD30-positive T-cell lymphoma induced by mRNA SARS-CoV-2 vaccinations.[3,11]

Although the precise mechanisms for T-cell lymphomas induced by the mRNA SARS-CoV-2 vaccines are still not entirely known, it is hypothesized that mRNA SARS-CoV-2 vaccines may have the capability to overstimulate the immune system as well as trigger autoimmune responses.[3] It is theorized that vaccination, or any other immune stimulant for that matter,

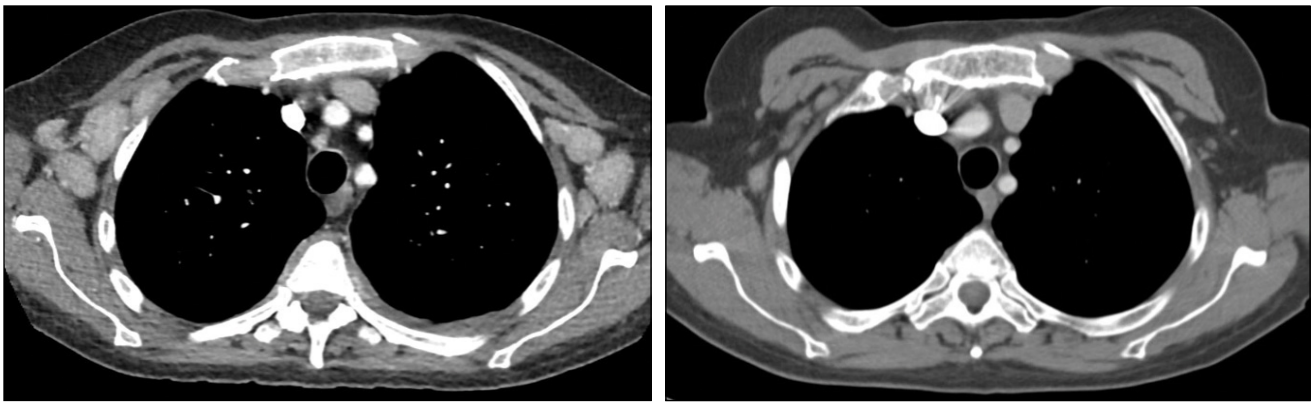

Fig. 9. June 2021 (left) and December 2021 (right) – Improving axillary adenopathy.

may disturb the delicate balance in the immune surveillance of cancer cells.[12]

There is a possibility that this patient's lymphoma progression would have happened regardless of vaccination, but given the temporal, spatial, and theoretical evidence that exists, it is unlikely to be coincidental. There is a possibility that people with lymphoma might feel safer if they opt for non-mRNA vaccines instead.[12] Coupled with several anecdotes or unpublished cases, lymphoma progression might very well be a rare adverse event associated with the mRNA SARS-CoV-2 vaccine. However, the novelty of this issue is also a testament to how rare this adverse event is.[13]

Other rare SARS-CoV-2 vaccine-related adverse events, such as vaccine-induced thrombotic thrombocytopenia (VITT) and myocarditis, were discovered much earlier when vaccine rollout began. Given the immunocompromised state of lymphoma patients, the vaccine benefits in protecting against SARS-CoV-2 could not be more vital. However, these patients may consider opting for non-mRNA SARS-CoV-2 vaccines if they have a similar lymphoma occurrence, although other experts may disagree with this advice, given how rare and novel mRNA vaccine-associated lymphoma progression is.[13]

In conclusion, this case illustrates a flare-up of Waldenström macroglobulinemia following mRNA SARS-CoV-2 vaccination. Lymphadenopathy induced by mRNA SARS-CoV-2 vaccination is not rare; therefore, clinicians should be aware of the atypical features of lymphadenopathy to prevent delayed diagnosis during monitoring of the signs and symptoms. Attention

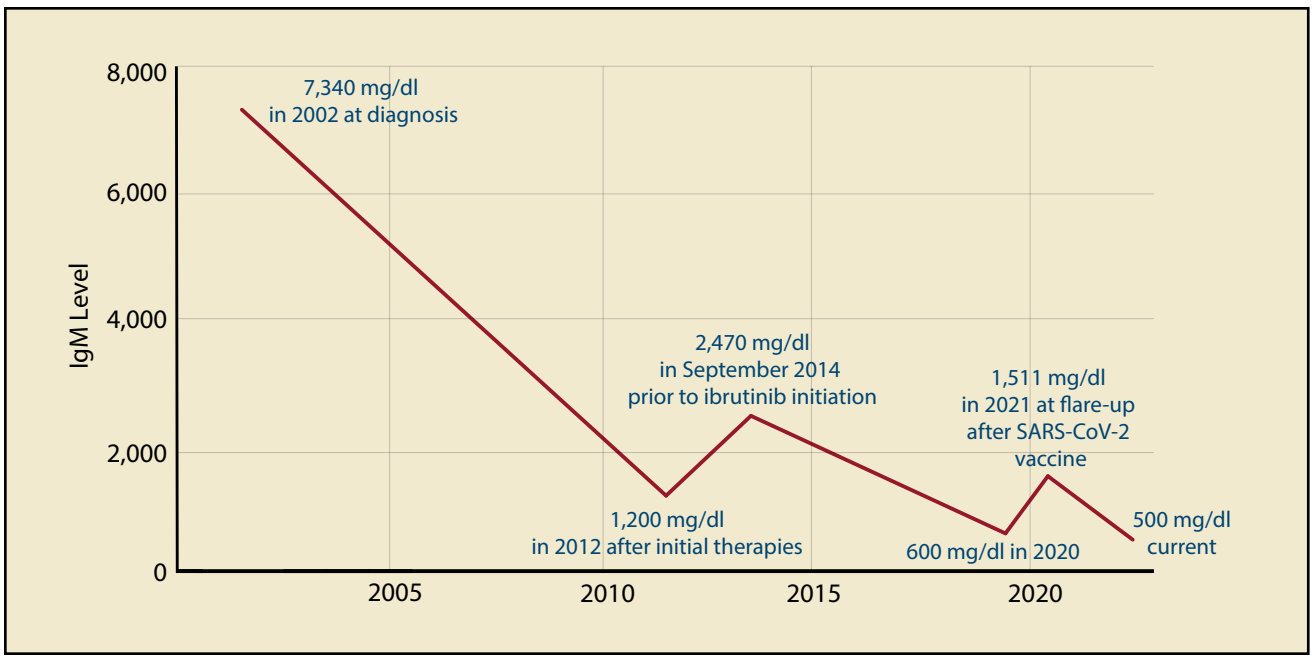

Fig. 10. Patient's IgM levels, from diagnosis to present (nl values 50-300 mg/dl).

should be paid to the development of lymphoma within four to six weeks after SARS-CoV-2 vaccination. Moreover, care should be taken to avoid overlooking relatively benign, slowly progressing lymphomas, such as Waldenström macroglobulinemia.[3]

As mentioned, there have been reports of diagnosis, relapse, and progression of lymphoma after vaccination, but it should be noted that such evidence is still anecdotal and should not outweigh the benefits of vaccines in cancer patients who are often immunocompromised and thus are at high risk of severe COVID-19. Understanding the nuanced intricacies in certain outlier situations will help us better understand vaccine safety and the significance of vaccine safety transparency. In the end, no drug is risk free. Each patient must weigh the risks and benefits of a given situation.[13]

For patients who have cancer, vaccine administration can be complicated due to exclusion from vaccine approval trials. Due to the complexity of the cancer pathophysiology, it is difficult to extrapolate the appropriate dosing and administrative regimens using data from trials of healthy populations. Most recommendations regarding the SARS-CoV-2 vaccines for patients with cancer are extrapolated from other vaccine studies. Since the vaccines have been showing some promising safety results, efforts should be put toward observational studies for cancer patients to have a better safety and efficacy profile.[13]

KEY TAKEAWAY

There have been reports of diagnosis, relapse, and progression of lymphoma after vaccination, but it should be noted that such evidence is still anecdotal and should not outweigh the benefits of vaccines in cancer patients who are often immunocompromised and thus are at high risk of severe COVID-19. Understanding the nuanced intricacies in certain outlier situations will help us better understand vaccine safety and the significance of vaccine safety transparency.

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Controlling Stress and Burnout as a Health Care Worker

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WHAT IS BURNOUT AND WHAT IS ITS IMPACT?

Burnout is a term used to describe exhaustion due to chronic workplace stress. The term was first coined by Herbert Freudenberger in 1974 to describe medical professionals, including doctors and nurses. More specifically, burnout has been defined as a syndrome involving physical depletion, feelings of helplessness, negative self-concept, and negative attitudes toward work, life, and others.[1] It has variously been described as a decrease in energy, engagement, and sense of personal accomplishment, as well as an increase in depersonalization.[2]

Burnout is a prevalent issue throughout the health care field and impacts job performance, absenteeism, and empathy for patients.[3] In a 2023 survey of 9,100 physicians, 53% of respondents reported feeling burned out — an increase over the 42% in a similar survey in 2018.[4] Numerous studies have been conducted to help identify, measure, and combat burnout in health care; a PubMed search of articles about burnout yields more than 26,000 hits, with nearly half — more than 12,000 — published since the start of the SARS-CoV-2 pandemic.[5]

Most recently, the pandemic has worsened this issue, showing us the impact of burnout on the health care workforce when the demand for health care is increased and resources are inadequate. To be specific, moral distress, described as the burden of being unable to provide the care one knows to be right,[6] and compassion fatigue, a special type of burnout caused by the stress of helping individuals during or after traumatic life events,[7] have contributed to the risk for burnout among health care workers in the past three years.[8] Burnout, however, is not easily measurable, which may lead to disagreement regarding its impact.[9]

The negative consequences of burnout may be countered by specific interventions. The hope is that these interventions will yield a better quality of life, performance at work, and overall happiness for those providing health care. Reducing the potential for burnout and augmenting its impact on those working in health care will likely impact the lives of health care workers, as well as the communities they serve.

WHO IS AT RISK AND WHAT RISKS ARE THERE?

An environment of low control and high job demand can create the most pathogenic work environment; physicians, advanced practice clinicians, and staff in smaller solo practices less commonly report burnout, while those in health system-owned practices and Federally Qualified Health Centers are more likely to report burnout, which suggests practice-level autonomy is a critical determinant of risk.[10] Stressed employees may be more likely to take sick days and allow personal problems to permeate their workplace.

Physiological disturbances may appear when burnout is present in a health care employee. One study revealed higher levels of cortisol in health worker hair samples that correlated with higher scores on burnout surveys.[11] While the current research does not reveal consistent conclusions, high levels of burnout may affect hormone levels, particularly cortisol and adrenaline, which can affect various bodily functions and contribute to physical symptoms such as fatigue, muscle tension, and sleep disturbances.[12,13]

The immune system can be weakened if chronic stress makes an individual more susceptible to illnesses. Chronic stress can contribute to long-term problems such as inflammation of the circulatory system, which can lead to an irregular heartbeat, heart failure, or coronary artery disease.[12] Brain structure and function may also be impaired.

The emotional and physiological symptoms of burnout can lead to alterations in the size and activity of certain regions of the brain.[14] Chronic stress may also affect the musculoskeletal system (tense muscles, migraines, back pain), the respiratory system (exacerbating pre-existing respiratory diseases), and many other essential systems of the body.[15] Burnout may

cause serious physiological demand on and changes to homeostasis in the body.

Workplace stress also affects the businesses where we work. High levels of stress in a workplace environment contribute to missing more days of work, which can cost businesses financially and productively. In fact, U.S. businesses lose up to $300 billion annually because of chronic workplace stress.[16] When struggling with burnout, the quality of care that clinicians provide may be severely impacted.[17] In a meta-analysis including 82 studies and 210,669 health care providers, a negative relationship was found between burnout and quality of care; this translates into more risk for patients.[18] It is thus critical for health care organizations to prioritize and address burnout within their workforce, or the consequences may be severe.[19]

HOW TO IDENTIFY AND MEASURE BURNOUT

To address burnout, we must first be able to identify and measure it. The Maslach Burnout Inventory is a proprietary form available for purchase which suggests three domains that can be measured: emotional exhaustion, depersonalization, and personal accomplishment.[20] Emotional exhaustion occurs when a great amount of stress accumulates in one's life, leading to breakdown and feelings of being drained. Emotional exhaustion is one of the most central and fundamental aspects of burnout. Depersonalization, a common symptom of anxiety disorder, can lead to negative attitudes and a lack of desire to fulfill duties. Accomplishment is a measure of one's professional efficacy. Pooling measures of how one scores in each of these domains suggest where on the spectrum from Burnout to Engagement one falls.[21] Thus, individuals may be/have:

Burnout	*Negative scores on exhaustion, cynicism, and professional efficacy.*
Overextended	*Strong negative score on exhaustion only.*
Ineffective	*Strong negative score on professional efficacy only.*
Disengaged	*Strong negative score on cynicism only.*
Engagement	*Strong positive scores on exhaustion, cynicism, and professional efficacy.*

COMBATING AND PREVENTING BURNOUT

Health care leaders not only need to understand how to identify the degree and range of burnout but must understand and implement effective mitigation strategies to aid their struggling employees. Some of these mechanisms may include: setting clear and well-defined boundaries, requiring scheduled breaks, finding ways to reduce the workload, and facilitating various destressing techniques, such as deep breathing, mindfulness, and time management.[21] Identifying one's own personal accomplishment may also augment burnout, as there is an inverse relationship between scores of personal accomplishment and burnout: as the risk for one increases, the other decreases.

In addition, engaging in regular physical activity has proven to be an effective intervention for reducing stress and preventing burnout.[22] Exercise stimulates BDNF (brain-derived neurotrophic factor), which is essential for maintaining brain health.[23] Helping health care workers prioritize their own physical and emotional well-being by encouraging them to engage in activities that promote self-care, such as exercise, meditation, and hobbies, may help to reduce the risks of burnout.

Reinforcing support systems can help maintain and stabilize mental health. A support system, such as a colleague, supervisor, or mental health professional, can be of benefit by alleviating feelings of isolation and providing a safe space to talk about and process challenging experiences.[24]

Further, in a study measuring the connection between emotional intelligence (EI) and burnout, high EI was found to be negatively correlated with burnout.[25] Emotional intelligence is often described as the ability to control emotions in oneself and understand those emotions experienced by other people, to distinguish emotions from each other, and to apply this information to guide one's own thinking and action.[25] Low EI has been shown to be a predictive tool of burnout, while high EI has been linked to higher job performance. Studies demonstrate that EI can be improved.[26] Thus, developing a higher EI is an effective way to help mitigate burnout.[27] By accurately recognizing and processing emotions and understanding the reasons behind them, workers will be better equipped to work through feelings of burnout and avoid negative effects on health and job performance.

Sleep hygiene is an instrumental aspect of preventing burnout. Health care workers are known for working long hours and are susceptible to missing sleep, which can lead to immune system changes and have a long-lasting impact on mental and physical health.[28] The exact reasons why we sleep are still not completely understood, but many believe it is a way for the body to conserve energy, maintain homeostasis of the nervous system, process affective information, and preserve

other necessary functions of the body. We must ensure health care workers can get the sleep they require to provide the highest possible care for their patients and for themselves.

System wise, we are encouraged by a Wellness Committee dedication to augmenting burnout, and at the policy level more is being done. In 2022, the Dr. Lorna Breen Health Care Provider Protection Act became law.[29] This act, inspired by a physician who took her life as a result of her own emotional distress suffered while caring for patients during the SARS-CoV-2 global pandemic, establishes grants and requires other activities to improve mental and behavioral health among health care providers.[29] Hopefully, this will lead to further interventions to augment the burdens those in this workforce endure as they try to help their patients.

CONCLUSION

Stress and burnout are common issues faced by health care workers and can have serious consequences on the individual, the organization, and their patients. Targeting and reducing burnout in health care workers by incorporating mechanisms to properly deal with the issues will greatly impact the health care system and the care workers are able to provide. Mental illness is becoming increasingly recognized and discussed, so it is imperative to find ways to help people cope with these conditions.

It is important to note that burnout is a complex issue, and no single solution will work for everyone. We must address burnout in a holistic and personalized way, considering the unique needs and circumstances of each individual health care worker.

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NARRATIVE MEDICINE

The X-Waiver and the Culture of Addiction Medicine

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Earlier this year, the Substance Abuse and Mental Health Services Association (SAMHSA) released its findings from the 2021 National Survey on Drug Use and Health (NSDUH). The NSDUH provides an annual estimate of the burden of substance use disorders in the United States, and the 2021 report unsurprisingly described a tremendous unmet need for the treatment of opioid use disorder (OUD).

Of the 5.6 million individuals with OUD in 2021, only 887,000 — approximately 15% — received medication treatment.[1] Owing to this treatment gap, the Centers for Disease Control and Prevention (CDC) separately reported that more than 80,000 unintentional opioid overdose deaths occurred in 2021.[2] Recent legislation heralds optimism, but a culture change in our profession is also required to close this treatment gap.

The Mainstreaming Addiction Treatment (MAT) Act was passed by Congress and signed by President Joe Biden at the end of 2022. The law eliminated one regulatory barrier to prescribing buprenorphine, a mainstay treatment for OUD. Buprenorphine, often and accurately characterized as "lifesaving" because of its association with a substantial reduction in mortality when treating OUD,[3-5] is no longer restricted by the regulatory confines of the Drug Addiction Treatment Act of 2000 (DATA 2000). Though justly lauded as a mechanism to offer an effective treatment for OUD in primary care settings, DATA 2000 contained many pernicious elements that shaped the culture of addiction medicine these past two decades.

This erstwhile federal law placed a government-approved training and registration burden upon health care providers who wished to prescribe buprenorphine within their practice settings. DATA 2000 also set arbitrary caps on the number of patients a provider can treat and included the ominous specter of routine audits by the Drug Enforcement Agency (DEA).

The tracking mechanism utilized by the DEA was an additional notation on a registrant's license that always began with the letter X, commonly referred to as the "X-number" or "X-waiver." The "waiver" referred to an exemption from potential criminal prosecution as long as one adhered to the tenets of DATA 2000; prescribing buprenorphine to treat OUD was otherwise considered a violation of the Controlled Substance Act.

Placement of the X-number on each prescription for buprenorphine served as a powerful subconscious reminder to prescribers that they were towing a fraught line. In the face of constant oversight from law enforcement, addiction treatment providers tended to focus less on health promotion and became unwitting agents of social control.[6] The most persistent example of this phenomenon is our profession's preoccupation with urine drug testing to monitor biopsychosocial illnesses.

SAMHSA published a Treatment Improvement Protocol, *Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction*[7] (TIP-40), in 2004. Though buprenorphine only treats opioid use disorder, TIP-40 recommended frequent urine testing for a wide range of illicit non-opioid drugs when providing buprenorphine treatment. Absent from TIP-40 is how providers should use the results of such testing to guide buprenorphine treatment.

Within this information vacuum, I once presumed that I should threaten to withdraw buprenorphine treatment if a patient used a non-opioid illicit drug like cannabis or cocaine. This approach cultivated evasive behavior and an adversarial relationship but never helped a single patient.

Multiple publications[8-10] have since validated that frequent reflexive urine drug testing does not improve patient outcomes and rarely influences medication management decisions. Yet, the multi-panel urine drug test remains a sacred cow in our profession, and its utilization is also commonplace in law enforcement and community correctional control.

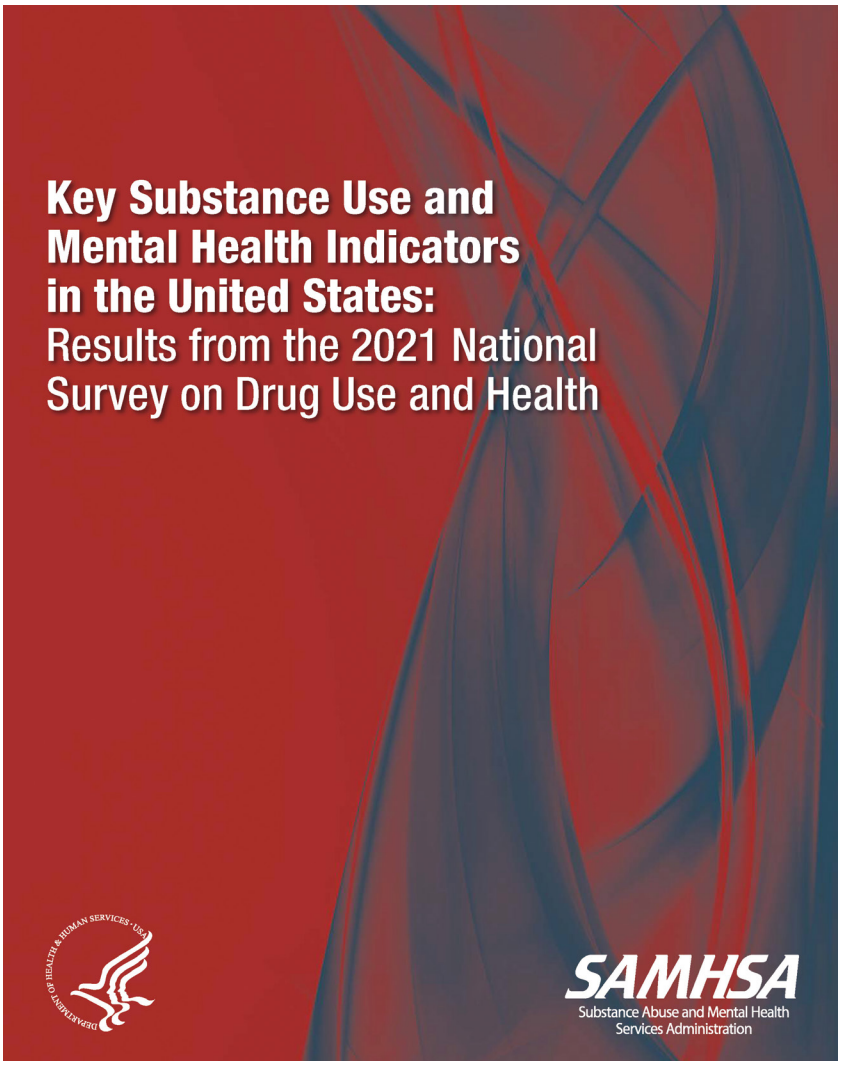
Parallels between addiction treatment and correctional control are well described,[11] and I have wit-

nessed them firsthand while working in correctional medicine, residential addiction treatment, and primary care throughout my career. I've observed urine drug test results used as a rationale for placing an individual in jail for violating terms of probation. Similarly, I've observed urine drug test results be the sole basis for dismissing patients from lifesaving buprenorphine treatment for violating the terms of a medication agreement.

Asking an individual to surrender all possessions and disrobe into a thin paper gown to "squat and cough" in front of a staff member is something I've known to occur both upon intake into jail and residential addiction treatment. Video cameras in bathrooms strategically placed to provide a viewpoint of genitalia during urination are indecent and violate obscenity laws in almost any context. Yet they were a part of some opioid treatment programs (OTPs) and are still commonplace, described to me as the "least intrusive way" to adhere to state regulations by good people who work in these institutions.

Health care settings that implement quasi-strip searches, use a body fluid analysis as the sole measure of success in treating a psychosocial disease, and utilize video cameras in bathrooms should raise alarms by anyone appraising the status quo in addiction treatment. I am further alarmed by the laissez-faire acceptance among many colleagues that these mechanisms have a place in treating addiction. A cynical approach to patient care is the legacy of the X-waiver and the OTP model for delivering methadone and buprenorphine treatment.

Theories abound as to why nearly half of all health care providers who attained an X-waiver to prescribe buprenorphine never issued a single prescription[12] and many others prescribed well below their capacity.[13] Perhaps a confused and cynical approach to patient care is chiefly responsible for our labor shortage in addiction medicine. The standardized buprenorphine waiver training I delivered many times over the years contained a slide that described random, observed urine collection as "ideal," although the same slide paradoxically also recommended urine collection be done in a way that is "convenient" for the patient.



Such mixed messaging is a by-product of the incompatibility between intrusive government regulation and patient-centered care. Undoubtedly, many attendees left this training confused and surmised that people requesting help for addiction could not be trusted. Overly complicated treatment algorithms and mistrust of patients may be reasons primary care providers do not provide buprenorphine treatment.[14]

Congress may have eliminated the X-waiver in 2022, but it is incumbent upon readers of this journal to eliminate the disrespectful approach to patient care that is its legacy. Take the opportunity afforded by the MAT Act to reappraise how

you deliver addiction treatment in your practice and whether your approach aligns with the values that inspired you to enter the health care profession.

Consider eliminating reflexive urine testing as the centerpiece of office-based buprenorphine treatment.[15] Recognize that observed urine collection is potentially traumatizing[15,16] and unlikely to improve outcomes or influence medication management decisions.[8-10] Align intake processes in residential treatment settings with what occurs in local hospitals, not in our jails.

Our profession will thrive when addiction treatment resembles the rest of mainstream medical care. Increased patient engagement and retention will follow.

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PATIENT VIGNETTES

Refer to PharmD: What We May Finally Achieve

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Cunningham


Patterson

Editor's note: In response to JLGH*'s call for narrative submissions, these vignettes were offered as reminders that each patient is an individual with unique needs. Chelsea Cunningham authored the warfarin vignettes, and Michelle Link Patterson wrote those about diabetes and other topics. All names are changed in accordance with HIPAA policy. The journal's editors invite you to submit your stories as well.*

FINALLY … SOMEONE WHO REALLY LISTENS TO ME

Sharon has been on warfarin for years for antiphospholipid syndrome and a history of stroke. Like many health care organizations, LG Health uses an algorithm to guide dose adjustments when an international normalized ration (INR) is out of goal range. For most patients, this algorithm works splendidly. For some, however, we must still work off-protocol.

Of the hundreds of patients I've managed, Sharon is the most sensitive to dose adjustments: a 2% change in weekly dose is enough to change her INR by over a point. Prior to switching to a pharmacist-driven anticoagulation service, Sharon would often express her concern to the medical staff about an advised "per protocol" dose change. Knowing how she had responded to dose changes in the past, she would occasionally disregard our instructions and make adjustments on her own. When calculating the risks, she said she sometimes needed to make this choice to keep herself safe.

When I initially addressed her INR under my care, she carefully expressed concern about my "per protocol" dose change. Through shared clinical decision-making, we collaborated and agreed on a plan. From that point forward, I asked for her thoughts and whether she was comfortable with the plan. On more than one occasion, she has thanked me for being a partner in her health by developing a plan *with* her instead of dictating instructions. Although her INRs are still labile and occasionally defy prediction, we are always in agreement on the plan; to her that makes *all* the difference.

FINALLY … WE AGREED ON A PLAN

Thomas was referred to the pharmacy clinic last summer with an A1C of 8.8%. During the initial outreach, he declined to schedule a visit and noted that he was "figuring things out on my own." Within six months, the patient's primary care physician placed a second pharmacy clinic referral. I reached out to the patient; he noted he was prescribed sitagliptin but did not want to start it until his pharmacy appointment.

A month later, he presented to the pharmacy clinic with his wife. At that time, we completed a diabetes disease state review, as well as an overview of potential therapeutic lifestyle modifications and medications. The patient noted that he preferred to consider herbal supplements over more commonly prescribed medications. I was honest with him — we discussed the supplements he wanted to take and the data to support or refute their use. He appreciated that I kept an open mind. By the end of the visit, we had agreed that he would start taking liraglutide instead of sitagliptin.

A month later, I called the patient for our scheduled telephone visit, and he reported that he did not start liraglutide due to "thousands of lawsuits against it" that he had seen online. He found two supplements he wanted to try instead. His A1C remained high at 9.2%, and we discussed both the gravity of his situation and his motivations for healthy living — including his young children. In collaboration with his physician, we checked an insulin level, c-peptide, and fasting glucose; these showed severe insulin resistance.

After I reviewed these results with him, he decided to begin taking a GLP1 medication but preferred a tablet instead of an injection. We were able to get a prior authorization approved for oral semaglutide, and this time the patient started using the medication, electing to hold off on starting any additional supplements given the paucity of evidence for those products.

A few days later, Thomas left me a voicemail thanking me for supporting him through his decision-making process, one that we as health care providers may take for granted. I see patients every day who are taking three, four, or even five medications for one disease state. Thomas's case is a reminder that the emotional burden of taking even one additional medication should be carefully considered.

FINALLY … A DIFFERENT ANTICOAGULANT

Alice struggled for years with labile INRs due to difficulty understanding the impact of eating foods high in vitamin K, as well as challenges overcoming transportation barriers to get to the lab for her INRs. She also took primidone, so apixaban and rivaroxaban were not options due to a drug interaction.

She and her daughter met with the patient's neurologist and discussed an alternate therapy, yet she was hesitant to change since she had been taking primidone "for years." When I saw they were considering this change, I discussed with the patient and her daughter that if she switched from primidone, she would be able to switch from warfarin as well. They were elated by this news, and it was the deciding factor for the patient to stop primidone.

Soon after, Alice started apixaban. She shared that her favorite part of this change was that she can now eat all the green vegetables and liver that she wants without worrying about having a blood clot! This patient is a reminder that we should periodically reassess current therapies and that we can leverage patient preferences to direct patients toward the ideal treatment choice.

FINALLY … WE MADE SENSE OF A CRAZY MED LIST

Betty was referred to the pharmacy clinic for diabetes management with a note from her doctor: "I am worried she is not taking her aspirin and clopidogrel." When I scheduled our first appointment, I asked the patient to bring all her medication bottles so we could review them together. She presented with a list of 24 medications and over 30 bottles that needed to be reconciled.

After our visit, I recommended stopping five of her medications and removed four others she was not taking. We consulted with our cardiology pharmacy colleagues and were able to change her metoprolol to the extended-release formulation to reduce pill burden.

Betty was overdue in seeing her oncologist, so we were able to connect her back with her doctor at that office. That visit resulted in cessation of yet another medication. Overall, the patient went from a list with 24 medications to 12, and she is now working with the Ambulatory Collaborative Care Team to get set up with simplified pill packets, which we hope will improve her adherence.

FINALLY … A PROACTIVE APPROACH

Claire recently moved to this area and established care with one of our primary care providers, who transferred anticoagulation management to our warfarin clinic. Although she had been on warfarin for many years, it is helpful to review patient expectations and assess one's knowledge base, especially during an initial visit.

During our appointment, I talked about vitamin K foods and requested she inform me of any changes in her dietary habits, as these can affect warfarin needs. I also requested that she tell me about any medicine changes as they occur rather than at her next scheduled visit.

When we have reviewed her care, she has reflected that her prior provider had simply adjusted her warfarin dose when her INR was out of range. She is pleased we are now taking a proactive approach to *prevent* an out-of-range INR rather than simply reacting to it.

FINALLY AT GOAL … BUT LACKING CONTENTMENT

In medicine, we set goals for and with our patients, and continue to follow-up with them until we achieve them. However, our goals may not be the same as the patient's goals, and it can be difficult to reconcile opposing priorities. Luke was referred to me just over a year ago with uncontrolled diabetes (A1C 9.6%), uncontrolled hypertension (187/87 mmHg), and an elevated LDL-C (76 mg/dL).

Since his referral, we have started insulin and made changes to blood pressure medications; his A1C is now 6.7%, his BP is 135/57, and his LDL-C is 63 mg/dL. Despite what I perceived as great success in achieving the patient's health goals, however, he has expressed discontentment at the burden and copays that come with taking so many medications every month. I shared that I wholeheartedly understand his frustrations.

We discussed several times why each medication is medically necessary and why he should continue to take them. Although he had been taking 10 daily medications when he was first referred to me, and he was now on only eight a day, the burden of daily insulin injections has led to frustration and dissatisfaction. Despite not being able to safely discontinue many of these medications, Luke has continued to follow-up regularly with me and work on lifestyle modifications.

I share his hope that we will be able to reduce his medication burden further. To work toward that goal, we will need to maintain open and honest lines of dialogue to ensure there is a bridge, and not a barrier in our way.

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PHOTO QUIZ FROM URGENT CARE

Adolescent with a Rash

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CASE HISTORY

A 12-year-old and his father present to Urgent Care with a rash that began several weeks prior. Over-the-counter medicated ointments and creams have been applied to the skin with no improvement.

The patient states that the rash is painful and itchy. Initially the rash started on the bilateral wrists, however it is now located on the bilateral lower extremities as well; several areas are weeping. Dad says the rash was initially red with a dry, scaly appearance. The patient has not had a fever and denies recent cold or flu-like symptoms. There have been no known exposures to poison ivy, poison oak, or poison sumac. No one else in the home has a similar rash.

The patient has no known allergies to foods or medications, and his dad denies any new detergents or soaps in the home. The father also denies any history of dermatology problems for the patient.

On physical examination:

- Vital signs are within the normal range and unremarkable.
- The patient is not ill appearing.
- The bilateral wrists have erythematous papules and pustules, some of which are crusted over (see Fig. 1).
- The bilateral lower legs are notable for widespread pustules and patches of brown and honey-crusted lesions with erythematous bases present (see Figs. 2 and 3).

QUESTIONS

1. What is the differential diagnosis?
2. What is the most appropriate diagnosis?
3. How should this condition best be treated?
4. When is the patient no longer considered contagious?

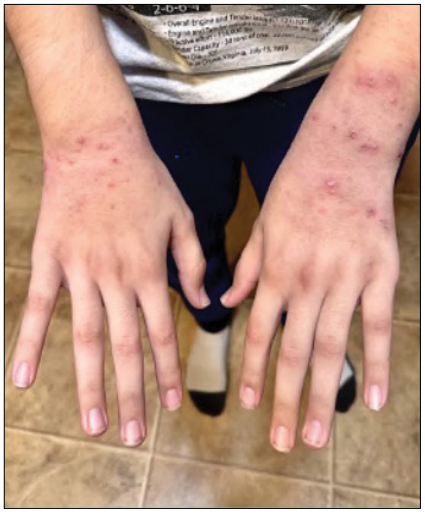

Fig. 1. The bilateral wrists reveal erythematous papules and pustules, some of which are crusted over.

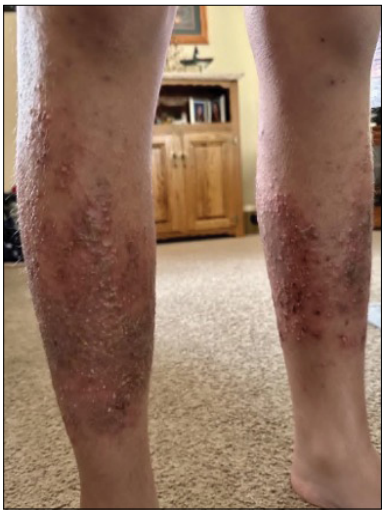

Fig. 2. The anterior view of the bilateral lower legs shows widespread pustules and patches of brown/honey-crusted lesions with erythematous base present.

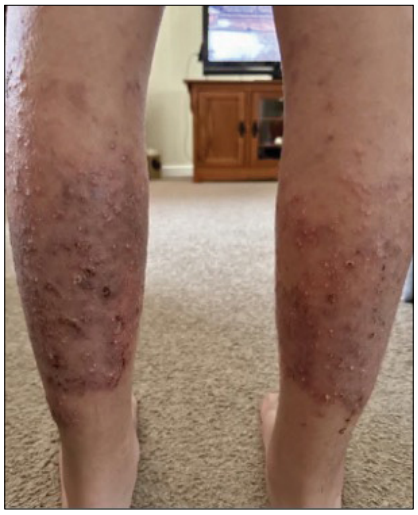

Fig. 3. The posterior view of the bilateral lower legs shows widespread pustules and patches of brown/honey-crusted lesions with erythematous base present.

ANSWERS

1. The differential diagnosis might include: eczema with secondary infection; atopic or contact dermatitis; bacterial infection, such as impetigo; viral exanthema from a variety of causative factors, including varicella, herpes simplex, and coronavirus; scabies or lice; candidiasis; or autoimmune disorders such as discoid lupus.
2. The most appropriate diagnosis in this case is impetigo, typically caused by staphylococcus or streptococcus species.
3. Treatment for localized impetigo could simply entail topical mupirocin 2% ointment or cream applied three times daily for seven days. However, since this patient's reaction is widespread, oral antibiotics are indicated for treatment; first-line treatment would begin with cephalexin 500 mg four times a day for seven days. Dicloxacillin, doxycycline, or trimethoprim/sulfamethoxazole could be prescribed as well. Erythromycin or clindamycin should not be used because of emerging resistance.[1] It is unclear whether over-the-counter agents such as tea tree oil have enough utility to recommend as treatment.
4. Typically, the patient is no longer contagious when the individual has been on oral or topical antibiotic treatment for 24-48 hours. In addition, the patient's lesions should be crusted over and no longer weeping.[1]

DISCUSSION

Impetigo is a highly contagious superficial skin infection that can occur in any age group but is more common in the preschool population. The findings in patients with non-bullous impetigo include lesions with a flat erythematous base or maculopapular lesions that progress to small pustular lesions. The eruption of the pustules produces the classic honey-crusted plaque (as seen in Fig. 2 on page 89). Bullous impetigo typically presents as vesicles that form fluid-filled flaccid bullae; when the bullae rupture, a shiny erythematous base with scaling and a brown- or gold-crusted plaque can appear.[2-4]

Staphylococcus aureus, *Streptococcus pyogenes*, or a combination of both causes non-bullous impetigo, commonly called impetigo contagiosa. *Staphylococcus aureus* is the pathogen that causes bullous impetigo; this variant is also known as impetigo herpetiformis. First-line treatment is topical: mupirocin or retapamulin. However, if the patient has widespread impetigo, oral antibiotics are warranted and more practical than topical treatment.[1]

While topical and oral therapy is important, it is imperative to prevent the spread of impetigo through general hygienic practices. Frequent handwashing, cleaning the lesions with soap and water at least twice a day, bathing or showering regularly, and keeping the sores covered can help decrease the spread of impetigo. The American Academy of Dermatology Association recommends a small amount of bleach (less than a capful) in a bathtub full of an individual's bath water if recurrent impetigo is evident. Washing bedding and towels separately in hot water and cleaning counters, doorknobs, and other surfaces can also prevent transmission. Avoiding skin-to-skin contact with an individual diagnosed with impetigo is recommended until the patient is no longer contagious, which would typically be when the sores are crusted over or once the patient has been treated with antibiotics for 24-48 hours.[2,5]

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SPOTLIGHT ON CLINICAL RESEARCH

Nursing Research

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Editor's note: This is the 16th in a series of articles from the Penn Medicine Lancaster General Health Research Institute that describes ongoing research studies. Other active studies have been described in previous issues of this journal.

The Research Institute welcomes Dr. Christian Burchill as the guest coauthor of this Spotlight. Chris is director of nursing research and evidence-based practice, a position created for a nurse scientist who has an established research agenda as well as the ability to mentor LG Health clinical nurses and nurses in leadership positions in the conduct and dissemination of nursing research. He is a lifetime member of the Emergency Nurses Association and a member of the organization's Emergency Nursing Research Advisory Council.

Chris's research work focuses on the association of health care provider perceptions of psychological and physical safety with provider outcomes, with a special interest in workplace violence in all health care settings and best practices in emergency nursing care. Additionally, he serves as a co-investigator on a National Institute on Aging-funded multisite study investigating the effect of mobility techs on hospital length of stay and discharge disposition for older medical patients.

Physicians who wish to refer patients for any of the studies mentioned below are encouraged to contact the Research Institute at 717-544-1777. Other members of the LG Health staff who are conducting research and wish to have their studies described here are encouraged to contact the offices of JLGH *at 717-544-8004.*

Nursing is the "protection, promotion, and optimization of health and abilities; prevention of illness and injury; facilitation of healing; alleviation of suffering through the diagnosis and treatment of human response; and advocacy in the care of individuals, families, groups, communities, and populations."[1] Many people are unaware that nurses conduct research that contributes to the body of evidence supporting the practice of nursing. In fact, nursing research has a long, rich history that continues to this day.

The history of nursing research dates back to England's involvement in the Crimean War (1853-1856) and Florence Nightingale's implementation of data-driven nursing practice. Nightingale was trained in mathematics by her parents, unheard of in that time for women, and had her staff of trained nurses collect data on patient response to nursing interventions in British army hospitals. She transformed the data into a graphical representation she called the coxcomb graph so that policymakers at the time could more easily understand the effects of nursing interventions on patient outcomes in Crimea. She later used this data to demonstrate that reforms implemented throughout the British army would decrease unnecessary deaths from hospital-acquired infections regardless of geographic location or battlefield wound. Nightingale was the first woman elected to the Royal Statistical Society for her research work during the Crimean War and creation of the graphical coxcomb graph in 1858.[2,3]

Following a report from the Institute of Medicine, nursing research became part of National Institutes of Health (NIH) funding priorities with its elevation to institute status — the National Institute of Nursing Research — in the early 1990s. Simultaneously, the American Academy of Nursing, an honorary affiliate arm of the American Nurses Association, was conducting research on how to address the critical nursing shortage in the 1980s.[2,4]

Researchers found that a subset of hospitals had better nurse retention rates as well as patient outcomes, which they called Magnet hospitals. A common characteristic among these hospitals was their contribution to nursing research and implementation of evidence-based practice. Participation in and dissemination of a hospital's nursing research results subsequently became a requirement for Magnet designation.[4]

Lancaster General Hospital is a five-time Magnet-designated hospital, meaning that it met the Magnet requirements for nursing research at each designation. Standards for Magnet designation have been raised over the years, with current requirements necessitating completion of nursing research studies and internal and external dissemination of results, as well as proof of ongoing nursing research studies. Each entity within Penn Medicine has a nurse scientist as a member of its staff to assist with these efforts.

Here we present two LG Health Institutional Review Board-approved studies in progress as examples of research studies developed and led by LG Health nursing staff members with the potential to influence both nurse and patient outcomes in the future.

Pilot Study for a Multisite Retrospective Study on Emergency Department (ED) Blood Sample Hemolysis

Principal Investigator: Dr. Christian Burchill
Co-Investigators: Lorelei Ferre, BSN, BA, RN, SAFE, Clinical Nurse 2, Emergency Department; Christina Pierre, PhD, DABCC, FAACC, Clinical Chemist and Director, Clinical Chemistry and Coagulation Section, Department of Pathology and Laboratory Medicine

Background: Blood sample hemolysis occurs more commonly in emergency departments than in other phlebotomy sites, presumably due to pre-analytic factors. Blood sample hemolysis rates are associated with increased length of stay for patients in the ED and increased cost to the department. A 2021 study demonstrated that phlebotomy was primarily the responsibility of emergency nurses in the ED, but that hemolysis prevention best practices were not always employed.[5] Data collected at LG Health, where phlebotomists are responsible for blood sample collection in the ED, demonstrated that ED hemolysis rates remain higher than in other settings.

Purpose: The purpose of this study is to explore characteristics of the organization and patient population associated with increased risk for blood sample hemolysis. Blood samples are routinely collected during intravenous catheter insertion in most EDs across the country, which significantly increases risk for hemolysis. Understanding patient and organizational characteristics associated with blood sample hemolysis would provide emergency nurses with the information they need to prioritize straight needle phlebotomy and begin to fill the gap in the literature about ED blood sample hemolysis rates.

Methods: Researchers will study deidentified data collected from LG Health ED-patient medical records to establish parameters for organizational and patient-related factors that might be associated with blood sample hemolysis. The researchers plan to establish feasibility for conducting a retrospective case-control study using data from a sample of all Penn Medicine ED visits.

Nurse Attitudes and Beliefs Regarding Mobilizing Patients: A Qualitative Descriptive Study

Principal Investigator: Eric D. Piasecki, MSN, RN, ACCNS-BC, CCRN, TCRN, SCRN, Clinical Nurse Specialist, Nursing Professional Development and Clinical Excellence

Co-Investigators: Melissa Craig, BSN, RN, CCRN, Clinical Nurse 4, Supplemental Staff; S. Kate Rouse, BSN, RN, CMSRN, Clinical Nurse 4, Intensive Care Unit; Jennifer Hutnyk, MSN, RN, CEN, Nurse Manager, 4 East/West; Dr. Christian Burchill

Background: Early and progressive mobility can decrease the risk of untoward outcomes for hospitalized adults, yet published research results and real-time audits at LG Health have demonstrated that getting patients ambulatory is only one of many aspects of care that nurses prioritize. Previous research focused on barriers and opportunities regarding patient risk for falls. Yet, researchers have not fully explored how nurses' attitudes may affect practice.

Purpose: The aim of this study is to explore nurses' attitudes and beliefs about patient mobility, with the idea that these are drivers of behavior change. Understanding nurses' attitudes and beliefs about patient mobility will allow for practice changes to be studied and implemented.

Methods: This study uses a qualitative descriptive method to explore clinical nurses' attitudes and beliefs about mobility on inpatient units at the Duke Street campus of LG Health. The study will use a convenience sample of those eligible nurses who agree to be audio recorded for an interview. Interviews and data analysis are currently in progress, and the study is open to participation.

ACKNOWLEDGEMENT

The author graciously acknowledges the contributions to this article from Heather Madara and Roy S. Small, MD, at the LG Health Research Institute.

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Recommendations from the Society for Healthcare Epidemiology of America and the Society for Cardiovascular Magnetic Resonance

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This is my 42nd article on Choosing Wisely from the American Board of Internal Medicine (ABIM) Foundation. As noted in previous issues of *JLGH*, each specialty group is developing "Five or More Things That Physicians and Patients Should Question."

All items are developed to encourage discussion between physicians and their patients about which tests and procedures are best in each case. Additional resources are available online at choosingwisely.org.

RECOMMENDATIONS FROM THE SOCIETY FOR HEALTHCARE EPIDEMIOLOGY OF AMERICA

1. Antibiotics in patients without convincing evidence of need should not be used. Antibiotics increase the risk of C. difficile infection and can lead to other adverse drug events. Clostridioides (formerly Clostridium) difficile (C. difficile) infections can be life-threatening illnesses and often occur when antibiotics kill normal bacteria in the intestine. Patients recovering from C. difficile infections are three times as likely to have a recurrence if they receive an antibiotic in the following month. Many of these patients are given unnecessary antibiotics — primarily for misdiagnosed urinary tract infections or pneumonia.

2. Invasive devices (including central venous catheters, endotracheal tubes, and urinary catheters) should be avoided, and if required, use them no longer than necessary. They pose a major risk for infections. Invasive devices are often necessary for patient support; however, they are a major risk for healthcare-associated infections. We are learning they often can be avoided and, if used, can be quickly removed with the help of clinical reminders and protocols. They should never be used for convenience.

3. Cultures (e.g., urine, blood, sputum cultures) should not be performed nor should one test for C. difficile unless patients have signs or symptoms of infection. Tests can be falsely positive, leading to over diagnosis and overtreatment. Although important for diagnosing disease when used in patients with appropriate signs or symptoms, these tests often are positive when an infection is not present. For example, a positive blood culture may represent contamination, a positive urine culture could represent asymptomatic bacteriuria, and a positive test for C. difficile could reflect colonization.[1]

4. Continuous antibiotics should not be used for surgical prophylaxis after the patient has left the operating room. Prophylactic antibiotics can significantly decrease the risk of surgical site infection; however, they only have benefit if used intraoperatively. There is no evidence that they provide additional benefit if continued after the surgical incision is closed.[2]

5. Antibiotics should not be continued beyond 72 hours in hospitalized patients unless the patient has clear evidence of infection. Antibiotics are often started when an infection is suspected but not yet confirmed. After three days, laboratory and radiology information is available and antibiotics should either be de-escalated to a narrow-spectrum antibiotic based on culture results or discontinued if evidence of infection is no longer present. Reducing antibiotic use decreases the risk of infections with C. difficile or antibiotic-resistant bacteria.

RECOMMENDATIONS FROM THE SOCIETY FOR CARDIOVASCULAR MAGNETIC RESONANCE

1. Stress cardiovascular magnetic resonance (CMR) in the initial evaluation of chest pain patients with low pretest probability of coronary disease should not be performed. Lower cost stress tests are available for the initial evaluation for low-risk chest pain patients, particularly when they have a normal electrocardiogram and can exercise. Stress CMR can be valuable in evaluating intermediate risk patients with abnormal electrocardiograms or who cannot exercise, or when initial test results are equivocal.[3]

2. Stress CMR should not be performed as a preoperative assessment in patients scheduled to undergo low-risk, non-cardiac surgery. Stress testing has not been shown to be useful in patients undergoing low-risk surgery. Therefore, stress CMR

in these patients will not improve outcomes and will increase costs.

3. Stress CMR should not be performed in patients with acute chest pain and high probability of coronary artery disease. Stress testing can increase risk and delay therapy in patients with acute chest pain and markers of high risk, such as ST segment elevation and/or positive cardiac enzymes. After initial evaluation and therapy, non-stress CMR may aid in diagnosing ischemic or non-ischemic myocardial injury.

4. Coronary CMR should not be performed in symptomatic patients with a history of coronary stents. Coronary stents cause artifacts on CMR that preclude accurate evaluation. Therefore, coronary CMR in these patients will not be diagnostic.

5. Coronary CMR should not be performed in the initial evaluation of asymptomatic patients. Coronary CMR has not been well established with the evaluation of coronary atherosclerosis. Coronary CMR is primarily indicated for detecting and characterizing anomalous coronary arteries.[4]

Top Tips

NEW MAMMOGRAM RECOMMENDATION FROM PREVENTIVE SERVICES TASK FORCE

Women should start getting every-other-year mammograms at age 40 instead of waiting until age 50, according to a draft recommendation from the U.S. Preventive Services Task Force.[5] The panel has long said women can choose to start breast cancer screening as young as age 40, with a stronger recommendation that they get exams every two years from ages 50 through 74.

The task force also noted that nearly half of all women have dense breasts, which means mammograms may not work as well, and called for more research into whether additional types of testing would help. The recommendation applies to women at average risk of breast cancer but not those at very high risk due to genetic or other factors.

The latest update — if the draft proposal is finalized — would mark a shift in the task force's guidelines, although it is not likely to end confusion. Other health groups differ over when and how often to screen.

The American Cancer Society says women ages 45 to 54 should get mammograms every year — but can choose to start at age 40 and then, at age 55, switch to every other year. The American College of Radiology recommends annual mammograms starting at 40 for women at average risk of breast cancer, but urges that young women get assessed for risks that require even earlier screening.

BURN CARE CLINICAL PRACTICE GUIDELINES

The severity of an inhalation injury can be diagnosed by a bronchofiberoscopy and chest computed tomography scanning, but no single definitive severity indicator currently exists, according to an article published in *Acute Medicine & Surgery*.[6]

The article's authors suggest that patients with burns who need initial fluid resuscitation include:

- Adult patients whose burn area is greater than 15% of their total body surface area (TBSA) and children with a burn area of greater than 10% of their TBSA.
- Patients with burn areas that are clearly greater than 20% of their TBSA.

Further, resuscitation should be carried out using a salt-containing fluid infusion based on weight and percentage burn in adult patients with a burn area greater than 20% of their TBSA and pediatric patients with a total burn area greater than 10% of their TBSA.

Additional recommendations include:

- In patients with partial thickness burns, use silver-containing Hydrofiber wound dressings as local therapy within one week post injury.
- In patients with severe burns, begin enteral nutrition as early as possible within 24 hours post injury.
- In patients with electrical burns, if compartment pressure increases or neuropathy or blood flow disorders are present, surgical decompression including fasciotomy should be carried out.
- In patients with chemical injury, use irrigation with water as soon as possible post injury to remove or dilute the attached chemical agent.

Finally, in all patients with burns, deep vein thrombosis can be prevented with mechanical prophylaxis; however, "the indication should be carefully decided" in patients who have lower limb burns.

ANTICOAGULANTS AND ANTIPLATELETS DURING ACUTE GI BLEEDING

The American College of Gastroenterology and the Canadian Association of Gastroenterology last year published a clinical practice guideline on the management of anticoagulants and antiplatelets during

acute gastrointestinal bleeding (GIB) and the periendoscopic period.[7]

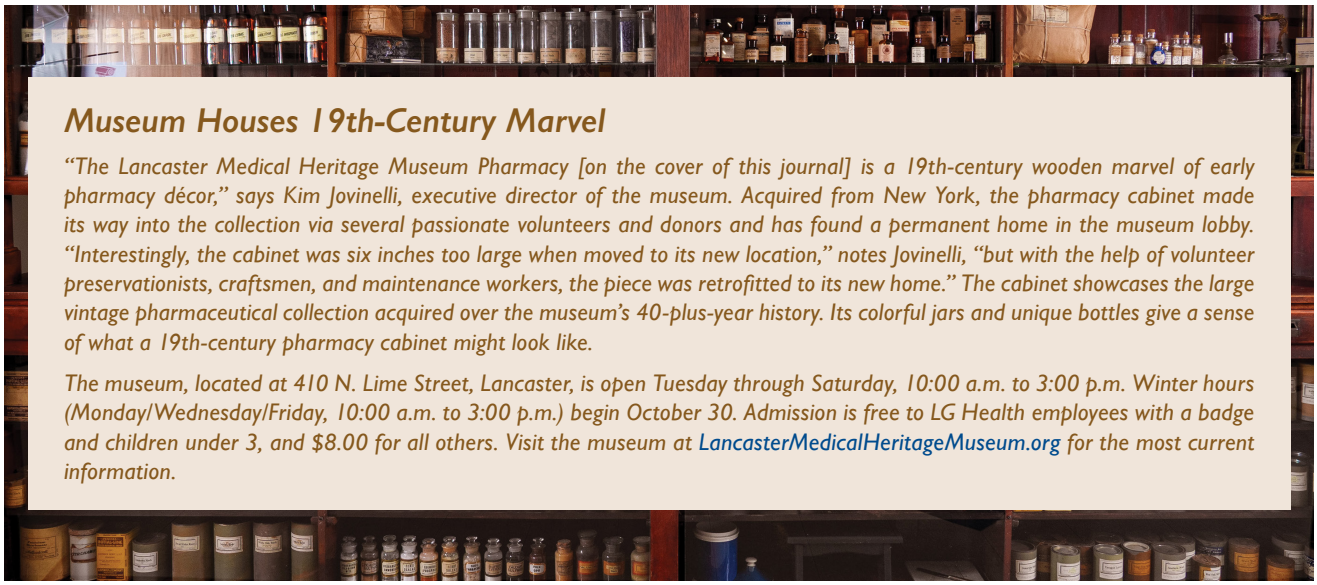
An overview follows; the complete guidelines provide recommendations, algorithms, and a dissemination tool to address acute GIB and elective endoscopy, as well as indicate when to continue, hold, and resume antithrombotic agents.

I. Antithrombotic Agents in the Setting of Acute GIB

1. *Vitamin K Antagonist Reversal*
   For hospitalized patients or persons under observation with acute GIB who are taking warfarin, the guidelines:
   - Suggest *against* giving fresh frozen plasma (FFP) or vitamin K.
   - Were unable to make a recommendation for or against giving prothrombin complex concentrate (PCC) but suggest administering PCC compared with FFP administration.
2. *Direct Thrombin Inhibitor Reversal (Dabigatran)*
   The guidelines suggest *against* giving idarucizumab to hospitalized patients or persons under observation with acute GIB who are taking dabigatran.
3. *Other Agent Reversals for Inpatients or Those Being Observed with GIB*
   - Rivaroxaban/apixaban: The guidelines suggest *against* giving andexanet alfa.
   - Direct oral anticoagulants (DOACs): PCC administration is *not* suggested.
   - Antiplatelets: The guidelines suggest *against* giving platelet transfusions.
4. *Acetylsalicylic Acid (ASA): Holding vs. Continuing*
   For patients with GIB receiving cardiac ASA for secondary prevention whose ASA was held, the guidelines suggest resumption on the day hemostasis is endoscopically confirmed.

II. Anti-Thrombotic Agents in the Setting of Elective Endoscopy

1. *Anticoagulants: Interrupt or Continue*
   - For patients on warfarin who are undergoing elective/planned endoscopy GI procedures, continue warfarin rather than a temporary interruption of one to seven days. Bridging anticoagulation is *not* suggested in patients taking warfarin whose warfarin was withheld in the periprocedural period.
   - For patients taking DOACs who are undergoing elective/planned endoscopy GI procedures, temporary interruption of DOACs is suggested.
2. *Antiplatelets: Interrupt or Continue*
   - Patients on dual antiplatelet therapy for secondary prevention and undergoing elective endoscopy GI procedures should temporarily interrupt their $P2Y_{12}$ receptor inhibitor while continuing ASA.
   - No recommendation could be made for or against temporary interruption of the $P2Y_{12}$ receptor inhibitor for those taking single antiplatelet therapy with a $P2Y_{12}$ receptor inhibitor and undergoing elective endoscopy GI procedures. (Examples of $P2Y_{12}$ receptor inhibitors are Plavix®, Effient®, and Brilinta®.)
   - Patients on cardiac ASA monotherapy (ASA 81-325 mg/day) for secondary prevention should *not* interrupt ASA monotherapy.



Museum Houses 19th-Century Marvel

"The Lancaster Medical Heritage Museum Pharmacy [on the cover of this journal] is a 19th-century wooden marvel of early pharmacy décor," says Kim Jovinelli, executive director of the museum. Acquired from New York, the pharmacy cabinet made its way into the collection via several passionate volunteers and donors and has found a permanent home in the museum lobby. "Interestingly, the cabinet was six inches too large when moved to its new location," notes Jovinelli, "but with the help of volunteer preservationists, craftsmen, and maintenance workers, the piece was retrofitted to its new home." The cabinet showcases the large vintage pharmaceutical collection acquired over the museum's 40-plus-year history. Its colorful jars and unique bottles give a sense of what a 19th-century pharmacy cabinet might look like.

The museum, located at 410 N. Lime Street, Lancaster, is open Tuesday through Saturday, 10:00 a.m. to 3:00 p.m. Winter hours (Monday/Wednesday/Friday, 10:00 a.m. to 3:00 p.m.) begin October 30. Admission is free to LG Health employees with a badge and children under 3, and $8.00 for all others. Visit the museum at LancasterMedicalHeritageMuseum.org for the most current information.

3. *Resuming Anticoagulants or PGY$_{12}$ Receptor Inhibitors Post Endoscopy*
   No recommendations could be made as to whether interrupted warfarin or DOACs should be resumed on the same day as an elective endoscopy or to wait one to seven days post procedure.

FECAL INCONTINENCE CLINICAL PRACTICE GUIDELINES

The American Society of Colon and Rectal Surgeons earlier this year published new practice guidelines for the management of fecal incontinence.[8] Class 1 (strong) recommendations are summarized below.

Evaluation and Risk Assessment

- Obtain a thorough disease history to identify the cause and specific risk factors for incontinence, delineate the duration and severity of the main symptoms, and gather details about secondary issues and associated pathologies.
- In addition, a thorough physical exam is essential. Use validated measures to evaluate how the patient's quality of life has been affected by the nature, severity, and impact of fecal incontinence.
- Consider the use of anorectal physiology testing (manometry, anorectal sensation, volume tolerance, compliance) to delineate the features of dysfunction and guide management. Pudendal nerve terminal motor latency is an option that can be used but is not routinely recommended due to its limited impact in diagnosing and managing fecal incontinence.
- Sphincter defects in the setting of suspected sphincter injury can be performed with endoanal sonography.

Conservative Management

- First-line therapy for fecal incontinence is the use of conservative measures comprising dietary and medical management.
- Perform endoscopic evaluation in patients who fulfill general screening guidelines or who have specific symptoms (i.e., diarrhea, bleeding, obstruction) that should be further assessed.

Surgical Interventions

- Correct obvious anatomic defects (e.g., rectovaginal fistula, rectal/hemorrhoidal prolapse, fistula in ano, cloaca-like deformity).
- Offer sphincter repair (sphincteroplasty) in the setting of symptomatic disease and a defined defect of the external anal sphincter.
- In general, avoid repeat anal sphincter reconstruction following failure of overlapping sphincteroplasty — unless other therapeutic modalities are not feasible or have been ineffective.
- The Society does not recommend plication of the external anal sphincter (Parks postanal repair).
- Consider sacral neuromodulation as a first-line surgical option for patients with fecal incontinence, with and without sphincter defects.
- Artificial bowel sphincter implantation remains effective for select patients with severe fecal incontinence.
- Colostomy creation is an excellent surgical option for those whose fecal incontinence has failed other therapies or who do not wish to pursue them.

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THE JOURNAL OF
LANCASTER GENERAL HOSPITAL
Owned and Published by
Penn Medicine Lancaster General Health

The Journal of Lancaster General Hospital is published quarterly by Lancaster General Hospital, a nonprofit, community hospital in Lancaster, PA. The hospital and its parent, Lancaster General Health, are members of the University of Pennsylvania Health System (Penn Medicine). The journal is sent to the medical staff of Lancaster General Hospital, to physicians and others involved in delivery of health care in our service area, and to the administrative and medical leadership of Penn Medicine.

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ISSN 1940-2813

Cover photo by Lancaster County photographer Nick Gould for JLGH.

The photo showcases the 19th-century pharmacy cabinet on display at the Lancaster Medical Heritage Museum. Read more about the cabinet on page 95 of this issue.

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The following is a summary of the general guidelines for submitting an article to *The Journal of Lancaster General Hospital*. Details are located online at JLGH.org.

- Scientific manuscripts are typically between 2,500-4,500 words. Perspective articles are usually shorter, and photo quizzes average about 725 words plus illustrations.
- Medical articles should report research, introduce new diagnostic or therapeutic modalities, describe innovations in health care delivery, or review complex or controversial clinical issues in patient care.
- Reports of research involving human subjects must include a statement that the subjects gave informed consent to participate in the study and that the study has been approved by the institutional review board (IRB).
- Patient confidentiality must be protected according to the U.S. Health Insurance Portability and Accountability Act (HIPAA).
- The Journal of Lancaster General Hospital *does not allow chatbot tools such as ChatGPT to be listed as authors.* JLGH *editors warn authors that the use of these tools can be high risk for plagiarism with inappropriate use of citations, and we require that use of such tools be disclosed.*

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DID YOU KNOW, PHYSICIANS CAN EARN CATEGORY 2 CREDIT FOR READING *JLGH*?

American Medical Association Category 2 activities consist of self-directed learning or courses that have not been through a formal approval process. According to the Pennsylvania State Board of Medicine, this includes "learning experiences that have improved the care [physicians] provide their patients." Reading authoritative medical literature — like *JLGH* — is one such activity. More information and the Pennsylvania Board of Medicine CME Reporting Form are available at LGHealth.org/CME. Physicians can also log credit through their eeds account online.

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Mandated Training for Act 31 — In-Person Only

Recognizing and Responding to Children at Risk: Suspected Child Abuse & Neglect Education for Hospital Staff
Tuesday, September 19, 6:00-8:00 p.m.
Stager Conference Center, Lancaster General Hospital
Presenters: Mary Theresa Baker, MD, and Robin M. Boyer, MSW

Space is limited. Registration deadline is Sept. 12. License information is required for registration. *Only* individuals registered in eeds prior to the training are eligible for attendance/credit. Per the state-approved education provider, attendees *must attend the full two hours* to receive credit. Those who arrive late or depart early will not receive credit. LG Health is not a state-approved provider of this education and therefore is not allowed to record the session.

In-Person Workshop — Registration Required

Diagnosis to Treatment: Get the "Skin-ny" on Melanoma
Tuesday, October 17, 6:00-7:15 p.m.
Ann B. Barshinger Cancer Institute
Topics: biopsy best practices, excision vs. surgery, systemic therapy

Other Upcoming CME Offerings at LG Health

Family Medicine Grand Rounds: Sept. 18, Oct. 16, Nov. 21
Hospitalist Interprofessional Case-Based Conf.: Sept. 20, Oct. 18, Nov. 15
Pediatric Grand Rounds: Sept. 21, Oct. 19
Department of Medicine Grand Rounds: Oct. 4, Nov. 1, Dec. 6

For details and to register for programs, visit lancastergeneralhealth.org/health-care-professionals/for-physicians/continuing-medical-education.