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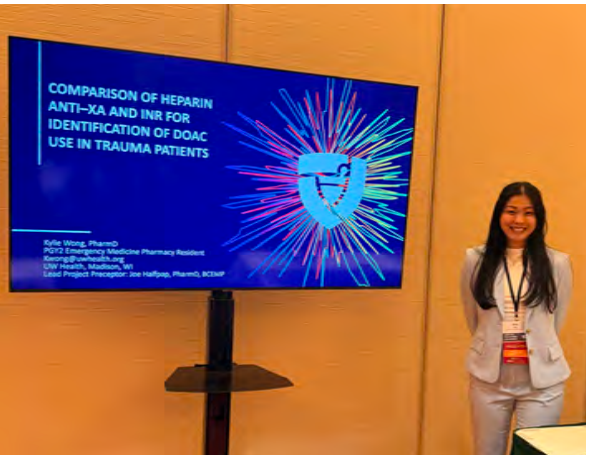
July/August 2026

The Journal

of the Pharmacy Society of Wisconsin

2026 PSW Educational Conference



July/August 2026

Continuing Education

5 *CE for Pharmacists & Technicians:* **Speaking the Patient's Language: Elevating Pharmacy Practice Through Language-Appropriate Care**

Features

3 *UpFront:* **On the Road with Wisconsin Pharmacy: Difference Makers in Action**

4 *Fact or Fallacy:* **Risk of Delirium with Benzodiazepines in Critically Ill Adult Patients**

18 *Precepting Series:* **Money Matters in Pharmacy Training: A Preceptor's Role in Shaping Financial Awareness**

20 *ID Corner:* **A Sore Subject: What's New in Streptococcal Pharyngitis Scoring and Diagnosis**

Review Articles

23 **Overcoming A Changing Cancer Landscape: Pharmacists' Opportunity to Promote Equitable Cancer Care**

29 **Empiric Antibiotics and Imaging: A Focused Analysis of Recommendations 1 and 2 of the 2025 ATS CAP Guidelines**

Meeting Recap

35 **2026 PSW Educational Conference**

Pharmacy Reflections

38 **Student Reflection: Roles, Pathways, and Insights from Industry Pharmacists**

The Journal
of the Pharmacy Society of Wisconsin

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Up Front: On the Road with Wisconsin Pharmacy: Difference Makers in Action

by Sarah Sorum, PharmD, CAE

One of the greatest privileges of serving as CEO of the Pharmacy Society of Wisconsin is the opportunity to visit pharmacy teams across our state and see firsthand the incredible work happening every day in communities large and small.

Over the past year, I have traveled to visit urban health systems, rural independent pharmacies, specialty pharmacy operations, and tribal health clinics, as well as ambulatory care practices and pharmacies supporting long-term care facilities. While every pharmacy is unique, a few themes emerged again and again: innovation, resilience, teamwork, and an unwavering commitment to patients.

Across Wisconsin, pharmacy professionals are expanding access to care in remarkable ways. I visited pharmacists embedded in care teams who provided care through collaborative practice agreements, helping patients manage chronic diseases and improving outcomes in ambulatory care settings. I met pharmacists helping patients navigate safer hospital discharges, oncology pharmacy teams coordinating life-saving treatments for rural patients who travel for hours for care, and long-term care pharmacy teams ensuring medications arrive on time no matter the weather.

In community pharmacies, I witnessed deeply personal care happening every day. Patients greeted by name. Medication deliveries made to homebound individuals. Compliance packaging designed to simplify complex regimens. Pharmacists and pharmacy technicians building trusted relationships that span generations.

These visits also reinforced how much pharmacy practice is transforming. Across the state, pharmacy teams are leveraging Wisconsin Medicaid provider status opportunities, expanding medical billing services, strengthening employer partnerships, and integrating into value-based care models. Many pharmacies are redesigning workflows, investing in technology, implementing technician final-product verification, adopting remote dispensing models, and creating private clinical care spaces that support patient-centered services.

At the same time, these visits highlighted the very real pressures facing pharmacy professionals and patients. Pharmacies continue to navigate reimbursement challenges, PBM pressures, workforce shortages, and growing pharmacy deserts that threaten access to care in rural and underserved communities. Yet even in the face of those challenges, Wisconsin

pharmacy professionals continue to innovate and lead.

One of the most inspiring aspects of these visits has been seeing how pharmacy teams invest not only in patient care, but also in their communities and in one another. I met teams mentoring future pharmacists and technicians through youth apprenticeships, residency programs, and experiential learning opportunities. I saw pharmacies hosting education events, supporting local nonprofits, partnering with employers, and creating welcoming spaces that reflect the communities they serve.

I was especially struck by the pride pharmacy professionals have in their work. Whether in a beautifully restored historic downtown pharmacy, a cutting-edge specialty operation serving patients nationwide, or a rural health system expanding clinical pharmacy services, the common thread was clear: Wisconsin pharmacy professionals care deeply about improving the health of their patients and communities.

These visits reminded me why PSW's mission matters.

PSW exists to support, connect, advocate for, and elevate pharmacy professionals across every practice setting. We are working to advance practice transformation, strengthen workforce development, advocate for sustainable payment and policy models, and ensure that pharmacists and pharmacy technicians can practice to the full extent of their education and training.

Most importantly, these visits reinforced something I already believed: some of the most important healthcare leadership in Wisconsin is happening inside pharmacies.

To every pharmacy professional who welcomed me into your practice, shared your story, and allowed me to see your work firsthand — thank you. Your commitment, creativity, compassion, and leadership are shaping the future of healthcare in Wisconsin.

You are difference makers.

Sarah Sorum is the Executive Vice President & CEO of the Pharmacy Society of Wisconsin.

Disclosure: This commentary has been prepared with the assistance of ChatGPT. The AI tool has been used to support content organization. Final content has been reviewed and revised for accuracy, relevance, and alignment with the PSW mission and values.

PSW PHARMACIES VISITED

Aurora Bay Area Medical Center, Marinette
Aspirus Health Wausau Hospital
Boscobel Pharmacy, Boscobel
Crivitz Pharmacy, Crivitz
Dreier Pharmacy, Shawano
Good Value Pharmacy, Racine
Good Value Pharmacy – Larsen Mayer, Kenosha
Hometown Pharmacy – College Ave, Appleton
Hometown Pharmacy – Northland Ave, Appleton
Hometown Pharmacy - Sawyer Street, Oshkosh
Lakeview Pharmacy, Racine
Lodi Hometown Pharmacy, Lodi
Lumicera, Madison
Mercyhealth, Janesville
Modern Apothecary, Kenosha
Morton LTC, Neenah
Mueller Drugs – The Drug Store, Jefferson
Neuhauser Pharmacy, Madison
Nicolet Pharmacy, Lakewood
Open Arms Free Clinic, Walworth County
Oneida Pharmacy, Oneida
Plover Hometown Pharmacy, Plover
Pulaski Pharmacy, Pulaski
Reedsburg Area Medical Center, Reedsburg
Smith Pharmacy, Little Chute
Streu's Pharmacy, Green Bay
ThedaCare - Encircle Health
ValuCare Center, Marinette
Verona Hometown Pharmacy, Verona
Walgreens Specialty Pharmacy, Wauwatosa
Wellcreek Pharmacy, Middleton
Winneconne Hometown Pharmacy, Winneconne

PHARMACIST & TECHNICIAN CE:

Speaking the Patient's Language: Elevating Pharmacy Practice Through Language-Appropriate Care

by Robert M. Mueller, PharmD, BCPS

CE FOR **PHARMACISTS & TECHNICIANS**

Learning Objectives

- Summarize how patient language needs impact healthcare outcomes and how these needs differ across various populations and settings.
- Define language equity in healthcare and recommended options for providing language-appropriate care.
- Discuss strategies for individuals to enhance the delivery of language-appropriate care in pharmacy practice.
- Discuss strategies for institutions to improve the provision of language-appropriate care in pharmacy practice.

Language is the most important tool in the pharmacist's toolbox. Without it, pharmacists cannot educate patients, provide recommendations, or answer patients' questions. Language is also vital for establishing trust, building rapport, and ensuring patient safety.[1] In fact, language is integral to each step of the Pharmacists' Patient Care Process (PPCP): *Collect, Assess, Plan, Implement,* and *Follow-up*: *Monitor and Evaluate* (Figure 1).[2] The importance of language is even more explicit in the inner ring of the PPCP since *Communicate, Collaborate*, and *Document* all necessitate language. However, language does not necessarily mean the "English language." Language must be "*person-centered,*" i.e., the language preferred by the patient, as the innermost circle of the PPCP implies. Language in healthcare must align with the patient's preferences, not those of the healthcare system. Yet, this is not always easy to achieve. Cost, access to language services, inadequate training, and a limited pool of qualified multilingual providers are significant challenges to providing language-appropriate care.

FIGURE 1. Pharmacists' Patient Care Process (PPCP)

Reprinted with permission from JCPP

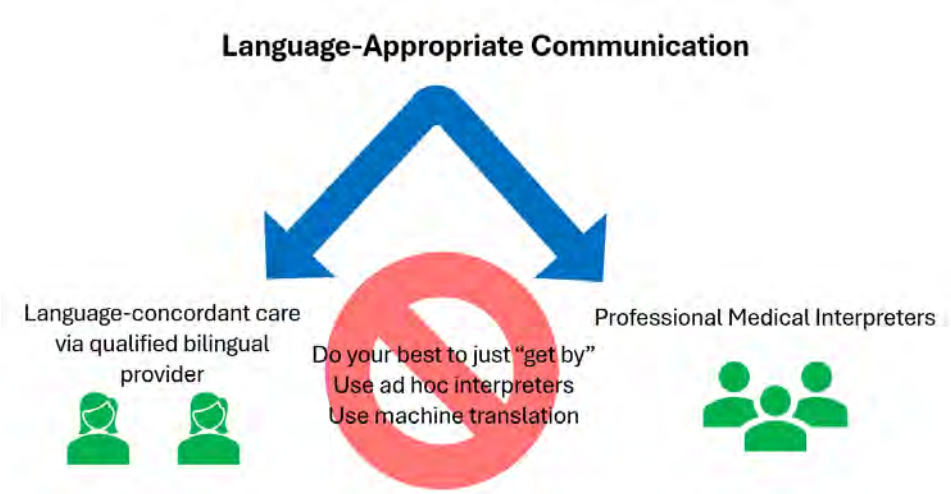
Language is not just a tool; however, it is also a driver of health. Social determinants of health, including language, can significantly impact health outcomes.[3] Patients with limited English proficiency (LEP) experience higher rates of medical errors and worse clinical outcomes than English-proficient patients, and receive lower-quality care by other metrics.[4,5] Published pharmacy-specific cases, including one involving a pediatric patient hospitalized from iron intoxication and another case involving an infant admitted for a barbiturate overdose, have highlighted the dangers of providing patient care only in English despite the patients' (or, in these cases, their parents') non-English language preferences.[6,7] Several studies have demonstrated that when the patient and the provider speak the same language (language concordance), health outcomes are better.[4,8,9] As healthcare providers who rely on verbal communication, pharmacists need to be able to provide care in a manner that is linguistically appropriate. And this need is growing.

According to recent census data, approximately one in five people in the United States—an estimated 67.5 million individuals—speak a language other than English at home, and over 27 million people have LEP.[10,11] Of this population, more than 41 million speak Spanish, representing 61.6% of those who use a non-English language at home.[10] Use of the Spanish language is largely impacted by the growing Hispanic population in the United States. According to population estimates, the Hispanic population of the United States in 2023 was 65.2 million, representing 19.5% of the total U.S. population and making this group the largest ethnic minority in the United States.[12,13] With an estimated 60 million total Spanish speakers (native, heritage, and second-language learners), the United States is the 2nd-largest Spanish-speaking country in the world.[14] Demographic trends further highlight the

importance of language skills in the future, as most individuals who speak non-English languages at home are native-born or naturalized citizens, and many are less than 40 years old.[10]

Given the importance of language and its impact on health outcomes, along with trends in U.S. demographics, all pharmacists should be equipped with the knowledge and skills needed to care for linguistically diverse populations. The goal of this article is to define language equity in healthcare, describe approaches to language-appropriate communication, and summarize individual and institutional recommendations for providing language-appropriate care.

FIGURE 2. Approaches to Language-Appropriate Communication



Language Equity

Language equity in health care refers to the principle that every person has a fair opportunity to benefit from language-appropriate communication to achieve their best health.[15] Language-appropriate care involves providing respectful, understandable, and effective patient care tailored to the patient's preferred language and cultural needs.

Language needs within individuals are complex and can change over time. Patient language needs may be impacted by several factors, including health literacy, cultural backgrounds, clinical urgency and complexity, and demographic variables such as age and education level. The specific language task(s) required: speaking, reading, writing, or listening, fundamentally affect the patient's language needs. In one context, a patient's speaking ability may be sufficient to complete a task (e.g., picking up a refill from the pharmacy), but inadequate in other contexts (e.g., asking detailed questions to a pharmacist about administration of a new prescription for a subcutaneous injection). Furthermore, one's ability to speak, read, write, and listen is not necessarily linked. One can have excellent proficiency in one skill but lack in another. Communication skills are often collaborative rather than individual, so language needs can also depend on additional communication nuances, such as accents, dialects, and the use of jargon or slang. Language needs are also not static. Language proficiency can increase with training and practice or decrease over time.

The two main methods for providing language-appropriate care are: language-concordant care (patient care provided by a clinician who shares the patient's preferred language) through qualified bilingual providers or professional medical interpreters.[16] Each of these approaches will be described below.

Qualified Bilingual Provider

A qualified bilingual provider has a high level of proficiency in the patient's preferred language, has been trained in the use of that language for medical purposes, and meets their institution's qualifications for providing language-concordant care. A qualified bilingual provider does not use limited language skills to "get by". In fact, the attitude of "something is better than nothing" about speaking a patient's preferred language may turn out to be false and, in fact, dangerous. The medical literature suggests that, despite their desire to improve patient care, medical students and residents with limited Spanish proficiency are prone to using their inadequate Spanish language skills when providing care.[17,18] The result can be detrimental by increasing the risk for misunderstandings, medical errors, and decreased patient and family satisfaction. Conversely, language concordance through a qualified bilingual provider results in improved healthcare quality and outcomes, including better patient satisfaction with care, medication adherence, patient understanding of diagnoses and treatment, patient functioning for those with diabetes, lower healthcare costs, and fewer emergency department visits.[8] However, with > 350 languages spoken in the United States, language-concordant care is not always possible or feasible.[19] While language-concordant care is superior in terms of clinical outcomes, when it cannot be provided, the appropriate use of professional medical interpreters is essential.

Professional Medical Interpreters

The second method for providing language-appropriate care to patients with a non-English language preference is through the use of professional medical interpreters. While it is a closely related concept, translation refers to converting written text into another language, whereas interpretation involves rendering spoken communication into another language. Although these are distinct processes, some translation software now includes audio features that allow it to be used for interpretation. However, despite their ubiquity and ease of use, the accuracy and validity of translation programs have not been rigorously studied. Consequently, they are not an appropriate alternative to a professional medical interpreter. One study highlighted that at one large chain pharmacy, the computer system could not translate commonly used terms such as "dropper full" or "for 30 days."[20] Another study conducted in 2021 showed that Google Translate, an online machine translation tool, was only 80% accurate in the translation of medical phrases.[21] While this is significantly better than the 57.7% accuracy Google Translate demonstrated in 2014, this and related technologies have not

yet proven themselves to be reliable enough for use in clinical practice.[22]

Aside from translation programs, other potential alternatives to professional medical interpreters should also be avoided, namely the use of ad hoc interpreters (e.g., untrained staff, children, family, or friends who are not qualified medical interpreters). The use of ad hoc interpreters is widely discouraged due to ethical, legal, and accuracy concerns.[23–28] Specifically, untrained staff should not be used as an alternative to professional medical interpreters, because proficiency in a language is not necessarily sufficient to ensure the appropriate use of that language in a medical context, nor is it sufficient to ensure proper interpretation, because the ability to interpret is a distinct skill from the ability to speak a language at home or in a class.[24,29] A professional interpreter is trained in the principles and standards of interpretation, must follow a strict code of ethics, and facilitates clear communication between clinicians and patients who speak different languages.[25] Additionally, bilingual staff are often not hired, trained, or compensated to interpret. Likewise, children, family members, and friends should not serve as ad hoc interpreters for patients, as this can lead to errors, confidentiality and privacy risks, and other ethical concerns, especially related to discussions on sensitive issues such as domestic violence, substance abuse, and sexually transmitted diseases.[23,26,30,31] However, even when a professional interpreter is available, some patients may still prefer to use an informal interpreter for many reasons.[32] Patients may perceive a stigma associated with interpreter use, have concerns about incurring an additional fee related to interpreter use, or view interpreters as a potential threat to confidentiality.[33] Finally, even though bilingual students are often asked to serve as medical interpreters to assist during clinical encounters with non-English speaking patients, this practice should be discouraged.[34] Requiring students to simultaneously develop their clinical skills while also interpreting for someone else disrupts their primary learning role. Also, given their medical knowledge, students may be more likely to commit common interpreting errors, such as opinion insertion and editorialization, which can potentially lead to miscommunication.[29] Furthermore, as mentioned previously, the skills required to interpret are different than speaking the language oneself, and students should not be expected to possess these skills automatically without proper training.[35]

Legal Underpinnings

Several key pieces of legislation further support the importance of language-appropriate care. On a national level, the Civil Rights Act, the Patient Protection and Affordable Care Act (ACA), and the Centers for Medicare & Medicaid Services (CMS) guidelines form the foundation of the legal framework. Patients' rights to language-appropriate care in the United States stem from Title VI of the Civil Rights Act of 1964, which prohibits programs and activities receiving federal financial assistance (including most hospitals, clinics, and pharmacies) from discriminating based on race, color, or national origin, which has been extrapolated to include primary language by the US Office of Civil Rights and Department of Health and Human Services.[36,37] Federal protections related to language access were later expanded through the nondiscrimination provisions of the ACA.[30] These provisions require covered entities to provide meaningful access to language assistance services, including qualified interpreters. Although interpreters are not always required to hold formal certification, the services they provide must be free of charge, accurate, and timely, while safeguarding the privacy and autonomy of individuals with LEP. In particular, Section 1557 of the ACA prohibits requiring or suggesting that patients bring their own interpreter, using children as interpreters (except in emergencies involving an imminent threat to safety when no qualified interpreter is available), or relying on staff members who are not qualified to provide bilingual or multilingual interpretation.

Additionally, CMS guidelines also require healthcare providers, including pharmacies, to offer language assistance to patients with LEP. At the state level, Wisconsin has laws specific to language access.[38] For example, Wisconsin Administrative Code DHS §102 01(4)(d) states, "For individuals who are limited English proficient, the agency must provide language services including oral interpretations and written translations at no cost to the individual."[39] It is also worth noting that, as a matter of procedure, executive orders cannot overrule statutes already in place.

Current State of Pharmacy Practice

Despite the ethical and clinical advantages, and the legal requirements, to provide language access services, there are notable gaps among health care organizations and the pharmacy profession in their ability to provide language-concordant care and to appropriately use language access services, such as professional medical interpreters.

To begin with, there is a lack of detailed information on pharmacists' language abilities, especially those objectively verified by validated assessments rather than subjective self-reporting. Yet, it is apparent that the pool of qualified bilingual pharmacists is inadequate to meet the country's needs. Regarding pharmacists' ability to provide language-concordant care in Spanish, one survey of North Carolina pharmacists revealed 95% of respondents reported "not knowing any Spanish" or "knowing a few words of Spanish."[40] The pharmacists circumvented the language discordance by doing the following: communicating nonverbally (66%), writing directions in Spanish (30.5%), referring the patient to a Spanish-speaking employee (16.7%), and attempting to communicate in Spanish (11.1%).[40] In another survey, 88.4% of pharmacists were "not able to speak Spanish" or spoke only a "few common phrases"[41], yet 61.7% of respondents claimed they recently counseled a Spanish-speaking patient.[41] Beyond the Spanish language, one study from Washington revealed that only 7.84% of pharmacists surveyed indicated that they were fluent in a language besides English.[42] Another study from New York City revealed 12% of pharmacists surveyed reported that they could translate prescription labels into Chinese, and 9.5% could translate labels into another language.[43]

One study conducted in Milwaukee and published in 2007 surveyed 175 local pharmacies and examined their ability to provide non-English-language prescription labels, information packets, and verbal communication to patients with LEP.[20]

The study revealed that 47% of pharmacies reported that they never or only sometimes used a prescription label in a non-English language for patients with LEP. When these non-English language prescription labels were provided, a computer program was most commonly used (88%). Over half (53.9%) of the pharmacies surveyed never or only sometimes provided information packets to patients with LEP in languages other than English. About two-thirds of the pharmacies surveyed never or only sometimes communicated verbally with LEP patients in non-English languages, and among those that did, approximately two-thirds used bilingual staff (the study did not specify whether these staff were trained or certified in any way). Also, 1 in 9 of the pharmacies that verbally communicated with patients in non-English languages used the patients' family or friends to interpret.

If a pharmacy is unable to provide the gold standard of language-concordant care through a qualified bilingual provider, then language-appropriate care should be provided by a professional medical interpreter. Yet a significant gap exists here as well. One study reported the results of a 2009 survey of community pharmacies and found that 39.8% of pharmacies across the United States never used interpreters.[44] The study also looked at some of the perceived barriers to language access services and found that pharmacists sometimes did not use them because they were unavailable (27%), took too much time (25.1%), or were concerned about legal issues that could arise (17.5%). Most often, though, they did not use them because there were concerns about inaccuracies (52.1%). More than 80% of all pharmacies included in the study lacked systematic approaches to identify and document patients' linguistic needs or to inform patients about language services (e.g., language preferences recorded in electronic records, multilingual signage alerting customers to available services).[45] Hospitals appear to have similar challenges. A 2016 survey by the American Hospital Association indicated that only 56% of hospitals offered linguistic or translation services.[46]

The consequences for these gaps in care can be significant. Failure to notify patients of language access service availability and use language-appropriate communication may result in preventable medication errors and/or lawsuits.[44,47] For example, one case described a pharmacist who tried to explain to the monolingual Spanish-speaking parents of a 10-month-old girl how to administer an iron supplement, while showing them the dropper and vial. The pharmacist did not speak Spanish, and an interpreter was not used. Although the parents nodded in affirmation after the directions were given, they administered a tablespoon of iron to the infant instead of using the dropper. This resulted in a 12.5-fold overdose that necessitated hospitalization.[44]

FIGURE 3. INDIVIDUAL RECOMMENDATIONS FOR PROVIDING LANGUAGE-APPROPRIATE CARE

1. Use appropriate terms relating to language
2. Capture patient language preference
3. Determine your language proficiency and obtain a valid assessment of language skills
4. Use language skills appropriately
5. Utilize language resources

FIGURE 3. INSTITUTIONAL RECOMMENDATIONS FOR PROVIDING LANGUA4E-APPROPRIATE CARE

1. Hire bilingual staff
2. Provide access to language training
3. Increase availability of professional medical interpreters
4. Provide translated materials, including prescription labels and medication information
5. Offer formal language proficiency testing
6. Create a language-appropriate care policy for the pharmacy, emphasizing that a language-concordant clinician is not equivalent to being certified or trained as a medical interpreter

Recommendations

To develop a workforce linguistically equipped to care for patients with a non-English language preference, especially Spanish-speaking patients, action must be taken at several levels: the individual level, the institutional level, the research level, and the pharmacy education level. To begin, there are several recommendations individuals (Figure 3) and institutions (Figure 4) can implement right now to promote language equity in healthcare.

Individual

First, pharmacy personnel should use appropriate terms that better reflect reality. Instead of stating that a patient has a "language barrier," pharmacy personnel should be encouraged to say that the patient experiences "language discordance" (the patient and clinician do not share the same preferred language). A patient who speaks a non-English language does not have or cause a barrier to receiving care, nor is language itself the barrier. Insufficient language access services create a barrier; improving access to quality, language-appropriate care is the solution. Yet, to identify why some patients have disparate outcomes depending on the language they speak, we need to do more than simply collect patients' language preferences consistently and accurately, although this is a necessary step.[48] Using the term "language discordance" instead of "language barrier" more accurately and neutrally describes differences in language between patients and providers without implying an inherent obstacle located in the patient, thereby better supporting a person-centered approach to communication in healthcare.

Another needed change in terminology relates to the term limited English proficiency (LEP). The Federal Interagency Working Group on LEP had previously proposed a definition of LEP as "Individuals who do not speak English as their primary

language and who have limited ability to read, speak, write, or understand English can be limited English proficient, or 'LEP.' These individuals may be entitled to language assistance with respect to a particular type of service, benefit, or encounter."[16] Despite its widely accepted use (and prior use in this article), this term should be replaced with non-English language preference (NELP).[49] The idea of LEP oversimplifies the complexity of language needs as it implies a dichotomy of patient language abilities as either proficient or limited.[48] As discussed previously, language needs can vary greatly within individuals and can change over time. The idea of what constitutes a "limited ability" is ambiguous and focuses on language as a deficit, rather than an asset. Therefore, the term LEP should be replaced with NELP, which emphasizes a person-centered approach and meets patients where they are, rather than reflecting an attitude of appraisal or labeling their proficiency.[16] A patient's language preference can be further described by specifying preferences for verbal communication (speaking and listening) and literacy practices (reading and writing). Using "NELP" in place of "LEP" offers a more accurate and clinically meaningful description of patients encountered in healthcare settings.

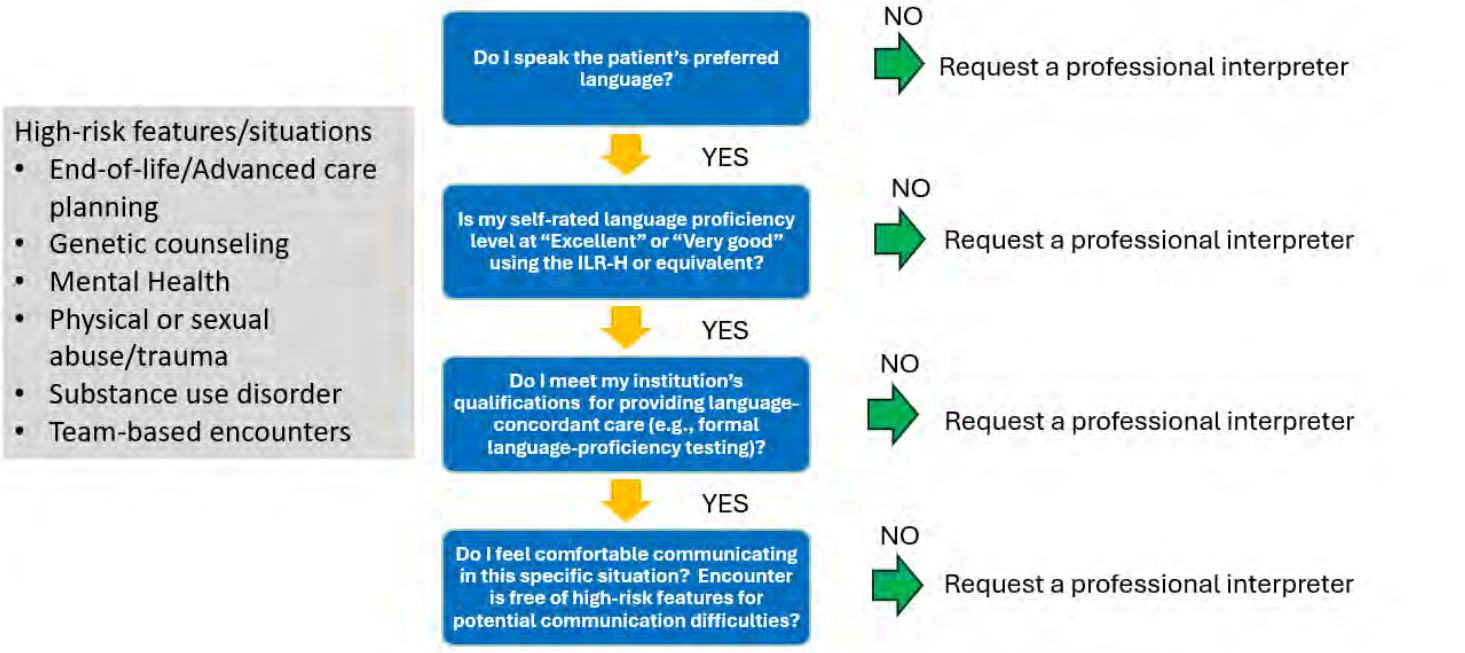
Second, pharmacy personnel should routinely capture each patient's language preference. How that is done is also important. Simply asking the patient, "Do you speak English?" is insufficient because language proficiency varies by context, and patients may need language support for complex healthcare tasks despite some English proficiency. The questions, "What languages do you speak?" and "What languages can you read?," can be used to document a patient's language abilities, but to capture preferred language for care and communication during a specific encounter, a question such as "In what language would you prefer to receive your care today?" is more appropriate. This question acknowledges that language needs can change and allows the patient to specify the language they prefer for that clinical context.

Third, pharmacy personnel should be encouraged to assess their own proficiency in non-English languages.[50] A one-question self-assessment survey using the ILR-H can be done as an initial step.[51] Research shows that if someone self-assesses as "Very Good" or "Excellent" in the ILR-H, then it is very likely that they would pass a formal certification exam.[52] Therefore, if someone has advanced language skills, a formal language assessment such as a certification through the Clinician Cultural and Linguistic Assessment (CCLA) or other validated examinations could serve as helpful, objective evidence of one's language skills.

Fourth, pharmacy personnel should use their language skills appropriately. Pharmacy workers with even novice or beginner-level language skills can use their non-English language skills for greetings, pleasantries, and building rapport with patients. However, one must be sensitive to cultural differences and not rely on inadequate language skills to provide patient care. To provide patient care in the patient's preferred language, rely instead on language-concordant care from a qualified provider or use a professional medical interpreter (Figure 5).

Fifth, pharmacy personnel should utilize available resources (Figure 6). There are several resources available for collaborating with interpreters, medication information in non-English languages, practical tips for accessible content and multilingual websites, and translation technology. Collectively, these tools can support accurate communication, enhance patient understanding and adherence, and

FIGURE 5. Flowchart for Determining Need for Interpreter



Adapted from the Accreditation Council for Graduate Medical Education. *Part 2: Physician Language Assessment*. 2024. No longer available.

promote equitable, patient-centered care for individuals with diverse language needs.

Institutional

At the institutional level, the National Culturally and Linguistically Appropriate Services (CLAS) standards provide guidelines for implementing linguistically appropriate services in health care.[53] These standards promote recruiting, promoting, equipping, and supporting a workforce that responds to the cultural and language needs of the population. Organizations should comply with these standards and ensure the competence of individuals providing language assistance. Organizations could also consider providing access to language training and continuing education classes, especially Medical Spanish, for pharmacy team members.[20] Training options and incentives should focus on providing language-concordant care and working with interpreters, not serving as interpreters.[54] Employers should also reassess language skills periodically, as language skills are subject to change over time. Organizations can support formal language proficiency testing for employees who self-rate as "Very good" or "Excellent" on ILR-H. Additionally, organizations should provide translated materials, including prescription labels, medication information, and increase the availability of professional medical interpreters. Finally, organizations can create a language-appropriate care policy for their pharmacy. Having an explicit policy can help standardize how language access services are provided in a consistent, safe, and legally compliant manner. This policy should emphasize that a language-concordant clinician is not equivalent to being certified or trained as a medical interpreter. The policy could also address the use of multilingual signage, qualifications for an interpreter, when/how to use an interpreter, how to ask and document the patient's language preference, which translation tools are approved, and assessment of translated materials. While more research is needed, a language-appropriate care policy that addresses these factors would likely promote better clinical outcomes and adherence, improve legal and regulatory compliance, increase efficiency and workflow consistency, and enhance the patient experience and trust.

Institutions should recognize that there may be additional financial costs to providing language-appropriate care.[33] Hiring, training, and incentivizing bilingual staff, expanding access to professional medical interpreters, and increasing patient-counseling time may result in additional upfront financial costs. Yet institutions should not be penalized for meeting the standards set by the Civil Rights Act and the Affordable Care Act. There should also be increased funding to support organizations' efforts to comply with these laws because, ultimately, language-appropriate care is cost-effective care.[55,56]

Research and Pharmacy Education

Beyond individual and institutional recommendations, there are needs related to research and pharmacy education. Additional studies are needed to describe pharmacists' and patients' language abilities and preferences. More research is needed regarding the effectiveness of various interpreter modalities and language-appropriate care policies. Prospective studies are needed to describe the development and implementation of language-appropriate care initiatives and measure their impact.[48] There is a growing need to analyze and evaluate the quality and accuracy of translated materials, such as prescription labels, and the use of translation software and artificial intelligence for translation and interpretation.[20] Research that engages the patients' perspectives, including their confidence, satisfaction, and understanding, is also needed.

There must also be more training in pharmacy education so the next generation of pharmacists is better prepared to meet the language needs of diverse populations.[57] Pharmacy programs will need to raise the bar, expand, and integrate non-English language courses and experiences into the curriculum, and provide opportunities for students to maintain and improve their language skills (especially Spanish) and to collaborate with professional interpreters.[58] Pharmacy education focused on the use of non-English languages should prioritize key content areas, such as prescription instruction translation, oral communication skills (e.g., patient education and counseling services for prescription and over-the-counter products, pharmacy device instruction, and vaccine administration), and other areas. Furthermore, pharmacy education should encourage the use of evidence-based practices in language acquisition and professional use.

FIGURE 6. RESOURCES FOR LANGUAGE-APPROPRIATE CARE

- Webinars on Translation and Multilingual Websites:
  - » Designing for Translation
  - » Practical Tips for Accessible Content and Multilingual Websites
- Articles and Documents on Interpretation, Translation, and Culturally and Linguistically Appropriate Services:
  - » Introduction to translation technology. Digital.gov. May 11, 2023. Accessed March 23, 2026. https://digital.gov/resources/introduction-to-translation-technology
  - » Hadziabdic E, Hjelm K. Working with interpreters: practical advice for use of an interpreter in healthcare. International Journal of Evidence-Based Healthcare. 2013;11(1):69-76. doi:10.1111/1744-1609.12005
  - » Kasten MJ, Berman AC, Ebright AB, Mitchell JD, Quirindongo-Cedeno O. Interpreters in Health Care: A Concise Review for Clinicians. The American Journal of Medicine. 2020;133(4):424-428.e2. doi:10.1016/j.amjmed.2019.12.008
  - » Juckett G, Unger K. Appropriate use of medical interpreters. Am Fam Physician. 2014;90(7):476-480.
  - » Resource Library. Think Cultural Health. Accessed March 23, 2026. https://thinkculturalhealth.hhs.gov/
- Poster:
  - » I speak https://www.dhs.wisconsin.gov/publications/p0/p00417.pdf
- Websites for Medication Information in Non-English Languages:
  - » Medline Plus https://medlineplus.gov/spanish/gov/spanish/
  - » UpToDate Lexidrug https://store.wolterskluwercdi.com/CDI
  - » Micromedex https://www.micromedexsolutions.com/micromedex2/librarian/
  - » Clinical pharmacology https://www.clinicalkey.com/pharmacology/login

Conclusion

Language equity is a fundamental component of safe, patient-centered healthcare and is essential for improving outcomes among linguistically diverse populations. Language-appropriate care can be achieved through two primary approaches: language-concordant care with a qualified bilingual provider or the use of a professional medical interpreter. Despite the growing linguistic diversity of the United States, important gaps remain in pharmacy practice, including an inadequate supply of pharmacists with advanced proficiency in non-English languages and inconsistent access and use of interpretation services to care for patients with a non-English language preference. Addressing these gaps will require coordinated efforts from individual pharmacists and pharmacy organizations to expand training, strengthen policies, and ensure consistent access to language-appropriate care.

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Assessment Questions

1. Which of the following best describes an accurate and equitable understanding of patient language needs in healthcare?
   a. Patients should be categorized by their native language to ensure care is provided in the appropriate language.
   b. Patient language needs are best identified through formal language proficiency testing.
   c. A patient's language needs can change over time and be context-dependent, and should be addressed frequently.
   d. Patients who state that they understand English should not be considered in need of language support services to promote language equality.
2. Which of the following factors can influence a patient's language needs in a pharmacy setting? Select all that apply.
   a. The type of language skill required (e.g., reading, writing, listening, or speaking)
   b. The complexity of the task (e.g., dropping off a prescription vs. asking the pharmacist a clinical question)
   c. The convenience or cost to the pharmacy
   d. How common or rare the patient's language is
3. Language equity in healthcare is based on which of the following principles?
   a. All patients should be treated equally in English.
   b. All patients should receive care according to the language preferences and abilities of their healthcare team.
   c. All patients should receive language-concordant care for all their healthcare interactions.
   d. All patients should have a fair opportunity to receive language-appropriate care.
4. Which of the following is the best strategy for a pharmacy professional interested in providing language-appropriate care?
   a. Utilize a professional medical interpreter to care for patients with a non-English language preference.
   b. Ask all patients with a non-English language preference (NELP) to bring a family member to serve as an interpreter.
   c. Use any non-English language skills available to you to provide the best patient care possible in the patient's preferred language.
   d. Use online translation programs to translate prescription label instructions and patient education materials into the patient's preferred language.
5. Which of the following strategies correctly describes how an institution could help promote language equity in pharmacy practice?
   a. Utilize PubMed for identifying scholarly journal articles to share with patients about how patients can best work with interpreters
   b. Display an "I speak" poster at the pharmacy for patients to communicate which language(s) they speak
   c. Utilize an Artificial Intelligence (AI) website for pharmacy personnel to provide translated patient education materials in the patient's preferred language

d. Provide patient education materials from the Clinical Pharmacology database as a consistent source of patient education materials, regardless of the patient's preferred language

6. Match the following term to its definition or description: Interpretation
   a. The patient receives care that is respectful, understandable, and effective according to the patient's preferred language and cultural needs
   b. The healthcare worker does not have proficiency in the patient's preferred language
   c. Converting written text from the source language to the target language
   d. The healthcare worker is proficient in the patient's preferred language
   e. Rendering the spoken word from the source language to the target language

7. Match the following term to its definition or description: Translation
   a. The patient receives care that is respectful, understandable, and effective according to the patient's preferred language and cultural needs
   b. The healthcare worker does not have proficiency in the patient's preferred language
   c. Converting written text from the source language to the target language
   d. The healthcare worker is proficient in the patient's preferred language
   e. Rendering the spoken word from the source language to the target language

8. Match the following term to its definition or description: Language concordance
   a. The patient receives care that is respectful, understandable, and effective according to the patient's preferred language and cultural needs
   b. The healthcare worker does not have proficiency in the patient's preferred language
   c. Converting written text from the source language to the target language
   d. The healthcare worker is proficient in the patient's preferred language
   e. Rendering the spoken word from the source language to the target language

9. Match the following term to its definition or description: Language-appropriate care
   a. The patient receives care that is respectful, understandable, and effective according to the patient's preferred language and cultural needs
   b. The healthcare worker does not have proficiency in the patient's preferred language
   c. Converting written text from the source language to the target language
   d. The healthcare worker is proficient in the patient's preferred language
   e. Rendering the spoken word from the source language to the target language

10. Match the following term to its definition or description: Language discordance
    a. The patient receives care that is respectful, understandable, and effective according to the patient's preferred language and cultural needs
    b. The healthcare worker does not have proficiency in the patient's preferred language
    c. Converting written text from the source language to the target language
    d. The healthcare worker is proficient in the patient's preferred language
    e. Rendering the spoken word from the source language to the target language

11. Which of the following is the recommended term to replace Limited English Proficiency (LEP)?
    a. Speaker of foreign language (SFL)
    b. Limited English fluency (LEF)
    c. Non-English language preference (NELP)
    d. Foreign language preference (FLP)

12. If your proficiency in a non-English language is insufficient for a particular clinical encounter, which of the following situations might still be appropriate to conduct without a professional interpreter?
    a. Asking demographic information
    b. Providing medication recommendations
    c. Responding to patient questions
    d. Stating greetings and pleasantries

13. A language-appropriate care policy for an institution could address which of the following? Select all that apply.
    a. Appropriate use of interpreters
    b. Assessment process of translated patient education materials
    c. Definition of a qualified bilingual pharmacist
    d. Description of how to use untrained bilingual technicians as interpreters

14. Which of the following would be a recommended option to provide language-appropriate care to a patient with a non-English language preference?
    a. Make a reasonable attempt to provide patient care in the patient's preferred language to the best of your ability
    b. Use one of the patient's family members who is proficient in English to interpret
    c. Request that an untrained pharmacy technician, who is a native speaker in the patient's preferred language, interpret for the patient
    d. Utilize a professional medical interpreter

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FACT or FALLACY

Risk of Delirium with Benzodiazepines in Critically Ill Adult Patients

by Meagan Macalalag, PharmD, Jeffrey Fish, PharmD, BCCCP, FCCM

QUESTION **What is the risk of delirium with benzodiazepines in critically ill adult patients?**

Delirium is an acute neurocognitive state characterized by fluctuating disturbances in attention, awareness, and cognition that has been commonly described among critically ill adult patients.[1] Patients can develop hypoactive or hyperactive delirium, which are distinguished by the absence or presence of agitation, respectively.[2] In the intensive care unit (ICU), delirium is often detected using validated screening tools such as the Confusion Assessment Method for the ICU (CAM-ICU) or the Intensive Care Delirium Screening Checklist (ICDSC).[3-5] However, the incidence of delirium in the ICU varies significantly but has been reported in up to 80% of patients.[6,7] Delirium in critically ill adult patients has been shown to have serious implications, including increased hospital length of stay and cognitive impairment following ICU discharge.[8-10]

Given the growing concern in this population and the lack of understanding of its etiology, earlier studies sought to identify risk factors to guide the challenging management of ICU delirium.[6,11] Patients with dementia, advanced age, depression, comorbidity, or alcohol use disorder may be predisposed to developing delirium during their ICU admission.[12] Aside from these baseline risk factors, there are also acute triggers during hospitalization and critical illness that make patients vulnerable to delirium, including sepsis or septic shock, mechanical ventilation, metabolic disturbances, deep sedation, physical restraints, and excessive environmental stimuli.[12-14] Studies have suggested that medications commonly used in the ICU for analgesia and sedation may also be potential contributors to delirium.[11,15] Specifically, benzodiazepine exposure has long been understood as a modifiable risk factor for the development of delirium in critically ill adult patients.[16,17] This association stemmed from the findings of a 2006 prospective cohort study by Pandharipande et al., which identified lorazepam administration as a potential risk factor for delirium in the ICU.[16] The probability of developing delirium with the use of lorazepam was notably high even at low doses and exponentially increased as the cumulative daily dose of lorazepam increased, eventually plateauing around 20 mg/day. Lorazepam was administered as a continuous infusion and titrated to achieve a Richmond Agitation-Sedation Scale (RASS) level pre-determined by the clinical team, leading to variations in the depth of sedation. Administration of morphine, fentanyl, propofol, and midazolam was also included. However, no conclusions could be drawn regarding the use of midazolam due to its small sample size. In addition to lorazepam, age and severity of illness, as defined by the Acute Physiology and Chronic Health Evaluation II (APACHE II) scores, were also identified as potential risk factors. Although there was found to be no correlation between the delirious effects of lorazepam and age, the study failed to assess whether there was a correlation between lorazepam and the severity of illness. It is also unclear whether patients receiving lorazepam generally had a higher underlying severity of illness. Despite adjusting for multiple confounding factors, it is difficult to establish a definitive association between benzodiazepines and delirium in critically ill adult patients based solely on this study.[16]

More recent evidence continues to suggest a link between benzodiazepines and an increased risk of delirium. Although the pathophysiology of delirium remains unclear due to its complex, multifactorial nature, neurotransmitter imbalances have been proposed as a pathway.[2,12,18] Exposure to benzodiazepines will lead to the overactivation of gamma-aminobutyric acid (GABA). Enhancing GABA's inhibitory effects may also reduce acetylcholine release. These pathways can produce profound sedation and impair arousal, attention, and cognition. This has led to recommendations for non-benzodiazepine sedatives over benzodiazepines in the 2013 Pain, Agitation, and Delirium (PAD) Guidelines and the 2018 Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption (PADIS) Guidelines, which, in turn, have led to overall minimization of its use in the ICU.[10,17,19] However,

benzodiazepines are administered in the ICU for indications other than sedation, including anxiolysis, alcohol withdrawal management, and seizure management. Of note, the 2025 Focused Update to the 2018 PADIS Guidelines introduced anxiety as a new main content area pertaining to adult patients admitted to the ICU.[20] Unfortunately, it made no recommendation regarding benzodiazepine administration for the treatment of anxiety due to insufficient evidence.[20] However, the use of benzodiazepines may remain appropriate and even necessary in certain clinical contexts.

Literature Review and Evidence Summary

Current evidence has largely been observational studies, but there are a few randomized controlled trials (RCTs) that have contributed to the controversy that benzodiazepines increase the risk of delirium. Lorazepam was preferred for sedation in most mechanically ventilated patients prior to the PAD Guidelines recommendation shifting to propofol and dexmedetomidine.[17,21] The 2007 MENDS RCT evaluated the duration of delirium with dexmedetomidine compared with lorazepam in mechanically ventilated patients.[22] Lorazepam was administered as a continuous infusion at a starting rate of 1 mg/hour, titrated to a maximum of 10 mg/hour to achieve a RASS level set by the clinical team. Lorazepam was only administered for a maximum duration of 120 hours, beyond which patients were transitioned to a different sedative if ongoing sedation was warranted. Bolus dosing of either medication was not permitted to maintain study blinding. Although exclusion of boluses optimized patient safety in the dexmedetomidine group, it could have led to oversedation in the lorazepam group. Delirium was assessed for up to 12 days or until hospital discharge, whichever came first, and was defined as a RASS of -3 or greater and a positive CAM-ICU. Of the 103 mechanically ventilated patients, 51 received lorazepam. The prevalence of delirium among these patients was 82% vs 79% with dexmedetomidine (p = 0.65), which also accounts for patients who may have developed delirium prior to the assessment period. Patients receiving lorazepam notably spent significantly more days at a deeper level of sedation than their target RASS (33 days, IQR 11-48 vs 15 days, IQR 0-33; p = 0.01). Spontaneous awakening trials (SAT) and spontaneous breathing trials (SBT) were performed at the discretion of the clinical team.[22] Discretionary SAT and SBT practices can affect cumulative sedative exposure, leading to varying degrees of sedation depth and duration. Variability in this practice can also interfere with delirium assessments and introduce detection bias.

The 2008 ABC RCT sought to determine whether the implementation of daily SATs with routine SBTs would improve patient outcomes in mechanically ventilated patients.[23] Delirium was defined similarly to the MENDS trial: RASS of -3 or greater and a positive CAM-ICU.[22,23] Among 167 patients in the intervention group (routine SATs plus SBTs), 124 patients experienced delirium (74% vs 71%; p = 0.66) and 120 patients received a benzodiazepine (72% vs 66%; p = 0.25). The incidence and duration of delirium did not differ between those in the intervention group and those who had standard of care, including SBTs, despite patients in the intervention group receiving significantly lower cumulative doses expressed in lorazepam equivalents (20 mg, IQR 5-93 vs 39 mg, IQR 8-213; p = 0.02). These findings challenge the assumption that there is a causal relationship between benzodiazepines and delirium. This study highlights that reducing benzodiazepine exposure does not necessarily decrease the incidence of delirium, suggesting that there may be more we do not yet understand.[23]

The 2009 SEDCOM RCT, funded by a manufacturer of dexmedetomidine, compared the efficacy and safety of prolonged sedation with dexmedetomidine versus midazolam in mechanically ventilated patients.[24] Among 366 mechanically ventilated patients, 122 patients received midazolam at a starting maintenance infusion dose of 0.06 mg/kg/hour, which was titrated to achieve a sedation level within a RASS range of -2 to +1. Delirium, defined as a positive CAM-ICU, was assessed only when the patient's RASS was within the target range. The prevalence of delirium was significantly higher in the midazolam group (76.6% vs 54%; p < 0.001), even among patients with a negative CAM-ICU at baseline (55% vs 32.9%; p = 0.03). Targeting the same depth of sedation across groups and during delirium assessments may minimize confounding from deeper sedation. It is also important to note that, unlike the MENDS and ABC trials, delirium was not assessed beyond the treatment period.[22-24] In addition to a higher prevalence of delirium, the midazolam group also had a higher incidence of infection during the treatment period (19.7% vs 10.2%; p = 0.02). Of the patients who received dexmedetomidine, 79.9% of them were sedated with benzodiazepines prior to the initiation of dexmedetomidine, and 63% of them were administered open-label midazolam bolus doses to achieve adequate sedation. This may obscure the association between benzodiazepines and an increased risk of delirium.[24]

The 2012 MIDEX RCT, which compared midazolam and dexmedetomidine in maintaining light to moderate sedation, is one of the largest RCTs comparing a benzodiazepine with an alternative sedative.[25] This trial included 500 patients, with 251 patients randomized to receive midazolam as a continuous infusion at doses between 0.03-0.2 mg/kg/hour up to a maximum duration of 14 days. Sedation was titrated to a target RASS range, individualized at the clinical team's discretion. Unlike the MENDS and SEDCOM trials, there was no statistically significant difference in the incidence of delirium between patients who received midazolam and those who received dexmedetomidine during the 45-day follow-up period (10% vs 7.7%; p = 0.431).[22,24,25] However, there are a few limitations to consider. Delirium was not predefined; it was diagnosed based on the clinician's assessment and judgment. The incidence of a positive CAM-ICU was similar between groups (13.9% vs 11.9%; p = 0.393), but CAM-ICU was only utilized once at 48 hours following cessation of the sedative infusion. A singular assessment limits its interpretation because delirium is a fluctuating neurocognitive state. Furthermore, patients in both groups were on midazolam prior to randomization. This may potentially confound the risk of delirium in those who were transitioned to dexmedetomidine. Regardless of the comparison between midazolam and dexmedetomidine, the incidence of delirium

among patients receiving a benzodiazepine is noticeably lower in this trial as compared to previous RCTs.[22-25] However, this may reflect methodology differences and not the true incidence of delirium with benzodiazepines. Despite several RCTs, the causality between benzodiazepines and an increased risk of delirium remains complex.

A commonality among these RCTs is the implementation of the CAM-ICU screening tool to recognize delirium. The 2018 PADIS Guidelines issued a good practice statement supporting the use of a validated tool, such as CAM-ICU, to regularly assess for delirium in critically ill adult patients.[10] Although it is a validated screening tool for use among critically ill adult patients, there are several important limitations, some of which have already been highlighted by these RCTs. CAM-ICU should only be applied to patients with a RASS of -3 or greater because there is a distinction between delirium and coma, which is often defined as a RASS of -4 or -5.[26] Deep sedation or coma may either underestimate the incidence of delirium or be misclassified as delirium. Similarly, CAM-ICU does not account for oversedation and residual sedation, which may overestimate the incidence of delirium.[27] Timing of CAM-ICU assessments may be pertinent, especially for patients with organ dysfunction that may impair drug clearance and lead to drug accumulation.[27] Additionally, delirium is defined as a fluctuating, acute neurocognitive state. Aside from the timing of CAM-ICU assessments, they must be performed frequently, given the transient, unpredictable nature of delirium. Despite its validity, CAM-ICU relies on subjective data interpreted by nurses and clinicians. Lastly, CAM-ICU identifies critically ill adult patients with delirium, but provides no insight into the severity, subtype, or duration of delirium. Interpreting the incidence of delirium across studies that utilized CAM-ICU requires understanding these limitations.

While the use of benzodiazepines has been implicated in the development of delirium in critically ill adult patients, current evidence fails to support this causal relationship. The purported risk of delirium with benzodiazepine administration may be confounded by the depth of sedation. Level of consciousness can influence the assessment of delirium when using validated screening tools, such as CAM-ICU and ICDSC. Although CAM-ICU is validated to screen for delirium in patients with a RASS of -3 or greater, delirium has been found to be increasingly prevalent as RASS decreases from 0 to -3.[28,29] This highlights the dependence of delirium assessments on level of consciousness, raising concerns that deeper sedation may lead to an overestimation of delirium. In many studies, target RASS was inconsistently defined or poorly maintained among patients, leading to variability in the time spent at different levels of sedation.[12,15,18] It becomes more challenging to distinguish residual sedation from delirium when patients spend longer periods of time at deeper levels of sedation. Therefore, it is important that delirium assessments are performed frequently and that the RASS level at the time of assessment is taken into consideration. Many studies evaluating the correlation between benzodiazepines and an increased risk of delirium failed to establish precedence and did not ensure that the development of delirium followed benzodiazepine administration.[30] There was also significant crossover of benzodiazepine administration to patients who were assigned to a non-benzodiazepine treatment group. Both limitations further challenge the assumption that there is a causal relationship between benzodiazepines and an increased risk of delirium. Notably, current evidence surrounding the risk of delirium with benzodiazepines in critically ill adult patients is largely in relation to continuous infusion administration.[31] Despite significant changes in sedation practices throughout the years, including implementation of SATs and SBTs, prioritization of a light sedation target, and use of non-benzodiazepine sedatives, the incidence of delirium among critically ill adult patients remains persistently high.[32]

Evidence-Based Recommendation

The 2018 PADIS Guidelines conditionally recommend that non-benzodiazepine sedatives are preferred over benzodiazepine sedatives in mechanically ventilated patients.[10] It also identifies benzodiazepines as a modifiable risk factor for delirium, which is issued as an ungraded statement due to the lack of direct, high-quality evidence.[10] Hence, the avoidance of benzodiazepines in the ICU continues to be a common strategy to prevent delirium. However, the complexity and multifactorial nature of delirium make it challenging to attribute its presence to a specific inciting factor. Study methodology, baseline characteristics, and any other potential confounding factors were thoroughly considered during the critical evaluation of the current literature, given the multitude of etiologies. Current evidence does not strongly support a causal relationship between benzodiazepines and an increased risk of delirium. The implicated risk of delirium with benzodiazepines in critically ill adult patients may be confounded by the depth of sedation. It remains reasonable to consider non-benzodiazepine sedatives as the medication of choice for sedation in mechanically ventilated patients, given the pharmacokinetic differences with benzodiazepines. With greater drug accumulation, benzodiazepines tend to produce deeper and more prolonged sedation. However, review of current literature highlights that the use of benzodiazepines in the ICU should not be dismissed solely because of the purported risk of delirium. It is important to acknowledge that certain clinical scenarios may appropriately warrant the use of benzodiazepines, such as anxiety, alcohol withdrawal, and seizures.

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PRECEPTING SERIES:

Money Matters in Pharmacy Training: A Preceptor's Role in Shaping Financial Awareness

by Jose Bermudez-Rodriguez, PharmD, Janet Cooley, PharmD, Suzanne Larson, PharmD

A final-year pharmacy student experiences many challenges in their academic journey, including handling multiple priorities. Every 4-6 weeks, they are moving into new professional experiences, while applying to residency and fellowship programs, evaluating job opportunities, and preparing for licensure exams. It also marks a mindset shift from being a student who depends on student loans, scholarships, and part-time jobs, to having a full-time job, debt, and a stable salary for the first time. Pharmacy students face multiple decisions regarding student loan repayment, budgeting, benefits packages, liability insurance, and licensing costs.

This article aims to describe ways pharmacy preceptors can support final-year pharmacy students during financial transitions from student pharmacist to working professional. Preceptors can serve as guides and mentors, sharing wisdom and insights from their own journeys. When preceptors discuss professional considerations beyond the typical rotation functions, the student-preceptor relationship can deepen, enabling a more holistic approach to the student's development.

Money Matters

Personal finances are a broad topic, and preceptors and students may be hesitant to discuss these sensitive issues. As preceptors consider how to approach financial discussions with learners, they are encouraged to remember that final-year pharmacy students have several critical financial decisions pending, including student loan repayment and licensure costs. According to the 2024 National Summary Report published by the American Association of Colleges of Pharmacy (AACP), the average student loan balance at graduation is $170,956 per student.[1] Additionally, the student loan system has faced upheaval in recent years due to policy and administrative changes, meaning that resources and explanations are quickly outdated and often difficult to understand. As mentioned above, the average student loan balance for a pharmacy student is $170,000, with interest rates currently around 8%. This means that an average student loan payment might be around $2,000 monthly. This may be in addition to the debt accumulated prior to pharmacy school with undergraduate coursework.

For preceptors who are currently undergoing or have completed their student loan repayment, rotations offer an opportunity to share this part of their financial journey with students, explaining what to expect when making monthly payments and which strategies were helpful. Preceptors can also share their experiences with other programs, such as public service loan forgiveness (PSLF) and state or corporate student loan repayment plans. In addition to PSLF, there are other student loan repayment programs, such as those through the military, the Indian Health Service, and the Department of Veterans Affairs.[2] Also, some community pharmacy chains such as Walgreens and CVS have tuition reimbursement programs that pay a certain amount in exchange for years of service.[3,4] Some states, including Minnesota, also provide student loan repayment for pharmacists in underserved areas.[5]

There are other financial considerations students need to expect during the licensing process, such as licensure fees, North American Pharmacist Licensure Examination (NAPLEX) and Multistate Pharmacy Jurisprudence Examination (MPJE) registration and fees, professional liability insurance, and continuing education costs.[6,7] In Wisconsin, licensure costs are expected to be around $975, depending on fees, score transfers, and licensure in multiple states.[6,7] This aligns with most states, which can range from around $900-$1400 (with the new Uniform MPJE costing more than MPJE).[6,7]

Preceptors can also guide students in evaluating job offers in light of their career goals. Students may need guidance with compensation structures, overtime and shift differential pay, holiday pay, mileage reimbursement, sign-on bonuses, healthcare coverage costs, and retirement benefits. In addition, preceptors can share insights into individual job offers, their growth potential, and career goal alignment.

Budgeting is a basic but crucial skill that preceptors can discuss with student pharmacists. Several templates and apps are available to assist with budgeting (see Table 1).[8-13] Preceptors can help students discern their specific financial goals to create an individualized budget that reflects their objectives. Elizabeth Warren suggests a 50%/30%/20% budget that can serve as an initial template, with 50% of income going to expenses, 30% to fun (discretionary spending), and 20% to savings.[14] While the specifics of budgeting may not be tackled during a rotation block, preceptors can help students consider how having a budget can help them accomplish their big-picture financial goals.

For some students, including residency- or fellowship-bound students, moving costs are a significant consideration. Due to the nature of the pharmacy residency matching process, students may not know the specifics of the costs associated with their move until after the match date. Students

may want to explore rent, transportation, and cost-of-living information for each potential location. They might also want to ask residency programs for housing recommendations based on feedback from current or former residents.

Conclusions

Preceptors are a crucial part of the pharmacy student's professional development throughout pharmacy school, and their impact often extends to mentoring in personal development. Final-year pharmacy students are in a transitional state, and may require support beyond typical clinical and professional considerations. Preceptors can be a beacon for the next generation of pharmacists and have a strong impact on students' long-term growth and success beyond rotation weeks, including their financial well-being.

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TABLE 1. Overview of Selected Budgeting Tools and Templates[8-13]

Tool	Website	Features	Cost
Google Sheets	docs.google.com/spreadsheets	• No cost • Fully customizable • Manual data entry required, no automation or syncing of information	Free!
Monarch Money	www.monarch.com/	• Tracks accounts, recurring expenses, and spending • Budget categorization available • User-friendly interface in a browser and smartphone • Recent feature additions include an artificial intelligence assistant, receipt scanner, and bill split functionality	1-week free $14.99/month or $99.99 annually
NerdWallet	www.nerdwallet.com/finance/learn/budget-worksheet	• Utilizes the 50/30/20 rule for budgeting • Excel template available for download to track expenses • Manual data entry required • Also includes banking, credit card, and other resources	Free!
Quicken Simplifi	www.quicken.com/simplifi	• Easy-to-use interface allows users to see banking, credit card, loans, and investments in one place • Automatic categorization of transactions • Ability to find recurring payments for better management • Mobile and web versions available	7-day free trial $5.99/month
Rocket Money	onboarding.rocketmoney.com/	• View all finances in a single dashboard - including income, expenses, subscriptions, and bills • Track and manage subscriptions • Easy to track spending and create budgets	Free version available Premium services for available $7-$14/month
YNAB You Need A Budget	www.ynab.com/	• Simple budgeting tool, similar to a spreadsheet • Zero-based budgeting to build strong habits • Share a subscription with up to six people • Excellent charts and graphs • Category templates with customizable views	34-day free trial $14.99/month or $109 annually

ID CORNER

A Sore Subject: What's New in Streptococcal Pharyngitis Scoring and Diagnosis

by Anna Erickson, PharmD, Tracy Zembles, PharmD, BCPS, BCIDP, FIDP

Every winter, patients present with the same familiar set of symptoms (sore throat, fever, and swollen lymph nodes), prompting the same question: Is it streptococcal pharyngitis? Historically, the answer has relied heavily on rapid test results and clinical judgment. However, the Infectious Diseases Society of America (IDSA) is now encouraging clinicians to pause before testing. In October 2025, IDSA released the first major update to the group A streptococcal (GAS) pharyngitis clinical practice guideline since 2012, focusing on more selective, evidence-based testing using clinical scoring tools. The 2025 update represents the first phase of a broader guideline revision. This phase primarily focuses on diagnosis and testing strategies, while future updates are expected to address treatment recommendations, such as antibiotic selection and duration.

Pharyngitis remains one of the most common reasons for outpatient visits among both adults and children.[1] Most pharyngitis cases are viral and resolve without specific treatment. Nevertheless, pharyngitis continues to drive substantial outpatient antibiotic prescribing, in part because distinguishing viral from bacterial infection based on symptoms alone can be challenging (Table 1).

Streptococcus pyogenes, or GAS, accounts for approximately 15% of adult pharyngitis cases and up to 30% of pediatric cases.[1] Although most cases of pharyngitis are viral, the consequences of untreated GAS can be significant. If untreated, GAS pharyngitis can progress to suppurative complications such as peritonsillar abscess, acute otitis media and mastoiditis, or nonsuppurative complications such as acute rheumatic fever, scarlet fever, and acute glomerulonephritis.[2]

TABLE 1. Symptoms of Bacterial and Viral Pharyngitis

Symptoms Suggestive of Bacterial Pharyngitis[2]	*Symptoms Suggestive of Viral Pharyngitis*[2]
• Sudden onset of sore throat • Age 5–15 years • Fever • Headache • Nausea, vomiting, abdominal pain • Tonsillopharyngeal inflammation • Patchy tonsillopharyngeal exudates • Palatal petechiae • Anterior cervical adenitis • Presents in winter and early spring • History of streptococcal pharyngitis exposure • Scarlatiniform rash	• Conjunctivitis • Coryza • Cough • Diarrhea • Hoarseness • Discrete ulcerative stomatitis • Viral exanthema

Pharyngitis is one of the most well-documented drivers of inappropriate antibiotic prescribing in the United States (US).[3-4] Despite GAS pharyngitis accounting for <15% of cases in adults, antibiotics are prescribed for up to 60% of adult outpatient visits for sore throat. A 2023 analysis found that inappropriate antibiotic prescribing for upper respiratory conditions, including pharyngitis, was associated with nearly $50 million in excess healthcare costs in the US, as well as an approximately fourfold increased risk of adverse drug events among those who received unnecessary treatment.[5] These events include allergic reactions, gastrointestinal effects, and *Clostridioides difficile* infection, all of which carry additional clinical and economic burden. Beyond individual patient harm, antibiotic overuse drives population-level antimicrobial resistance.

Clinician judgment alone is unreliable for diagnosing GAS pharyngitis, yet universal testing incurs costs and inconveniences for individuals at low risk of infection. The 2012 IDSA guideline recommended testing for GAS in most patients without clear viral symptoms, resulting in broad testing strategies.[2] In contrast, the 2025 update formally recommends the use of clinical scoring tools in both children and adults presenting with acute pharyngitis to determine whether testing for GAS is warranted (conditional recommendation, very low certainty of evidence).[1] The primary goal is to identify patients with a low probability of GAS infection to reduce unnecessary testing, minimize false-positives and decrease inappropriate antibiotic prescribing.

The IDSA update highlights three scoring tools for clinical use: Centor, McIsaac, and FeverPAIN.[1] Each uses clinical features to stratify patients into high, intermediate, or low risk for GAS

pharyngitis (Table 2).

The **Centor Score**, developed in 1981, assigns one point each for tonsillar exudates, tender anterior cervical lymphadenopathy, fever history, and absence of cough.[1] Scores range from 0-4 and correlate to the probability of GAS. The **McIsaac Score** is a validated modification of the Centor score, adding age as a variable (along with a correction score) resulting in a scoring range of -1 to 5. The addition of age to the scoring tool improves the specificity in adult populations where GAS prevalence is lower. The IDSA conducted a systematic search which identified six observational studies that compared the use of clinical scoring tools to clinician judgement alone and identified similar or slightly higher diagnostic accuracy with use of scoring tools. Based on the review, these tools are most useful for ruling out GAS infection supporting a decision not to test when scores are low. It was also noted that scoring tools improve diagnostic consistency, reduce implicit bias, have low implementation costs and result in minimal direct harm.

The **FeverPAIN score** is a tool developed in the United Kingdom in 2013.[6] While it has demonstrated utility in primary care settings, it has less comparative evidence than Centor or McIsaac. The IDSA guideline notes that FeverPAIN has not been directly compared with clinician judgement alone and therefore was not included in the formal evidence analysis.[1,6]

All three tools are intended for use in patients aged three years and older presenting with suspected acute pharyngitis with onset in the prior three days.[1] In general, scores 0-1 suggest testing is not necessary, while scores of 2 or greater may warrant diagnostic testing.

When clinical scoring indicates testing is warranted, two primary diagnostic approaches are available.[2] Rapid antigen detection tests (RADTs) offer fast, point-of-care results and have high specificity for GAS, though sensitivity varies.[7-8] In children and adolescents older than 3 years, a negative RADT should be followed by a confirmatory throat culture due to the risk of false negative. In adults, confirmatory cultures are generally not necessary given the lower disease prevalence and risk of rheumatic fever.

Throat culture is the gold standard for GAS diagnosis.[2] Throat cultures offer highly sensitive and specific results usually within 24-48 hours.[7-8] In patients with clear viral features, a positive test may reflect asymptomatic GAS carriage rather than active infection. These patients generally do not require antibiotic treatment, though clinical judgement should be used.

Regardless of scoring tool results, high-risk individuals should be considered for testing.[1] High-risk patients include those with household exposure to GAS, history of acute rheumatic fever, or signs or symptoms concerning for severe GAS infection (e.g., peritonsillar or retropharyngeal abscess, scarlet fever, toxic shock syndrome).

Current treatment recommendations for GAS pharyngitis are based on the 2012 IDSA guideline (Table 3).[2] Penicillin and amoxicillin continue to be recommended as first-line therapy. Amoxicillin is often preferred in young children because of its favorable taste and available dosage forms. For patients with non-severe or non-IgE-mediated penicillin allergies, cephalexin is an appropriate option given its low cross reactivity.[9] Clindamycin is generally reserved for patients with severe penicillin allergies or cephalosporin contraindications. Although intramuscular benzathine penicillin G remains a first-line option for patients with adherence concerns or significant vomiting, availability has been intermittently impacted

TABLE 2. Scoring Tools for Predicting Group A Streptococcal Pharyngitis[1]

Feature	*Centor*	*McIsaac*	*FeverPAIN*
Viral Symptoms	Absence of cough	Absence of cough	Absence of cough
Cervical Adenopathy	Swollen, tender anterior cervical nodes	Swollen, tender anterior cervical nodes	N/A
Fever	>100.4F (38C)	>100.4F (38C)	Febrile in past 24 hours
Tonsillar Appearance	Tonsillar exudate or swelling	Tonsillar exudate or swelling	Inflamed tonsils
			Purulent tonsils
Duration	N/A	N/A	<3 days since symptom onset
Age (score correction)	N/A	3-14 years +1	N/A
		15-44 years +0	
		>45 years -1	
Risk Stratification (score, % probability)			
Low Risk	0-1 (7-12%)	0-1 (7.6-13.1%)	0-1 (1-10%)
Intermediate Risk	2-3 (21-38%)	2-3 (20.8-33.6%)	2-3 (11-35%)
High Risk	4 (57%)	4-5 (50.7-69.3%)	4-5 (51-53%)

TABLE 3. Antibiotic Options and Dosing for Treatment of Bacterial Pharyngitis

Antibiotic	*Suggested Pediatric GAS Dosing*
Amoxicillin (PO)	50 mg/kg/day once daily or divided Q12H (maximum: 1000 mg/day)
Penicillin VK (PO)	≤27 kg: 250 mg per dose Q8-12H >27 kg: 500 mg per dose Q8-12H
Penicillin G Benzathine (IM)	≤27 kg: 600,000 units once >27 kg: 1,200,000 units once
Cephalexin (PO)	40 mg/kg/day divided Q12H (maximum: 500 mg/dose)
Clindamycin (PO)	21 mg/kg/day divided Q8H (maximum: 300 mg/dose)
IM: intramuscular; PO: by mouth; Q: every	

by shortages in recent years.

The recommended duration of therapy is 10 days.[2] GAS pharyngitis remains one of the few infectious conditions for which a 10-day antibiotic course continues to be recommended as evidence supporting shorter durations is currently lacking.

The 2025 IDSA GAS pharyngitis clinical practice guideline update marks an important shift in how clinicians are asked to approach one of the most common and most overtreated infections in outpatient practice. By formalizing clinical scoring tools as the first step in the diagnostic pathway, the guideline moves the field towards a test-only-when-indicated standard. Integrating clinical scoring tools into pharyngitis evaluation is a practical, low-barrier opportunity to improve antibiotic stewardship and reduce unnecessary antimicrobial exposure. Pharmacists (e.g., retail, emergency department) can help triage walk-in patients, identifying low risk patients where testing may not be indicated to promote antibiotic stewardship and reduce overprescribing. Pharmacists can participate in multi-disciplinary teams, developing and implementing guidelines for GAS pharyngitis diagnostics and treatment. Adopting these screening protocols is a simple, high-impact intervention pharmacists can make to optimize antibiotic use and elevate the standard of care.

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UNIVERSITY OF WISCONSIN-MADISON SCHOOL OF PHARMACY STUDENT WRITING CLUB:

Overcoming A Changing Cancer Landscape: Pharmacists' Opportunity to Promote Equitable Cancer Care

by Owen Petrich, 2028 PharmD Candidate, John Vetterli, 2028 PharmD Candidate, Dawson Slusser, 2028 PharmD Candidate, Sam Schauer, PharmD, BCOP, Jason Bergsbaken, PharmD, MBA, BCOP

Abstract

Cancer remains the second leading cause of death among people under 85 years old, and incidence rates have steadily climbed over recent years. Several factors, including new screening initiatives and novel treatment regimens, have improved the prognosis for some cancer patients, leading to higher survival rates and lower burden of disease; however, with these new initiatives come higher costs and increased complexity of care. Health disparities are already present in rural and low-income patients, leading to lower adherence to treatment, limited access to care, and increased risk of financial toxicity. This is reflected in the higher cancer mortality rates of rural and low-income population groups compared to their urban and high-income counterparts. Valid concerns exist that these disparities will be exacerbated as cancer prevention, screening, and treatment continue to become increasingly expensive and complex. Pharmacists across multiple settings are poised to take advantage of a unique opportunity to address these disparities in care by supporting patient adherence, providing care through telehealth services, providing patient education, and participating in cost-saving initiatives.

The United States (US) was anticipated to incur over two million new cancer cases as well as 600,000 deaths in the year 2025, making cancer the second leading cause of death among people under 85 years old.[1] Wisconsin alone was expected to see 40,000 new cases and 11,000 deaths.[1] While new screening initiatives such as prostate-specific antigen testing, low-dose computed tomography lung screening, and preventative initiatives such as human papilloma virus vaccinations and tobacco cessation programs have become more prevalent in recent decades, cancer incidence rates have steadily climbed due to an aging population and increased incidence in younger populations.[1]

Inequality in cancer prevalence and mortality is widespread in the United States, with cancer patients living in impoverished counties having a 12.3% higher mortality rate compared to patients living in non-poverty counties, and cancer patients living in rural counties have a 9.6% higher mortality rate than patients living in urban counties.[2,3] While cancer mortality rates in the US have steadily dropped over multiple decades, rural patients have been less advantaged by prevention and treatment advances.[1,4] Specifically in Wisconsin, recent estimates indicate 635,000 residents of the state's population live below the federal poverty line, and approximately 1.5 million people live in rural areas.[5] Additionally, an estimated 1 million Wisconsin residents are enrolled in state Medicaid, and 290,000 remain uninsured.[5,6] Acknowledging some overlap between these population groups, a significant proportion of the state's population faces notable barriers to quality cancer care. These inequalities are multifaceted and are not limited to income and rural-urban status alone, but are likely representative of deeper-rooted socioeconomic disparities, such as lower education levels, higher unemployment rates, less insurance coverage, and more limited access to healthcare.

Increasing Cost and Complexity of New Treatments

The cost of cancer treatment varies significantly by stage and tumor type. Cancer alone is estimated to have cost Medicare $200 billion in 2020 and is projected to cost $245 billion by 2030.[7] Chemotherapy is a significant contributor to treatment costs, and rising prices have raised concerns about access due to increased patient cost-sharing. A study completed by the Healthcare Cost Institute found that from 2014 to 2020, the annual cost of outpatient chemotherapy increased from $10,000 to $17,493.8 On average, initial treatment costs $45,000, with follow-up care costing $6,000 annually.[8] These exorbitant costs, partnered with already present healthcare disparities, may exacerbate health inequality, especially in low-income patients. Higher out-of-pocket treatment costs have been associated with decreased adherence and have a greater effect on low-income and uninsured patients.[9] Socioeconomic status and insurance coverage have been well studied as predictors of adherence in patients with chronic disease states. They can also

affect cancer treatment, as missed doses and delayed treatment are associated with worse cancer outcomes.[10–14] While programs such as Medicare low-income subsidies and patient assistance programs, such as copay cards, have reduced cost-sharing for oncologic therapies, disparities remain.[15,16]

Several contributing factors, including remarkable breakthroughs in cancer therapy, have contributed to overall reductions in mortality rates; however, many new treatment regimens are increasingly expensive and complex.[1] Recently, newer treatment options have emerged, including immunotherapy and precision medicine such as immune checkpoint inhibitors, monoclonal antibodies, and chimeric antigen receptor T-cell (CAR-T) therapies.[17] These newer therapies have been shown to increase progression-free survival and overall survival rates compared to traditional chemotherapy in selective tumor types; however, they also require biomarker testing, have different side effect profiles and treatment protocols, and they may require additional monitoring or clinical supervision. Concerns have been raised that these new treatments can act as barriers that intensify already existing disparities in vulnerable populations that are less

FIGURE 1. Rural and Urban Counties of Wisconsin (Wisconsin Department of Health Services)

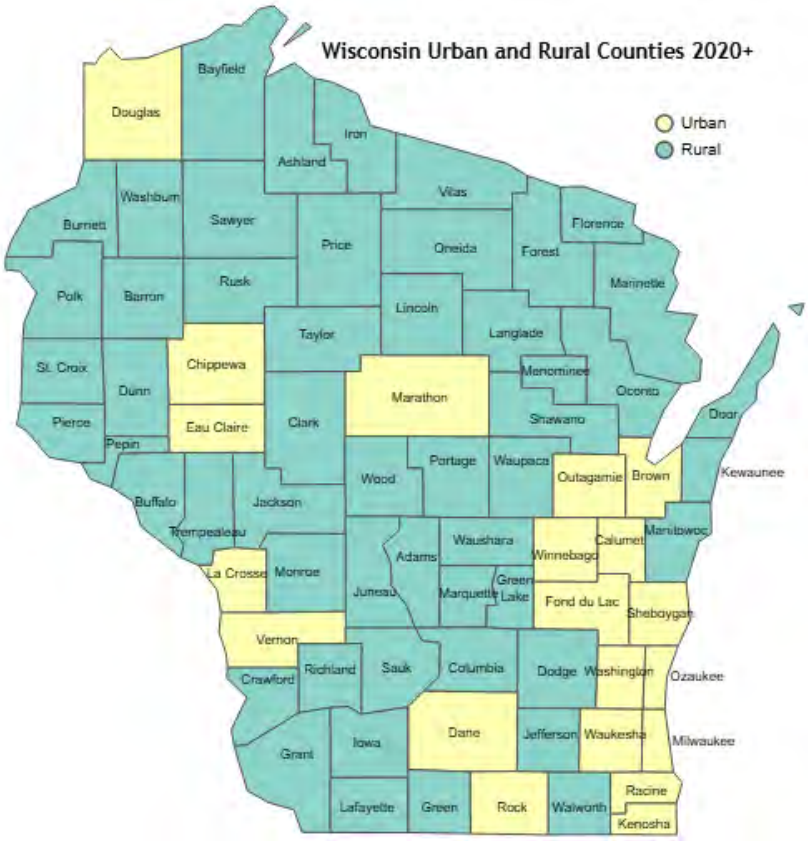


FIGURE 2. Wisconsin Commuting Zones (Wisconsin Office of Rural Health)

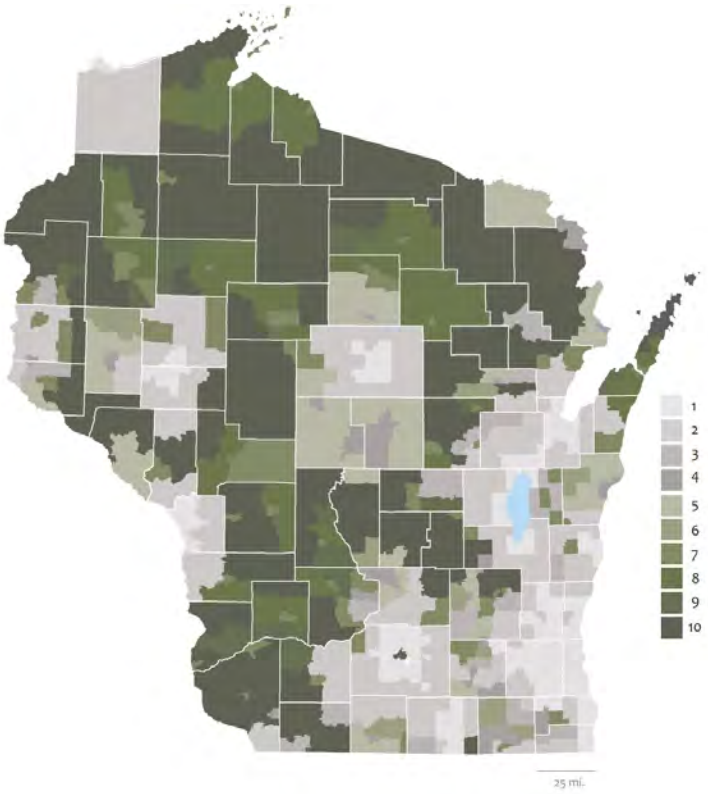


FIGURE 2. Legend[25]

1	Metropolitan area core	Primary commuting flow is within an urbanized area (population: >50,000)
2	Metropolitan area high commuting	30%+ of the primary flow is to an urbanized area
3	Metropolitan area low commuting	10-30% of the primary flow is to an urbanized area
4	Micropolitan area core	Primary flow is within a large urban cluster (population: 10,000-49,999)
5	Micropolitan high commuting	30%+ of the primary flow is to a large urban cluster
6	Micropolitan low commuting	10-30% of the primary flow is to a large urban cluster
7	Small town core	Primary flow is within a small urban cluster (population 2,500-9,999)
8	Small town high commuting	30%+ of the primary flow is to a small urban cluster
9	Small town low commuting	10-30% of the primary flow is to a small urban cluster
10	Rural	Primary flow is to a tract outside an urbanized zone or an urban cluster

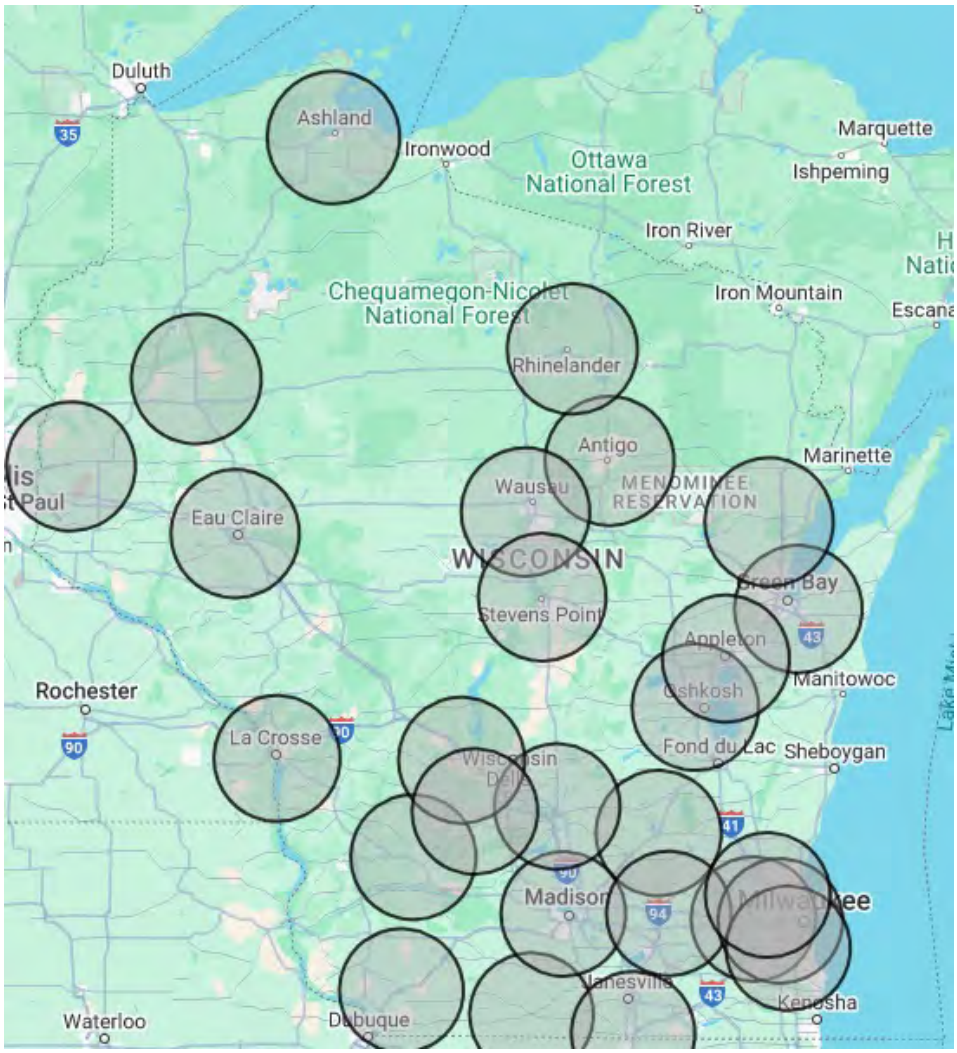
equipped to handle and receive access to this care.[18] In non-small cell lung cancer, where immunotherapies such as pembrolizumab have seen significant growth as a treatment option, uninsured and Medicaid patients are less likely to receive these therapies as stand-alone or adjuvant therapy compared to insured patients.[17,18] Additionally, a 2020 meta-analysis of precision medicine in cancer treatment discovered that low-income and less educated patients were up to 17% less likely to receive precision therapies as a treatment option.[19]

A notable example of this developing paradigm, oral oncolytics, has drastically changed the oncology landscape over the past two decades, shifting chemotherapy administration from hospitals and/or clinics to the home setting.[20] This shift may increase treatment access, prevent clinic visits, decrease administration errors, and allow patients more autonomy within their care; however, it also may place additional burden on patients.[11] This tremendous change is beneficial for many, but managing medication and side effects may pose additional barriers for low-income and rural patients with limited health literacy and access to providers. A 2020 study of prostate cancer revealed that Medicare patients with low-income subsidies taking high-cost oral chemotherapy drugs enzalutamide or abiraterone had lower adherence to their medication (69% vs. 75%) compared to patients with no low-income subsidies, despite having lower median monthly out-of-pocket costs.[21] These disparities may be due to increased patient responsibility and deeper socioeconomic issues such as limited access to transportation, low health literacy, limited social support, and patient vulnerability.[21–23] Additionally, patients enrolled in patient assistance programs have longer wait times between prescription and treatment initiation due to administrative barriers, with one study reporting that patients waited an average of 39 days to receive their medication.[16]

Access Barriers

In rural cancer patients, geographic access to care is a considerable barrier for screening and treatment, and it is critical to consider these disparities when addressing care. The rural-urban divide is notable and widespread across Wisconsin, with 52 of the 72 counties classified as rural by the Federal Office of Rural Health Policy (Figure 1).[24] A more nuanced approach to rurality can be taken by evaluating commuting zones across the state, revealing the amount of commuting time patients spend in urban versus rural areas (Figure 2).[25] In zones 1-3, most primary commuting is through metropolitan areas (population: >50,000 people), in zones 4-6, most primary commuting is through micropolitan areas (population: 10,000-49,999 people), and in zones 7-10, most commuting is through small towns and rural areas (population <10,000 people) (See Figure 2 legend). Looking at transportation barriers, it is evident that there are large areas of the state where patients must travel significant distances to receive appropriate care or consult specialists. In Wisconsin, the University of Wisconsin (UW) Health Carbone Cancer Center is currently the only National Cancer Institute (NCI)-designated comprehensive cancer care center in the state, located in Madison. Other large hospitals and healthcare systems throughout the state can handle complex cancer regimens; however, they are largely located in metropolitan areas, requiring many rural patients to receive care through regional cancer centers (Figure 3).

FIGURE 3. Regional Cancer Care Centers (with 20 mile radius zone displayed)



A 2022 meta-analysis on the relationships between breast cancer and geographic access to care showed mixed results on patient outcomes. While patients living farther from treatment facilities had higher survival rates, they had lower screening rates and a later stage at diagnosis than patients with better access to facilities.[26] In patients with lower access to care, a higher rate of total mastectomies was seen, compared to breast-conserving surgery (BCS). BCS requires more visits, including prolonged radiotherapy, and overall more care, which may be more difficult for

patients who must travel greater distances to cancer centers.[26] Later staging scores and a higher chance of mastectomy are indicative of a higher burden of disease on rural breast cancer patients.[27,28]

Transportation barriers not only affect treatment but can also affect screening. In lung cancer throughout Wisconsin, counties with the highest incidence and mortality rates are correlated with higher smoking rates, mainly in the rural portions of the state.[29,30] A study of access to lung cancer screening facilities found that approximately 5% of the United States population eligible for lung cancer screening does not live within 40 miles of a screening facility.[31] When restricted to rural areas, that proportion increases to 25% of rural patients with severely limited access to screening services, resulting in later detection and staging scores.[31] These factors, partnered with limited access to newer immunotherapies, create a trifecta of health disparity within lung cancer where rural patients: 1) are predisposed to lung cancer risk factors, such as higher smoking rates, 2) have less access to screening resources, and 3) are less likely to receive newer treatment options.[19,31]

Higher burden of disease and high cost of chemotherapy place a significant strain on cancer patients and may lead to financial toxicity. Financial toxicity is the emotional distress caused by the economic burden patients face during treatment regarding the cost of care or loss of income.[32,33] Low-income and rural patients are especially susceptible to financial toxicity and are often forced to make challenging decisions during treatment, such as reducing frequency of care, changing spending habits, depleting savings, and refinancing assets.[34,35] This significant financial burden creates additional stress for oncology patients and may trigger anxiety or depression in patients that persists beyond treatment and into survivorship.[34] This can extend beyond psychosocial well-being and into clinical outcomes, as cancer patients who are forced to declare bankruptcy during treatment have a 75% higher mortality rate than those who do not declare bankruptcy.[36] This is an astounding disparity that affects our most vulnerable patients financially, emotionally, and clinically. While financial toxicity may be difficult to identify due to the interplay between the objective cost of care and patients' subjective financial distress, it's crucial to determine which patients are most affected so they can receive the proper information and resources. Oncology providers simply discussing the cost of care and distress-related care have been shown to significantly improve the psychosocial well-being of their patients at risk of financial toxicity.[33]

Pharmacists' Opportunity

The state of Wisconsin is continuing its efforts to address inequities in oncology treatment and close disparities for rural and low-income patients. The Wisconsin Cancer Collaborative, a state coalition designed to improve cancer care and reduce overall cancer burden, has established metric-based objectives to close health inequities. While many of their goals are geared toward funding, policy, and system-wide changes, there are also opportunities for Wisconsin pharmacists across all practice settings to be involved in community-wide initiatives designed to increase awareness and education, expand screening and prevention services, and advocate for policy change.[37]

Pharmacists have a unique opportunity to leverage their expertise and programs to improve financial access for rural and low-income patient populations. Specialty pharmacists provide patients at risk of financial toxicity with resources to lower cost-sharing and improve financial access to medications. A multisite study of 25 health system specialty pharmacies that implemented medically integrated dispensing strategies, in which high-cost oral chemotherapies are dispensed

directly through cancer clinics, found that these pharmacy-led initiatives saved patients about $10,000 over six months.[38] Pharmacists may also support patients through the 340B drug pricing program, which allows eligible hospitals and clinics to purchase medications at a discount, granting institutions access to these medications and allowing reinvestment in expanded services such as patient education and transportation.[39] While evidence on improved health outcomes in patients receiving care from 340B facilities is mixed, this program is crucial in allowing clinics to remain open to be able to provide care to our rural and low-income patients.[40] In oncology treatment, pharmacists must have the ability to support patients and provide care to ensure the best outcome for the patient, and these programs are evidence that further support and investment could improve medication access and quality of care for our patients.[41]

Education from pharmacists has aided adherence to oncology medication by reducing the patient's concerns over the medication and increasing their confidence in the method of treatment.[42] As the healthcare system continuously adapts in a post-COVID pandemic world, telehealth pharmacy has emerged as a critical opportunity in supporting oncology patients, as it enables pharmacists to extend their clinical reach and educational ability. Due to Wisconsin's rural nature, telepharmacy access to a pharmacist may help patients with medication adherence, treatment questions, and adverse event management, thereby improving treatment outcomes and quality of life. A systematic review of the effects of telehealth interventions on chronic disease states found that specialized outreach programs improved medication adherence and reduced treatment delays.[43] In another study utilizing telehealth ambulatory care pharmacists to educate patients and manage adverse events in a cancer infusion clinic, pharmacists were not only able to improve patients' quality of care but also to create over $250,000 in cost savings over three months.[44] Further pharmacist-led programs, such as "Meds-to-Beds" and "Meds-to-Chemo Chairs," help to further improve patient access and improve transitions of care. These programs involve the delivery of chemotherapy and supportive care medications, such as pain management, antimicrobials, antiemetics, and corticosteroids, directly to patients receiving treatment, and allow pharmacists to address any questions or concerns patients may have.[45] This exemplifies the clinical and financial benefit that the utilization of ambulatory care inpatient pharmacists within cancer care creates and could be a useful avenue for future care models throughout the state.

Conclusion

Cancer remains one of the leading causes of death in the United States, and projections estimate incidence rates will only increase in future years.[1] In Wisconsin, tens of thousands of people are affected annually, not only affecting their health, but additionally inflicting significant emotional stress and financial burden. New treatment options have reduced overall morbidity and mortality for oncology patients; however, due to their increasing cost and complexity, low-income and rural patients have additional challenges to benefit from these medical advances. Prevalence and death rates remain higher in these underrepresented oncology patients, and quality and access to care remain barriers. Low-income patients are less likely to remain adherent to oral anticancer agents and face administrative and financial barriers to receiving the medication that they need. Rural patients have limited access to cancer centers where they receive this crucial care, impacting access to screening, causing later staging scores and a greater burden of disease. These disparities within cancer prevention, screening, and treatment are not only inequitable but also unjust. While advances have been made to address these disparities, significant work remains to be done. As the medical landscape is constantly changing and pharmacists are trusted by more patients and providers with additional responsibilities, pharmacists across all specialties and practices are poised to address gaps in care. Opportunities arise within supporting cancer prevention and promoting screening, improving financial access through various cost-reduction programs, and directly providing telehealth services. By supporting these programs directly and indirectly, pharmacists support our rural and low-income oncology patients through their care and create equity within the healthcare system for all.

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"MORTAR & PENCIL" CONCORDIA UNIVERSITY WISCONSIN SCHOOL OF PHARMACY STUDENT WRITING CLUB:

Empiric Antibiotics and Imaging: A Focused Analysis of Recommendations 1 and 2 of the 2025 ATS CAP Guidelines

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Abstract

Background: Community-acquired pneumonia (CAP) remains a major global cause of morbidity and mortality. Patients with severe CAP (sCAP) experience high rates of intensive care admission and life-threatening complications. Despite advances in supportive care and antimicrobial therapy, outcomes remain poor.

Problem: The 2025 American Thoracic Society (ATS) CAP guidelines addressed four priority clinical questions and generated multiple recommendations. Most recommendations are conditional and based on very low-quality evidence or expert opinion. These concerns led the Infectious Diseases Society of America to withdraw support, ending a long-standing joint guideline effort.

Methods: A structured literature search was conducted using PubMed/MEDLINE and other journal databases, with a targeted review of key guidelines and publications. Studies before 2006 were excluded except for foundational mechanistic literature. Search terms included macrolide mortality benefit in CAP, quinolone versus macrolide mortality, antibiotic use in viral CAP, and lung ultrasound (LUS) accuracy in CAP detection. Studies were included if they reported clear primary outcomes and evaluated relevant antimicrobials or imaging.

Aim: This paper evaluates the evidence and methodology underlying the 2025 ATS recommendations by analyzing physiologic mechanisms and clinical evidence informing key guideline positions, with emphasis on empiric antibiotic use in viral CAP and imaging strategies.

Main Arguments: Recommendation 2—supporting empiric antibiotics despite confirmed viral infection—was made without qualifying randomized or observational studies. Evidence suggests unnecessary antibiotic exposure may increase risk in non-severe CAP. Support for LUS is limited to diagnostic accuracy, not to improved clinical outcomes. Macrolides appear to confer mortality benefit primarily in severe CAP.

Community-acquired pneumonia (CAP) is defined as a type of lung infection that is acquired outside of a hospital.[1] A subset of CAP is severe community-acquired pneumonia (sCAP), which is characterized by clinical features with a higher risk of mortality, including respiratory failure, septic shock, or a need for intensive care.[1] CAP remains a major cause of morbidity and mortality in the United States, accounting for over one million emergency department visits, hundreds of thousands of hospitalizations, and tens of thousands of deaths annually, with disease severity and outcomes strongly influenced by age, comorbidities, and host response.[1]

Risk factors associated with the development and worsened outcomes of CAP and sCAP include advanced age, chronic pulmonary diseases, smoking, immunosuppression, and other comorbid conditions such as diabetes and chronic kidney disease. These factors not only predispose individuals to infection but are also linked to more severe disease trajectories and higher fatality rates.[1]

Bacterial, fungal, and viral pathogens cause CAP.[1] The most common causative agents include *Streptococcus* pneumoniae and viruses. Other significant bacterial pathogens include *Haemophilus influenzae* and *Moraxella catarrhalis*, as well as atypical bacteria such as *Mycoplasma pneumoniae* and *Legionella pneumophila*.[2] Pathogens

of concern in patients with specific risk factors include *Pseudomonas aeruginosa* and methicillin-resistant *Staphylococcus aureus* (MRSA).[3] Additionally, respiratory viruses — including influenza A and B, adenovirus, human metapneumovirus (hMPV), respiratory syncytial virus (RSV), and more recently SARS-CoV-2 — are commonly implicated and may occur alone or in mixed infections with bacteria.[2-3] Understanding the epidemiological burden and the spectrum of causative organisms is critical for guiding empiric therapy and improving outcomes in CAP.

In 2025, the American Thoracic Society (ATS) released updated clinical practice guidelines for the diagnosis and management of CAP, representing a focused update from prior joint ATS/Infectious Diseases Society of America (IDSA) recommendations introducing new guidance on empiric antibiotic use in viral-positive CAP.[4] Four priority clinical questions were generated to spur recommendations from:

- In adults with suspected CAP, should lung ultrasound be used instead of chest radiography for diagnosis?
- In adults with CAP who test positive for a respiratory virus, should empiric antibacterial therapy still be given?
- What duration of antibiotic therapy should be used for adults with CAP who achieve clinical stability?
- Should systemic corticosteroids be used in adults hospitalized with CAP?[4]

The updated recommendations based on these questions have generated controversy, specifically 1 and 2, due to their reliance on limited evidence and expert opinion, particularly in areas with direct implications for antimicrobial and diagnostic stewardship.[5] This review examines the methodological foundations and clinical implications of the 2025 ATS CAP guidelines, with focused analysis of Recommendations 1 and 2, which cover empiric macrolide therapy and diagnostic strategies.

An analysis of the clinical evidence of empiric macrolide therapy was conducted to examine the perceived mortality benefit of this class of antibiotics compared with other classes, such as fluoroquinolones. Additionally, the 2019 ATS/IDSA guidelines suggest a potential benefit of macrolides over other antibiotics, given their anti-inflammatory effects.[6] The 2023 European Respiratory Society (ERS) guidelines for the treatment of CAP suggest the use of macrolides in combination with β-lactams (Beta-lactams) in sCAP due to demonstrated decreased mortality.[3] The 2025 ATS guidelines suggest that macrolides be used only in those with sCAP and do not mention any perceived benefit over other antibiotic classes, keeping in line with the 2019 ATS/IDSA guidelines.[4,6]

Recommendation 2 of the 2025 ATS guidelines endorses empiric antibiotics for adult inpatients with clinical and imaging evidence of severe or non-severe CAP who have a positive test result for a respiratory virus, citing the concern of bacterial-viral coinfection in these patients.[4] When treating patients in the outpatient setting, the recommendation to prescribe empiric antibiotics varies based on the patient's comorbidities. The ATS recommends empiric antibiotic therapy for those with comorbidities who have clinical and imaging evidence of CAP and a positive respiratory virus test result. This prompted resistance from the IDSA, who cited a lack of epidemiological evidence supporting the recommendation, arguing that bacterial coinfection is uncommon in most CAP patients, and briefly holding antibiotics in those with non-severe CAP to clarify the etiology of diagnosis is safe and follows proper antimicrobial stewardship.[5]

Recommendation 1 of the 2025 ATS guidelines suggests that lung ultrasound (LUS) is an acceptable diagnostic alternative to chest radiography to accurately confirm a diagnosis of CAP.[4] This recommendation has drawn criticism from members of the pulmonology community who argue that LUS is only reliable when done by a clinician who is an expert in sonography. The two imaging modalities should be viewed as complementary, not competing modalities.[7-8]

Past editions of the CAP guidelines released by the ATS in 2007 and 2019 were developed in conjunction with the IDSA. The objective of this review is to examine the methodology used to formulate the 2025 ATS guidelines, focusing primarily on clinical questions 1 and 2, highlight the key differences between the methodology of the 2019 ATS/IDSA guideline, and explore the rationale behind dissenting opinions. Clinical questions 3 and 4 are omitted from this review as they did not draw controversy or IDSA dissent. Additionally, pathophysiologic mechanisms and clinical evidence supporting macrolide use were reviewed to evaluate benefits, risks, and antimicrobial stewardship implications. While the 2025 ATS guidelines do not dispute the recommendations of the 2019 ATS/IDSA guideline on antibiotic class choice, robust data from the ERS suggests that macrolide use in sCAP should have been discussed or reviewed in the 2025 ATS guidelines.

Differences in Methodology

To understand the point the IDSA makes about the lack of evidence supporting the 2025 ATS guidelines, the methodologies behind the 2019 and 2025 guidelines warrant comparison. The 2019 ATS/IDSA guidelines recommendations were based on the evaluation of 16 PICO questions, and GRADE (grades of recommendation, assessment, development, and evaluation) standards were used to assess the evidence supporting each PICO question and assign quality-of-evidence ratings.[6] PICO questions are fundamental to structuring clinical research, especially in the setting of systematic reviews, as they provide a basis for the criteria of searches and outline how data should be extracted from clinical studies in the context of patient/population/problem, intervention/exposure, comparison/control, and outcomes. Overall, the 2019 ATS/IDSA guideline offers a mix of strong and conditional recommendations, supported by moderate to strong evidence.

When the methodologies of the guidelines are compared (2019 vs. 2025), there are key differences (Table 1) that may explain IDSA's refusal to support the final publication. One major difference between the two guidelines is the use of GRADE standards and the Evidence to Decision Framework (EtD) to formulate recommendations. GRADE standards are the global standard in clinical literature for assessing the quality of evidence. These standards formulate PICO questions and rate the certainty of the evidence, which, in turn, guides the issuance of clinical recommendations. The 2019 ATS/IDSA guideline used GRADE standards solely,[6] whereas the 2025 ATS guideline used a combination of GRADE standards and the EtD framework.[4] EtD framework works directly alongside GRADE standards while

considering additional factors like benefits versus harms, patient values and preferences, and feasibility. However, EtD is only useful when GRADE standards have been applied properly and there is robust clinical evidence supporting the recommendation. The 2025 ATS guideline relies on very poor evidence or expert opinion to answer priority clinical questions 1 and 2,[4] rendering the use of the EtD framework ineffective. The authors appear to be extrapolating on evidence that is extremely poor or nonexistent, which can result in negative clinical outcomes or cause potential harm to patients.

The second key difference lies in the evidence synthesis approach. The 2025 guideline addresses only four PICO questions, primarily focusing on imaging and antibiotic use, and prioritizes only new and recent evidence. If practice areas did not have new evidence, they were not re-reviewed.[4] While both guidelines utilized the GRADE standard to assign quality ratings to evidence, the 2025 guidelines rely heavily on targeted systematic reviews rather than a full review, which explains the narrower spectrum of topics addressed. Additionally, the 2025 guideline explicitly recognizes that three of the four priority clinical questions produced recommendations that were conditional, due to low-quality evidence or reliance solely on expert opinion.[4] This is evident especially in Recommendation 2, which recommends empiric antibiotics in all inpatient populations and in outpatient populations with comorbidities, despite positive respiratory virus test results. This recommendation had conditional strength, meaning the ATS suggests it, and a GRADE standard of very low-quality evidence. The ATS explains the very low-quality evidence rating, stating that the review panel found no randomized or observational trials that met the criteria for inclusion as evidence for this recommendation, and that expert clinical opinion was heavily relied upon.[4] This cannot be overlooked, as there is a clear lack of outcome-based trials that directly compare withholding versus giving antibiotics in viral-positive CAP. Basing a recommendation entirely on expert opinion risks overlooking potential risks to patients that could be uncovered through additional studies. The methodology behind Recommendation 2 ultimately led the IDSA to withdraw its support for the guideline.[5]

The rationale for IDSA's refusal to support the final 2025 ATS guideline is based on poor methodology, insufficient transparency in guideline development, and inadequate representation of all members of the clinical care team on the review panel.[5] The IDSA emphasizes the point that the ATS acknowledges no studies showing the benefit of antimicrobial therapy in viral pneumonia, adding that this conflicts with long-standing antimicrobial stewardship messaging. The IDSA highlights that the panel and methodology team were dominated by pulmonary and critical care experts, leading to a poor emphasis on infectious disease expertise and considerations. The IDSA argues that transparency and balanced expertise are necessary for rigorous evaluation of evidence, that guideline formulation should be flexible, focusing primarily on the risk-versus-benefit to patients. While difficult to withdraw support, the IDSA cite the organization's ethical commitment to "to do no harm"; that commitment would have been breached if the organization supported the guideline.[5]

Pathophysiology Analysis

While broad host factors influence susceptibility to pneumonia, select mechanistic pathways can directly inform current CAP management decisions. Viral infections can compromise epithelial barriers and impair innate immune defenses, creating a window for bacterial superinfection.[9] Viral injury also disrupts

TABLE 1. Summary of Differences in Methodology Between 2019 ATS/IDSA and 2025 ATS Guidelines for CAP

Methodological Feature	*2019 ATS/IDSA CAP Guideline*	*2025 ATS CAP Guideline*
Overall scope and focus	Broad guideline addressing 16 decision areas (e.g., diagnosis, site-of-care, empiric therapy, management).	Focused update addressing 4 priority questions (e.g., lung ultrasound for diagnosis, viral testing guidance, antibiotic duration, corticosteroids).
Clinical question framework	Formal PICO questions for each recommendation.	PICO framework applied to a narrower set of questions.
Systematic evidence synthesis	Pragmatic systematic reviews across diverse CAP decision points.	Systematic reviews of comparative evidence for the 4 priority questions, integrated with panel clinical experience.
Evidence grading and recommendation framework	GRADE is used to rate the certainty of evidence and the strength of recommendations.	GRADE used with an EtD framework to explicitly link evidence, benefits/harms, values, and feasibility to recommendations.
Patient or stakeholder input	No clearly described structured patient/values input in methods.	Emphasizes evidence plus clinical experience within EtD components; formal patient involvement is not clearly described.
Number of clinical questions addressed	16 questions spanning diagnosis and management.	4 clinical practice questions are addressed in detail.
Implementation tools and scope statements	Broad implementation framework with supplementary tools (e.g., pathways).	Implementation considerations are explicitly tied to EtD elements for each recommendation.
Reporting transparency	Detailed PICO questions, evidence tables, and GRADE certainty/strength ratings.	Structured EtD documentation and evidence profiles for each recommendation.

Abbreviations: ATS, American Thoracic Society; CAP, community-acquired pneumonia; EtD, Evidence to Decision; GRADE, Grading of Recommendations, Assessment, Development, and Evaluation; IDSA, Infectious Diseases Society of America; PICO, population, intervention, comparison, outcomes.

mucociliary transport by damaging ciliated epithelial cells, slowing ciliary beat frequency, and allowing secretions and resident bacteria to accumulate within the airway. These epithelial disruptions increase bacterial adherence and colonization, as damaged cells and exposed basement membranes provide new binding sites for pathogens. In parallel, viral suppression of neutrophil function and altered cytokine signaling diminish antimicrobial immunity, further heightening susceptibility to bacterial pneumonia.[10] This mechanistic understanding underpins guideline recommendations for empiric coverage in patients at risk of post-viral bacterial CAP, such as influenza.[9-10]

Macrolides exhibit immunomodulatory effects that extend beyond their antimicrobial activity, influencing both innate and adaptive immune responses.[10] They can modulate neutrophil function, macrophage activity, and cytokine production, contributing to reduced pulmonary inflammation in respiratory diseases.[10] This mechanistic rationale supports their use as adjunct therapy in selected cases, although clinical evidence is variable and guideline recommendations remain conservative.

Biomarkers such as procalcitonin (PCT) provide a mechanistic bridge to antibiotic de-escalation. PCT rises in response to bacterial infection but is suppressed by viral infections via interferon-mediated pathways, allowing clinicians to safely shorten antibiotic courses once bacterial infection is deemed unlikely. [11] While PCT and other conventional biomarkers like C-reactive protein (CRP) offer useful guidance, they are imperfect indicators of disease severity or host immune response. Emerging research highlights a broad array of molecular, proteomic, and metabolomic markers that could more precisely capture the dynamic host-pathogen interactions in pneumonia.[11] Improved biomarkers may better guide therapy, identify patients at risk of complications, and ultimately allow personalization of immunomodulatory or antimicrobial interventions.[11]

At the same time, unnecessary antibiotic exposure may adversely affect human physiology through several proposed mechanisms. Certain antibiotics, such as fluoroquinolones and cephalosporins, have demonstrated mitochondrial toxicity that can impair cellular energy metabolism and alter immune signaling and inflammatory responses, thereby worsening other disease states that rely on optimal mitochondrial function and proper immune and inflammatory signaling.[12] Antibiotic-induced gut dysbiosis further alters systemic immune responses, which may influence susceptibility to future infections or inflammatory complications, increasingly so with broad-spectrum over narrow-spectrum antibiotic use. In addition to these proposed physiologic mechanisms, unnecessary antibiotic exposure carries broadly recognized risks, including *Clostridioides difficile* infection, adverse drug effects, and promotes the development of antimicrobial-resistant organisms within the individual and the community.[12] While the direct clinical implications of these mechanisms are not fully established, they provide biologic support for antimicrobial stewardship principles, including minimizing unnecessary exposure, favoring narrow-spectrum therapy when appropriate, and de-escalating or discontinuing antibiotics based on clinical response and diagnostic data.

In summary, CAP management balances mechanistic rationale for timely empiric therapy and immunomodulatory benefits with evidence-based caution regarding antibiotic overuse, using biomarkers and host-pathogen biology to optimize outcomes while minimizing collateral harm.[9-12] These mechanistic considerations help explain why empiric antimicrobial therapy and macrolide use have historically been favored in the management of CAP. However, biologic plausibility alone cannot substitute for high-quality clinical evidence, underscoring the ongoing debate surrounding the strength of several recommendations in the 2025 ATS guidelines.

Clinical Evidence Analysis of the Use of Macrolides in CAP

In the treatment of sCAP, clinicians in the US rely upon the 2019 IDSA/ATS guidelines, which recommend combination therapy with a β-lactam with a macrolide or quinolone. The 2019 guideline notes equal efficacy across both combinations; adding macrolides may confer an additional benefit due to their anti-inflammatory effects.[6] Macrolides are effective against atypical respiratory pathogens like *Mycoplasma pneumoniae*, which often are part of mixed bacterial infections in sCAP patients. In 2023, the ERS recommended macrolides over quinolones in combination with β-lactams for sCAP treatment, based on a review of 17 observational studies that showed a significant reduction in mortality and the need for ventilatory support.[3,13] It should be noted that there are no randomized controlled trials (RCTs) comparing the two directly to date.

The benefit of macrolides as an add-on therapy to β-lactams appears to be most pronounced in patients with sCAP.[13-14] A 2015 cluster-randomized crossover trial of 2,282 non-intensive care unit (ICU) patients with CAP in the Netherlands tested the non-inferiority of β-lactam monotherapy to β-lactam plus macrolide and quinolone treatment regimens with respect to a 90-day mortality rate and a non-inferiority margin of 3%. The primary outcome was the crude 90-day mortality rate. The 90-day mortality rate was within 3% across all groups, indicating non-inferiority of the β-lactam monotherapy arm (9.0%, 11.1%, 8.8% respectively).[14] Studies like this one and other non-inferiority trials within similar parameters show, for now, that the added benefit of macrolides in non-sCAP patients is minimal at best.[14-16]

On the other hand, macrolides appear to be associated with a significant reduction in mortality when used in sCAP patients.[17] A large meta-analysis of 28 observational studies, including nearly 10,000 patients, was conducted in 2014 comparing macrolide regimens with non-macrolide regimens in critically ill patients with sCAP. Studies involving outpatients and non-ICU hospitalized patients were excluded. The primary analysis compared mortality rates between macrolide- and non-macrolide-containing regimens. Macrolide-containing regimens were associated with a statistically significant lower mortality rate compared with non-macrolide regimens (21% vs 24%, RR 0.82, 95% CI 0.70-0.97; p=0.02).[17] To adjust for differences among subgroups, macrolide monotherapy was excluded from a sub-analysis, however the macrolide mortality benefit was still maintained (21% vs 23% RR 0.84, 95% CI 0.71-1.00; p=0.05).[17]

Lastly, while data is limited on the mortality benefit of macrolides and

quinolones when compared head-to-head, a prospective observational cohort study conducted across 27 ICUs in nine European countries in 2009 compared ICU mortality in 218 patients requiring mechanical ventilation due to a sCAP diagnosis.[18] The study relied on the 2007 IDSA/ATS CAP guidelines for empiric antibiotic therapy in 100 patients, with 46 receiving macrolides and 54 receiving quinolones combined with β-lactams. The primary outcome in this cohort was the difference in ICU mortality, adjusted for severity, using Cox regression. The macrolide group had lower ICU mortality (hazard ratio 0.48, 95% CI 0.23-0.97, p=0.04) than the quinolone group.[18] When more severe patients presenting with sepsis and septic shock were analyzed, the macrolide mortality benefit was similar (HR 0.44, 95% CI 0.20-0.95, p=0.03).[18]

To date, no RCTs have evaluated mortality or other patient outcomes in CAP when macrolides are compared with other antimicrobials.[3] Most data compiled is based on observational studies comparing mortality rates, which carry the risk of confounding by indication, severity imbalances, and timing of antibiotic administration relative to patient presentation. While acknowledging the confounding risks of observational studies, clinicians should note the consistent decrease in mortality observed with macrolides in these studies and consider that most studies conducted primary analyses adjusted for confounding factors, such as differences in patient severity.

In summary, while RCTs evaluating the perceived benefit of macrolides in combination regimens for treating sCAP are needed, observational studies consistently show lower mortality rates than non-macrolide and quinolone-containing regimens. Currently, the 2025 ATS guidelines restate what the 2019 ATS/IDSA guidelines state: that macrolides may confer benefits over other antibiotic classes in the treatment of sCAP, but differences in efficacy and clinical outcomes compared to other classes, such as quinolones, are not significant.[4,6] The use of macrolides in non-sCAP patients and sCAP patients is met with some scrutiny due to their broad spectrum and recent antibiotic resistance to macrolides among certain patient populations and regions of the US. Additionally, the theoretical question now exists that the anti-inflammatory properties of macrolides could be mitigated by steroid use. This is important to consider as priority clinical question 4 of the 2025 ATS guideline suggests the use of steroids in the treatment of hospitalized patients with sCAP.[4] Future CAP guidelines in the US should strive to mirror their European counterparts in recommending macrolide use in patients with sCAP over other antibiotic classes in combination therapy, due to robust data supporting a decrease in mortality and need for ventilatory support.

Diagnostics and Imaging Stewardship

Recommendation 1 of the 2025 ATS guidelines for CAP centers focuses on imaging, specifically LUS and traditional chest radiography (chest X-ray).[4] The ATS suggests in this guideline that in adults with suspected CAP, LUS is an acceptable diagnostic alternative to chest radiography in settings where appropriate expertise exists.[4] The recommendation carries a conditional strength rating and a GRADE standard of low-quality evidence.

Recommendation 1 has drawn criticism from some members of the pulmonology community, including the former head of the IDSA guideline committee, who argue that LUS and chest radiography should be viewed as complementary rather than competing modalities.[7-8] Additionally, chest radiography can track the progression of pneumonia over time and offers a comprehensive surveillance view of the thorax.[7] Serial monitoring is less standardized for LUS compared with radiography/computed tomography (CT). Additionally, the accuracy and interpretation of ultrasound heavily dependent upon the skill of the operator and the training of the clinician.[7-8] The ATS cited evidence from numerous 1990s studies demonstrating that LUS can accurately detect common lung pathologies when performed by clinicians competent in its use.[4] The problem here is that nearly all imaging studies on LUS centered on the accuracy of the imaging in diagnosis. The ATS identified no studies that measured outcomes other than accuracy when comparing LUS to chest radiography in patients with suspected CAP.[4] The ATS also notes that in studies comparing LUS to chest radiography, results are widely varied and lack measurable clinical outcomes, leading the committee to conclude that the true clinical performance of LUS for the diagnosis of CAP is uncertain. Additionally, there is substantial uncertainty about whether LUS is equivalent to chest radiography for the management and diagnostic approach for pneumonia, resulting in the best outcomes for patients.[4] Again, LUS can only be effective in the hands of an expert clinician who is trained to read and interpret ultrasound results. In contrast, chest radiography requires the expertise of a radiologist to interpret the results. Many of the studies the ATS used as evidence for this recommendation were conducted internationally, primarily in Europe, which also raises concern.[4,8] The average patient in Europe is not the average patient in the US, as the population there reflects a healthier community, especially when rates of obesity are compared. Additionally, lung ultrasonography in Europe is generally performed by expert ultrasonographers. In contrast, access to sonography-trained clinicians in the US varies widely across health care systems.[7-8]

The rationale behind this recommendation from the ATS first assumes that a clinician assuming care of patients has expertise in point-of-care ultrasound (POCUS) and can interpret imaging appropriately. The ATS heavily relies on the fact that many health systems, especially in rural areas, lack CT radiography capabilities. For this reason, to accurately diagnose more patients promptly, the ATS states that POCUS is equivalent to CT for diagnosing CAP.[4] High cost and patient risks with CT scans are another point the ATS makes in their rationale behind this recommendation, arguing POCUS is less harmful to patients and is more cost-effective. Patient convenience and no radiation exposure are the last points the ATS makes in their rationale, which aligns with their earlier argument that POCUS is less burdensome on patients due to cost and potential patient risks.[4] The ATS does recognize the shortcomings of LUS, citing the risk of false diagnoses like pulmonary embolism, malignancy, and that patient barriers may exist to an effective LUS, such as obesity, drains, scars, and wounds.[4]

In summary, basing a recommendation on lung ultrasonography for CAP patients in the US, using evidence from a vastly

different patient population and performed by experts in sonography, poses a potential risk to patients in the US due to stark differences in patient populations. POCUS should be used when access to chest radiography is limited and the clinician is trained to properly interpret LUS results.[4]

Conclusion

The 2025 ATS Guidelines for the Treatment and Management of CAP were built on recommendations from the 2019 edition and included four priority clinical questions. The 2019 edition was released in conjunction with the IDSA. The IDSA declined to support the 2025 ATS guidelines, citing insufficient evidence and poor methodology in their formulation. Recommendation 2 centers on empiric antibiotics for all inpatients with a positive respiratory virus test, and varies based on the comorbidities of outpatients. Recommendation 1 centers on imaging for the detection of CAP and sCAP, suggesting that LUS is an acceptable alternative to chest radiography.

This paper has also identified potential "research gaps" that, if addressed, could significantly improve patient outcomes and streamline the management and treatment of both sCAP and non-sCAP.

GRADE standards and the EtD framework are used concurrently to formulate recommendations in clinical guidelines; however, if GRADE standards reveal low-quality evidence, the use of the EtD framework becomes ineffective. The 2025 ATS guidelines extrapolated very low-quality evidence and, in some cases, no clinical evidence at all to formulate key recommendations. While expert opinion most certainly has a place in clinical decision-making, there are potential dangers to patients when it is blindly trusted without sufficient evidence to support it.

The pathophysiologic mechanisms of antibiotics used in the treatment of CAP and sCAP should inform clinical guideline formulation. The risks of unnecessary antibiotic exposure are real, and antibiotic resistance is a threat in the treatment of numerous infectious diseases. The 2025 ATS guideline unfortunately disregarded antibiotic stewardship, which, in turn, led to dissent and questioning of its validity.

Future studies on CAP and sCAP treatment should aim to determine the incidence of bacterial coinfection in viral-positive CAP to support the ATS recommendation. Although robust observational study data is supporting the use of macrolides and CT radiography in CAP treatment and diagnosis, RCTs are needed to identify which antibiotics and imaging modalities, when used appropriately, directly improve patient outcomes, including mortality, in sCAP and non-sCAP treatment.

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PR *This article has been peer-reviewed. The contribution in reviewing is greatly appreciated!*

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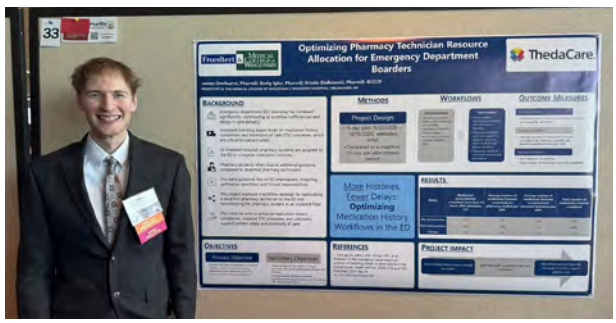

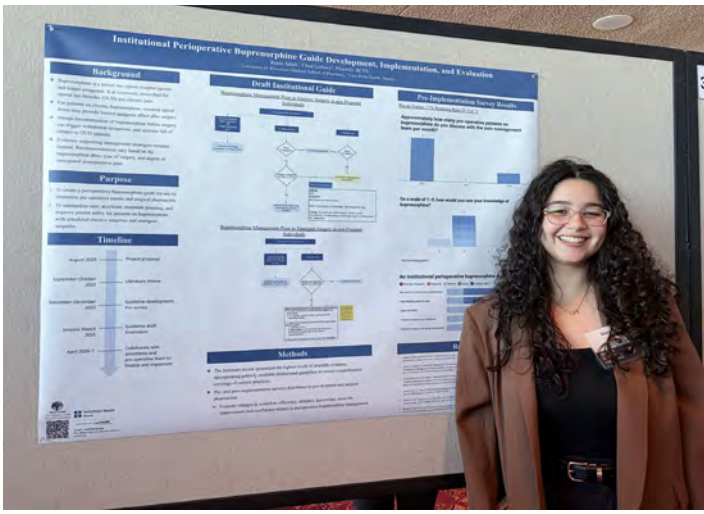

2026 PSW Educational Conference

Meeting Recap

2026 PSW Educational Conference & Wisconsin Pharmacy Residency Conference Recap

by Kate Hartkopf, PharmD, BCACP and Sarah Pagenkopf, PharmD, BCPS

What does it take to move a profession forward in a time of rapid change? At the 2026 Pharmacy Society of Wisconsin (PSW) Educational Conference and Wisconsin Pharmacy Residency Conference (WPRC), held April 21–22 at Monona Terrace in Madison, the answer was clear: intentional leadership, a resilient workforce, and a shared commitment to shaping the future of care.

Anchored by the theme of Energize: Powering Care Everywhere, this year's conference convened pharmacy professionals from across Wisconsin to explore how culture, innovation, and collaboration can drive meaningful progress across all practice settings.

Culture by Design, Not by Default

The conference opened with keynote speaker Steve Jones, professional leadership coach and best-selling author, who challenged attendees to think differently about the role of culture in their organizations. Through stories from his childhood and a reminder of a starfish parable, Jones illustrated the power of individual action, reinforcing that even small, intentional efforts can create meaningful impact on team dynamics and patient care.

Central to his message was the distinction between cultures that form by default and those built by design. He emphasized that high-performing teams are grounded in connection, trust, mindset, and servant leadership, and that these elements directly influence engagement, performance, and well-being.

Jones also introduced the concept of choosing to "be the buffalo" by facing challenges head-on rather than avoiding them. This framing resonated strongly with attendees navigating workforce pressures and evolving care models. His session encouraged reflection on the behaviors that strengthen, or erode, psychological safety and shared accountability within pharmacy teams.

Building on this foundation, Dr. Mike Stadler then led a session focused on advancing well-being for Wisconsin's healthcare workforce. Through his review of the efforts currently underway across Wisconsin with support from the Advancing a Healthier Wisconsin Endowment, he highlighted both the urgency of addressing burnout, forging methods for healthcare teams to access mental health support, and the opportunity for pharmacy leaders to implement sustainable strategies that support team health, well-being, and resilience.

Leadership Transitions and System Disruption

Day two shifted focus toward leadership continuity and broader system change. A panel of PSW members, including Jordan Dow, Carmen Gust, Nick Ladell, Sarah Schmidt, and Dawn Wypiszynski, explored succession planning and leadership transitions, emphasizing that preserving organizational culture during periods of change requires proactive planning, clear communication, and deliberate knowledge transfer. Panelists shared insights and practical strategies to support teams through transitions, regardless of practice setting or organization size, while maintaining stability and engagement.

An armchair conversation between Curt Kubiak of The Alliance and PSW CEO Sarah Sorum expanded the discussion to the evolving healthcare landscape. Their dialogue examined the rise of employer-driven healthcare models, including direct contracting and employer-provider partnerships, and how these approaches are disrupting traditional payer structures.

The conversation underscored important implications for access, cost, and quality, while also highlighting new opportunities for pharmacy professionals to engage as high-value partners in population health, workforce well-being, and sustainable care delivery.

Innovation Across Practice

As in past years, the afternoons on both conference days offered attendees the option to choose among several presentations running simultaneously. Concurrent sessions reflected the breadth, depth, and momentum of the current pharmacy practice in Wisconsin. Attendees engaged with topics spanning clinical care, operational strategy, and emerging technologies, including artificial intelligence in practice, telehealth expansion, technician-driven care models, and advanced billing practices.

Clinical updates and forward-looking sessions, such as hypertension guideline reviews, anticoagulation management, insights into a Standard of Care framework, and the *ASHP Pharmacy Forecast 2026,* reinforced the importance of staying up to date in an increasingly complex healthcare environment. Across these sessions, a consistent theme emerged: pharmacy continues to expand its impact through innovation, adaptability, and interdisciplinary collaboration.

Advancing Research and the Next Generation

Research and knowledge sharing remained central to the conference experience. A total of 94 posters were presented by pharmacists, pharmacy technicians, residents, and student pharmacists, showcasing a wide range of innovative practices and emerging evidence.

The WPRC again demonstrated strong engagement from residency programs across the state, with 142 residents presenting their research projects. This year, the WPRC reintroduced a series of Star Research Sessions on the first day of the conference. The WPRC Planning Committee selected these presentations for their strong alignment with PSW's strategic plan, workforce priorities, and emerging patient care topics.

This sustained growth reflects a strong commitment across Wisconsin to advancing pharmacy practice through research, mentorship, and professional development. The WPRC planning committee looks forward to building on this momentum as the conference will celebrate its 10th anniversary in 2027.

Sustaining the Energy

The 2026 PSW Educational Conference and WPRC highlighted a profession that is not only adapting to change but actively shaping it. From cultivating intentional workplace cultures to engaging with new healthcare delivery models, pharmacy professionals are redefining their role in advancing patient care and system sustainability.

Just as importantly, the conference created space for something less tangible but equally critical: renewal. Conference evaluations demonstrate that attendees left with a strengthened sense of purpose, fresh perspective, and renewed energy for their work. Through shared learning, meaningful conversations, and the simple act of coming together as a professional community, participants were reminded that they are not navigating these challenges alone.

As attendees return to their respective practice settings, we hope the insights gained, ideas shared, and connections formed over these two days will continue to spark meaningful action and sustained progress. May the energy generated throughout this conference serve as a lasting reminder that the future of pharmacy is not something we simply wait for; it is something we create together through collaboration, innovation, and a shared commitment to improving the health of Wisconsinites.

ON DEMAND CE

Recognizing the evolving landscape of pharmacy practice and the growing role of technology, PSW understands that not every member of the pharmacy team is able to attend live conference sessions due to patient care responsibilities, staffing needs, and competing professional demands. To help ensure that everyone has access to high-quality continuing education, select presentations from both days of the conference were recorded and are now available for on-demand viewing. These sessions can be accessed anytime from the convenience of your workplace, office, or home, allowing pharmacists, pharmacy technicians, and student pharmacists to pursue their professional goals, expand their knowledge, and explore new career opportunities at a time that works best for them.

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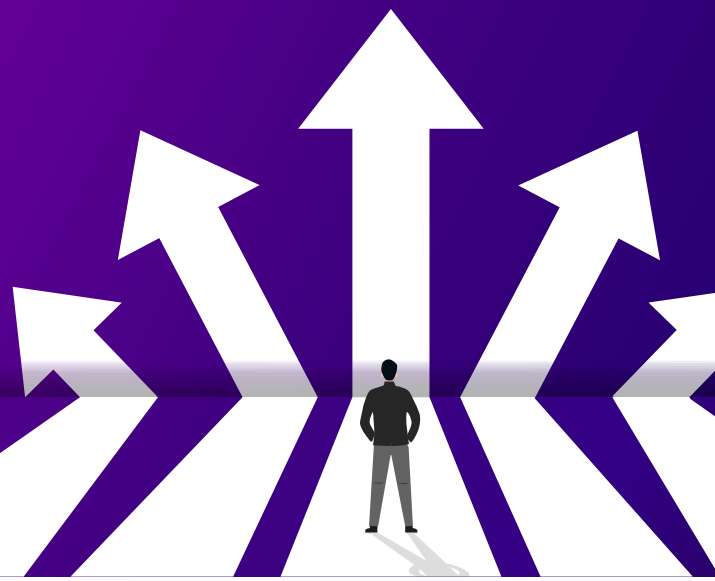
Student Reflection: Roles, Pathways, and Insights from Industry Pharmacists

by Sophia M. Castillo, PharmD



Abstract

Drawing on insights from the PSW 2025 Annual Meeting panel session 'Pulling Back the Curtains: An In-Depth Look at Opportunity and Partnership Both With and Within Medical Industry,' the student author captures key takeaways and common themes from pharmacist panelists working in various roles in the pharmaceutical industry. Considering the growing visibility of pharmacists in the pharmaceutical industry, garnering interest among practicing pharmacists and PharmD student candidates alike, it is worth discussing the roles, opportunities, and paths to the industry.

Opportunities in the pharmaceutical industry setting are of growing interest among student pharmacists today. This represents a shift, as many pharmacists currently working in industry had limited exposure or interest in industry careers when they entered pharmacy school.[1] Entering the industry setting may occur immediately after pharmacy school graduation (through industry fellowship post-graduate training or entry-level job opportunities), but also spans to later career transitions from traditional pharmacy practice.[2] Pharmacists may pursue industry career opportunities for various personal and professional reasons and enter a variety of roles at a given company or organization. As shared during the PSW 2025 Annual Meeting panel session 'Pulling Back the Curtains: An In-Depth Look at Opportunity and Partnership Both With and Within Medical Industry,' key insights and common themes from Wisconsin-based industry pharmacist panelists who have transitioned from various clinical practice roles are captured in this article. Pharmacist panelists highlighted their own experiences transitioning to industry practice, while offering guidance to others interested in pursuing a similar professional pivot. Disclaimer: Panelist perspectives are presented in aggregate due to pharmacist authorship and attribution constraints. The panelists' comments are reflections on their personal journeys and do not necessarily reflect the thoughts or beliefs of the organizations they work for.

Transitioning to Industry

While acknowledging that many paths to industry roles are possible for pharmacists, the pharmacist panelists shared a common transition into medical affairs roles in the pharmaceutical industry after about a decade or more of practice experience in specialized clinical pharmacy settings. Medical affairs is one of the broad industry divisions, often referred to as 'functional areas.' Medical affairs roles focus on therapeutic and disease-state educational efforts. Additionally, they help contextualize the clinical value of medication by sharing and disseminating data from trials and research to relevant stakeholders, often including health care professionals, health system administrators, and payers or other healthcare decision-makers.[3] Although pharmacy-trained professionals often suit medical affairs industry roles, it is worth recognizing that other roles, including clinical development, regulatory affairs, or commercial and marketing roles, in addition to medical affairs, can be additional career opportunities in industry.[4] During their transition phase to industry, pharmacist panelists frequently emphasized the influence of their professional network of pharmacist colleagues and mentors who increased their awareness of relevant industry roles available. Most panelists credited someone in their network for recommending a specific role that aligned with their current clinical specialty or analytical skill set. Panelists emphasized the value of maintaining connections with colleagues throughout their careers, including those who have changed clinical roles or pivoted to practice in alternative pharmacy settings.

Professional Goals

Regarding personal and professional motivations for transitioning to industry practice, all pharmacist panelists described a personal enthusiasm at the time to take on a new and challenging role that drew heavily on the skill sets developed during their clinical careers. Panelists described an interest in further developing their leadership and influence, while still having the opportunity to collaborate meaningfully with other healthcare providers in clinical

practice with a sense of autonomy. All panelists endorsed continued personal and professional fulfillment in their current industry roles, with some sharing that their current roles serve as outlets to practice at a population-level version of prior clinical roles. Of note, many panelists challenged the notion that industry pharmacy practice is pursued solely by pharmacists for increased work-schedule flexibility relative to other pharmacy settings, as none of the panelists mentioned this as a reason for making the transition during the session. Regarding the evolution of their previous clinical career goals, some panelists described their role fulfillment as rooted in relationship-building or data sharing with healthcare professionals. Another panelist shared that their role fulfillment was more closely tied to their ongoing passion for the disease state that their prior clinical practice focused on, and that continuing advocacy for this patient population at a larger scale was their goal. In summary, all panelists identified rewarding dynamics of their current industry role that related to their interests and passions that also existed in prior clinical roles.

Transferable Skills

To support an eventual transition to a role in the pharmaceutical industry, a common theme among panelists was that pharmacists pursuing this transition should foster adaptability, open-mindedness, and resourcefulness. Panelists also emphasized leaning into their clinical expertise, especially those who entered industry roles with the same disease-state focus as in their prior specialized clinical roles. Despite not having prior industry experience before transitioning to industry roles, panelists noted that the skillsets from prior clinical roles, including building a working understanding of reimbursement mechanisms, prescribing norms and preferences for a given disease state, and current patient adherence and access barriers, are increasingly relevant and sought after in current industry roles. Given that the pharmaceutical industry and its outreach efforts are highly regulated, industry relationships with other healthcare professionals, including clinical and community pharmacists, are increasingly important in this complex healthcare landscape, and all parties should aim to prioritize patients and improve care.[5]

Student Perspective

With earlier awareness of industry pharmacy practice opportunities, current pharmacy students interested in pursuing industry roles early in their pharmacy careers may consider post-graduate training via pharmaceutical industry fellowships following PharmD graduation, which often facilitate preparation, retention, and growth opportunities across a multitude of roles.[6] Students interested in pursuing an industry fellowship can explore the various industry functional areas early in pharmacy school to identify the functional area and specific roles that best align with their ultimate career goals and professional interests. Extracurricular involvement, including work, internships, research, and student organization experiences, can be tailored to further develop relevant skills and experiences transferable to industry settings, as well as to guide the fellowship or entry roles that students may ultimately apply for. Pharmacy students should also consider getting involved with their school's Industry Pharmacists Organization (IPhO) chapter, or starting a chapter if one does not already exist at the local level. Establishing ongoing mentorships with alums or other pharmacists practicing in industry settings should also be pursued to gain specific insights into role preparation, expectations, and personal and professional growth opportunities.

Conclusion

Pharmacists can enter the pharmaceutical industry by leveraging transferable skill sets developed in clinical practice settings and applying relevant experiences in new contexts across the many industry divisions or functional areas. Pharmacists and student pharmacists interested in pursuing industry practice are encouraged to consider the guidance outlined in this article.

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