

JUCM[®]

THE JOURNAL OF URGENT CARE MEDICINE[®]

NOVEMBER 2025
VOLUME 20, NUMBER 2

UCA URGENT CARE
ASSOCIATION

 COLLEGE OF
URGENT CARE
MEDICINE

 URGENT CARE
COLLEGE OF
PHYSICIANS

www.jucm.com

The Official Publication of the UCA, CUCM, and UCCOP

CELEBRATING **20** YEARS

CLINICAL TOPIC REVIEW **cme**

Common Pregnancy Complaints: Normal or a Serious Condition?

ALSO IN THIS ISSUE

cme 23 Clinical Topic Review
An Urgent Care Approach To STIs

31 Case Report
Adolescent Lupus: A Presentation
With Pericardial and Pleural
Effusions **cme**

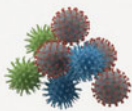


39 Practice Management
Legally, What 'Standard
of Care' Really Means



Point-of-Care PCR Testing in Your Urgent Care

One Simple System



SARS-CoV-2, Influenza A,
Influenza B, and Respiratory
Syncytial Virus (RSV)



Influenza A, Influenza B,
and Respiratory Syncytial
Virus (RSV)



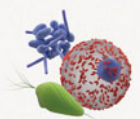
SARS-CoV-2



Influenza A and Influenza B



Group A *Streptococcus* (GAS)



Bacterial Vaginosis (BV),
Vulvovaginal Candidiasis (VVC),
and Trichomoniasis (TV)



Hepatitis C

GeneXpert® Xpress System



US-IVD. *In Vitro* Diagnostic Medical Device.

CEPHEID CORPORATE | TOLL FREE +1.888.336.2743 | PHONE +1.408.541.4191 | FAX +1.408.541.4192 | [Cepheid.com](https://www.Cepheid.com)

© 2025 Cepheid.





LETTER FROM THE EDITOR-IN-CHIEF

Training Our Teams to Meet the Needs of Our Patients

Countless times over the last year I have heard variations on a “we can’t” theme. It’s a specific and focused “we can’t” related to the services we are *not* able to provide to our urgent care patients. “We can’t do that test.” “We can’t use that medication in clinic.” “We can’t have our medical assistants do that.” Sadly, it is purely a reflection of education and training. However, as opposed to responding with increased training and educational support for our team members, we are restricting services and lowering the level of our patient care. We can and should do better for our patients.

If our medical assistants don’t know how to take a respiratory rate, the response might be that our clinic leadership considers eliminating that vital sign. I have to admit I was shocked when I heard about this very situation. Res-



“If a clinician orders a test, they need to be able to interpret the test.”

piratory rate is a critical vital sign. There have been many instances when I have seen a patient who looked otherwise quite well, except for an elevated respiratory rate. And that elevated respiratory rate was the key urgent care finding, which led to an ultimate diagnosis of severe respiratory infection, metabolic acidosis, or pulmonary embolism.

The confusion stems from the math required to calculate the respiratory rate: count respirations for 15 seconds and multiply by 4; or count respirations for 20 seconds and multiply by 3; or count respirations for 30 seconds and multiply by 2; or count respirations for 60 seconds and don’t multiply. I get it. On a busy 12-hour shift, sometimes we can’t slow down to think it through, or maybe our medical assistants weren’t trained well enough. Regardless, taking 5 minutes during a staff meeting to train the medical assistants on one approach would minimize confusion. Reminder posters could also be placed in exam rooms. This seems like a way to ensure that our patients get quality care in urgent care—as opposed to eliminating a vital measurement.

Experienced clinicians are also not immune to these

types of statements. “Our clinicians don’t know how to read a pediatric electrocardiogram, so I’m not sure we should expect them to perform that study.” I absolutely agree with the underlying sentiment in this statement. If a clinician orders a test, they need to be able to interpret the test. Incorrectly interpreting a test will put patients at risk and ultimately cause harm. However, the response should not be to stop doing the test. Doesn’t a 17-year-old obese male patient who presents to urgent care with chest pain need an electrocardiogram to evaluate for early acute coronary syndrome or pericarditis? Seems that missing a diagnosis like this by not performing an indicated test ultimately causes harm to the patient too.

I acknowledge that clinician education, training, and years of experience are variable and that there are most likely gaps for each clinician practicing urgent care medicine.¹ Regardless, leadership teams should encourage clinicians to gain the education and training necessary to fill those gaps. Clinicians should also feel a responsibility to provide the best possible care to our patients, which means becoming proficient in all aspects of care related to our clinical setting—the urgent care center. After all, each of us took an oath to “do no harm.” Not doing tests because we don’t know how or doing tests we don’t know how to interpret potentially creates harm. Continuing medical education is easily available in many formats to help close these gaps.

So today I encourage each and every one of us to redirect our attention to raise the bar as opposed to lowering the level of patient care. If you are a clinical leader, offer trainings to your clinicians and support staff during team meetings. If you are a clinician, take initiative and seek out continuing medical education opportunities to fill gaps in your medical knowledge, clinical reasoning, and procedural skills. Together we can raise the bar in urgent care patient care. ■

Reference

1. O’Malley P, Botchway A, Stoimenoff L, Fish LE. Urgent Care Clinician Procedural Benchmarking Survey Results. *J Urgent Care Med.* 2025; 20(1):4-6

Lindsey E. Fish, MD, FCUM

Editor-in-Chief, *The Journal of Urgent Care Medicine*

Email: editor@jucm.com



Fast + Accurate Point-of-Care Respiratory Solutions To Meet Your Needs

During respiratory season, **your patients depend on you to provide fast, accurate diagnosis and effective treatment plans.** Having the right diagnostic solutions in your office can help you provide the care your patients expect.

Our product portfolio includes **high-quality, point-of-care molecular and antigen tests** for diagnosing respiratory illnesses. Our solutions can help you deliver answers and treatment plans for your patients which can get them on the road to recovery and improve outcomes for your clinical practice.

We make diagnostics that matter because we believe each test represents the health and well-being of a real person.

Learn more about our tests for Flu A&B, COVID-19, Strep A, and more. For more information, call 800-332-1042 or visit us at sekisuidiagnostics.com/respiratory-health.



These tests have not been FDA cleared or approved. They are authorized by FDA under an EUA for use by authorized laboratories. The emergency use of these products is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b) (1) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 360bbb 3(b)(1), unless the declaration is terminated, or authorization is revoked sooner.



CLINICAL TOPIC REVIEW

13 Shortness of Breath in Pregnancy: Differentiating Physiology from Pathology in Urgent Care

As shortness of breath and edema are common in pregnancy, urgent care clinicians must distinguish patients with normal physiologic changes from those with emergent conditions like venous thromboembolism, hypertension, eclampsia, and cardiomyopathy.

John Ramos, MMS, PA-C, CAQ-EM

CLINICAL TOPIC REVIEW

23 United States Sexually Transmitted Infections: A Comprehensive Overview and Relevance To Urgent Care Centers



Patients frequently utilize urgent care centers for testing and treatment of sexually transmitted infections. All clinicians can be a first-line defense to control the spread and combat the current epidemic.

Alexandra Faraj, PA-S; Nadesha Muniz, MS Ed, PA-C

CASE REPORT

31 A Rare Cardiopulmonary Debut of Systemic Lupus Erythematosus: A Pediatric Case Report



In adolescents presenting with persistent chest pain and systemic symptoms, clinicians should maintain a high index of suspicion for autoimmune etiologies such as systemic lupus erythematosus causing pericardial and pleural effusions.

Asra Usmani, MBBS, MD; Ali Baidoun, MD; Aaron Mahoney, DO; Megan Sikkema, DO

PRACTICE MANAGEMENT

39 What Does 'Standard of Care' Mean From a Legal Perspective?



Urgent care centers are not required to deliver the "best possible care" but rather an "acceptable" level of care, which is legally defined as the "standard of care."

Alan A. Ayers, MBA, MAcc

FOLLOW JUCM ON SOCIAL MEDIA

LinkedIn

JUCM: Journal of Urgent Care Medicine



X

@TheJUCM



DEPARTMENTS

- 1 Letter from the Editor-in-Chief
- 5 Urgent Interactions
- 7 From the UCA CEO
- 10 Continuing Medical Education
- 42 Abstracts in Urgent Care
- 47 Clinical Image Challenge
- 55 Revenue Cycle Management
- 57 Developing Data

TO SUBMIT AN ARTICLE:

JUCM utilizes the content management platform Scholastica for article submissions and peer review. Please visit our website for instructions at <http://www.jucm.com/submit-an-article>

JUCM EDITOR-IN-CHIEF

Lindsey E. Fish, MD, FCUCM

Medical Director, Peña Urgent Care Clinic, Denver, Colorado
Associate Professor of Medicine, University of Colorado School of Medicine

JUCM EDITOR EMERITUS

Lee A. Resnick, MD, FFAFP

President/Chief Growth Officer
WellStreet Urgent Care
Assistant Clinical Professor, Case Western Reserve University,
Department of Family Medicine

JUCM EDITORIAL BOARD

Alan A. Ayers, MBA, MAcc

President of Urgent Care Consultants

Jasmeet Singh Bhogal, MD

Medical Director, VirtuaExpress Urgent Care
President, College of Urgent Care Medicine

Jeffrey P. Collins, MD, MA

Conviva Physicians Group
Part-Time Instructor,
Harvard Medical School

Tracey Quail Davidoff, MD, FCUCM

Attending Physician
Baycare Urgent Care
Assistant Professor, Family Medicine, Florida State University School of Medicine

Thomas E. Gibbons, MD, MBA, FACEP

Medical Director
Lexington Medical Center
Northeast Urgent Care

William Gluckman, DO, MBA, FACEP, CPE, FCUCM

President & CEO, FastER Urgent Care
Clinical Assistant Professor of Emergency Medicine at Rutgers New Jersey Medical School

Glenn Harnett, MD

CEO, No Resistance Consulting Group

Steve Sellers

CEO, Urgent Care Association

Sean M. McNeeley, MD, FCUCM

University Hospitals Urgent Care
Clinical Instructor, Case Western Reserve University School of Medicine
UCA Immediate Past President

Christian Molstrom, MD

Chief Medical Officer,
AFC Urgent Care, Portland

Joseph Toscano, MD

Chief, Emergency Medicine
Medical Director, Occupational Medicine
San Ramon Regional Medical Center
Board Member, Board of Certification in Urgent Care Medicine

Ben Trotter, DO

Medical Director of Emergency Services
Adena Regional Medical Center

Kelvin Ward, MBChB (Auckland), FRNZCUC

Chair, Royal New Zealand College of Urgent Care

Janet Williams, MD, FACEP

Medical Director, Rochester Regional Health Immediate Care
Clinical Faculty, Rochester Institute of Technology

UCA BOARD OF DIRECTORS

Scott Prysi, MD

President

Gerald Cvitanovich, MD

President-Elect

Alicia Tezel, MD, FCUCM

Treasurer

Jackie McDevitt, PA-C, FCUCM

Secretary

Cassandra Barnette Donnelly, MD

Director

Heather Fernandez, MBA

Director

Tracey Davidoff, MD, FCUCM

Director

Danielle Bynum, OMC

Director

Boyd Faust

Director

Darek Newell

Director

Payman Arabzadeh, MD, MBA

Immediate Past President

Luis de la Prida, MBA

Ex-Officio

Cesar Jaramillo, MD, FFAFP, FCUCM

Ex-officio

Steve Sellers

CEO

JUCM®

EDITOR-IN-CHIEF

Lindsey E. Fish, MD, FCUCM

editor@jucm.com

MANAGING EDITOR

Julie Miller

jmill@jucm.com

SENIOR EDITOR, PRACTICE MANAGEMENT

Alan A. Ayers, MBA, MAcc

SENIOR EDITOR, CLINICAL

Michael B. Weinstock, MD

SENIOR EDITORS, RESEARCH

Albert Botchway, PhD

Ariana M. Nelson, MD

EDITOR, PEDIATRICS

Brittany Wippel, MD

EDITOR, IMAGES

Amy Quinones, FNP-BC

EDITOR, ECG IMAGES

Benjamin Cooper, MD, MEd, FACEP

CONTRIBUTING EDITOR, ABSTRACTS

Ivan Koay, MBChB, MRCS, FCUCM, FRNZCUC, MD

SENIOR ART DIRECTOR

Tom DePrenda

tdeprenda@jucm.com



11 E Sundial Circle, PO Box 5156, Carefree, AZ 85377

PUBLISHER AND ADVERTISING SALES

Stuart Williams

swilliams@jucm.com • (480) 245-6400

CLASSIFIED AND RECRUITMENT ADVERTISING

Katelyn Blair

katelyn.blair@momentivesoftware.com • (860) 544-6170

Mission Statement

JUCM The Journal of Urgent Care Medicine (ISSN 19380011) supports the evolution of urgent care medicine by creating content that addresses both the clinical practice of urgent care medicine and the practice management challenges of keeping pace with an ever-changing healthcare marketplace. As the Official Publication of the Urgent Care Association, the College of Urgent Care Medicine, and the Urgent Care College of Physicians, *JUCM* seeks to provide a forum for the exchange of ideas regarding the clinical and business best-practices for running an urgent care center.

Publication Ethics and Standards

JUCM adheres to industry standards for academic medical journals regarding ethical behavior on the part of authors, editors, reviewers, and staff. Authors should review and understand these guidelines to avoid misconduct in manuscript preparation and submission. The following definitions are provided to guide individuals in adhering to these declarations.

Study Design and Ethics of Research Involving Human Subjects

Research must be conducted to appropriately address the research question while strictly adhering to ethical standards for investigations involving human subjects. *JUCM* affirms the standards for research ethics outlined by the World Medical Association (WMA) in the Declaration of Helsinki, 1964 and its subsequent amendments (last updated 2018). Prospective authors are encouraged to review the Declaration prior to undertaking research, with consideration for conducting appropriate informed consent and whether intended subjects are considered a vulnerable population. Submissions to *JUCM* must comply with the principles of the Declaration (www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects). Research involving human subjects must comply with the respective Institutional Review Board (IRB) standards. Use of an independent IRB is acceptable for authors within an organization without an IRB. To determine if planned investigations fall within the definition of "human subjects research," consult the National Institutes of Health (NIH) decision tool for clarification: <https://grants.nih.gov/policy/humansubjects/hs-decision.htm>. Manuscripts describing research involving human subjects must include a statement of approval or exemption for the study from an appropriate IRB or other research ethics committee. *JUCM* conforms to standards for research misconduct laid forth by the Office of Research Integrity (ORI) within the U.S. Department of Health and Human Services (HHS). The ORI specifies the following as instances of misconduct in proposing, performing, or reviewing research, or in reporting research results with the definitions cited on its website "Research Misconduct" accessed June 29, 2020, <https://ori.hhs.gov/definition-misconduct>

- (a) Fabrication is making up data or results and recording or reporting them.
- (b) Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.
- (c) Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.
- (d) Research misconduct does not include honest error or differences of opinion.

Editorial Decision-Making

JUCM aims to publish original manuscripts relevant to urgent care practice. Decisions regarding publication are made by multilevel editorial review with consideration for clarity, originality, and audience value. Publication decisions must subsequently be corroborated through the process of peer review. Authors may appeal rejections by resubmitting a revised manuscript with a detailed description of the changes and their grounds for appealing. In the event of publication of a manuscript where errors are subsequently identified, *JUCM* will promptly issue a written correction as appropriate. Concerns regarding errors can be addressed to editor@jucm.com.

Disclaimer

JUCM The Journal of Urgent Care Medicine (JUCM) makes every effort to select authors who are knowledgeable in their fields. However, *JUCM* does not warrant the expertise of any author in a particular field, nor is it responsible for any statements by such authors. The opinions expressed in the articles and columns are those of the authors, do not imply endorsement of advertised products, and do not necessarily reflect the opinions or recommendations of Braveheart Publishing or the editors and staff of *JUCM*. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested by authors should not be used by clinicians without evaluation of their patients' conditions and possible contraindications or dangers in use, review of any applicable manufacturer's product information, and comparison with the recommendations of other authorities.

Advertising Policy

Advertising must be easily distinguishable from editorial content, relevant to our audience, and come from a verifiable and reputable source. The Publisher reserves the right to reject any advertising that is not in keeping with the publication's standards. Advertisers and advertising agencies recognize, accept, and assume liability for all content (including text, representations, illustrations, opinions, and facts) of advertisements printed, and assume responsibility for any claims made against the Publisher arising from or related to such advertisements. In the event that legal action or a claim is made against the Publisher arising from or related to such advertisements, advertiser and advertising agency agree to fully defend, indemnify, and hold harmless the Publisher and to pay any judgment, expenses, and legal fees incurred by the Publisher as a result of said legal action or claim.

Copyright and Licensing

© Copyright 2025 by Braveheart Group, LLC. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without written permission from the Publisher. For information on reprints or commercial licensing of content, please contact the Publisher.

Address Changes

JUCM printed edition is published monthly except for August for \$50.00 by Braveheart Group LLC, 11 E Sundial Circle, PO Box 5156, Carefree, AZ 85377. Standard postage paid, permit no. 372, at Lancaster, PA, and at additional mailing offices. POSTMASTER: Send address changes to Braveheart Group
PO Box 5156
Carefree, AZ 85377

Email: address.change@jucm.com



URGENT INTERACTIONS



“Go for the patient win. This means do what is medically right for the patient despite the multitude of pressures to focus on many other things. We are here to care for the patient before us.”

— **Lindsey E. Fish, MD, FCUCM**
JUCM Editor in Chief



“Anxiety is not always related to a psychiatric etiology. There are plenty of serious medical conditions which will cause a patient to feel anxious.”

— **Michael Weinstock, MD**
JUCM Senior Clinical Editor



“Shortness of breath and edema are common in pregnancy. There’s an opportunity for thoughtful assessment despite the low threshold for ED referral. Urgent care providers can justify an ED transfer even with limited testing like an ECG and urinalysis. We should fight the misconception (and inequity) that every complaint in pregnancy requires emergency services.”

— **John Ramos, MMS, PA-C, CAQ-EM**, author of “Shortness of Breath in Pregnancy: Differentiating Physiology from Pathology in Urgent Care” (page 13)



Call for Manuscripts

JUCM accepts submissions on most topics related to urgent care medicine. Following are a few examples of the types of topics that would be of interest to the JUCM audience. If you have a question, please contact us at editor@jucm.com. To submit an article for consideration, access our author guidelines at <https://www.jucm.com/author-instructions>.

- Presentations where menopause should be on the differential diagnosis
- Shared decision making for acute otitis media management
- When x-rays produce false negatives
- Top 5 biases in urgent care medicine and how to avoid them
- Management of animal bites in urgent care



Have a comment? Interested in sharing your perspective on a topic that appeared in JUCM? Not all letters will be published. Letters may be edited for length and clarity.
Send your letters to: editor@jucm.com



DIAMOND MEMBERS



PLATINUM MEMBERS



GOLD MEMBERS



SILVER MEMBERS



BRONZE MEMBERS



UCA's Corporate Members support the advancement and long-term success of the Urgent Care field of medicine. Visit <https://urgentcareassociation.org/partners/corporate-member-benefits/> to learn more about Corporate Membership.



One Voice, One Vision

■ Steve Sellars

In last month's column, I wrote about the importance of proving Urgent Care's value—not just in terms of access and convenience, but also in demonstrating the quality outcomes and systemwide impact that make our care essential to patients, payers, employers, and policymakers alike. Over the past several weeks, I've had the privilege of hearing from many of you who share this same commitment and are eager to help strengthen Urgent Care's position in the healthcare landscape. Your stories, data, and perspective are critical, and they continue to shape how UCA approaches its work on your behalf.

As I reflect on those conversations, one theme keeps emerging: Urgent Care is at its best when we are united. Whether it's advocating for fair reimbursement, addressing regulatory burdens, or advancing clinical best practices, we are stronger when we speak with one voice. Our collective story is far more powerful than any single data point, and the more we align around our shared value, the harder it becomes for stakeholders to ignore.

That's why UCA is placing an even greater emphasis on data and storytelling in the months ahead. We're working closely with our advisory groups and external partners to identify the metrics that matter most—whether it's reducing avoidable emergency department visits, improving patient satisfaction, or demonstrating cost savings to employers and payers. Just as importantly, we want to highlight the human side of Urgent Care: the patients who avoided unnecessary hospitalizations, the parents who received after-hours care for their children, the employees who returned to work faster thanks to timely occupational health services. These are the stories that bring the data to life.

I also want to emphasize that UCA cannot do this work in isolation. Your participation is essential. If you're collecting outcomes data, piloting innovative care models, or seeing trends in your market that reflect Urgent Care's

“Together, we can build a more compelling case that positions our industry not as an alternative, but as an indispensable part of the healthcare system.”

value, I encourage you to share them with us. Together, we can build a more compelling case that positions our industry not as an alternative, but as an indispensable part of the healthcare system.

More Opportunities

Looking ahead, we have an exciting lineup of opportunities to deepen these conversations. Our Regional Chapter Conferences this fall have been an energizing reminder of how much insight and momentum comes from connecting with peers, and that local engagement matters.

And of course, we're already planning for our 2026 Urgent Care Convention at the Historic Hilton Chicago in April—a chance for the entire Urgent Care community to gather, learn, and push the industry forward.

The challenges we face are real—rising healthcare costs, workforce shortages, regulatory hurdles—but so is the opportunity. Urgent Care has proven itself time and again as a responsive, resilient, and innovative care model. Now, it's time to take the next step: to prove our value, tell our story, and ensure our place as a trusted and respected part of American everyday healthcare.

I look forward to continuing this work with you. UCA is here to support you. Thank you for all you do every day to elevate and advance the field of Urgent Care. ■



Steve Sellars is Chief Executive Officer of the Urgent Care Association.



URGENTCARE CONNECT

Feb 23 - 24, 2026 | Nashville, TN

TURN IT UP AT UCC 2026

ANNOUNCING GUEST KEYNOTE:

WILL GUIDARA

Will Guidara, New York Times bestselling author of "Unreasonable Hospitality" and the powerhouse who led Eleven Madison Park to becoming the #1 restaurant on the World's Best Restaurant list, will be taking the keynote stage. Get a front-row seat to hear Will share how an unreasonable approach to the pursuit of human connection can help you deliver an urgent care experience they'll remember forever.

REGISTER NOW



- MEET WILL GUIDARA IN PERSON
- SNAP A PHOTO DURING A SPECIAL PHOTO OP
- GET YOUR COPY OF "UNREASONABLE HOSPITALITY" SIGNED





AGENDA HIGHLIGHTS

OWNERS AND OPERATORS

- Multi-Site Management Playbook: Scale Operations and Maximize Human Impact
- Building a Resilient Workforce: Staffing Models, Compensation Trends, and Retention Tactics
- What Patients Expect in a Retail Care Environment

CLINICIANS

- Humanizing Urgent Care: Practical Approaches to Mental Health at the Point of Need
- Empowering Advanced Practice Providers : Unlocking NP and PA Potential
- Unlocking the Potential of STI Testing in Urgent Care: Business, Population Health, and Clinical Perspectives
- Beyond AI Scribe: Ending the visit – Differential Diagnosis, Coding and Billing

OPERATIONS AND CLINIC STAFF

- Get Paid Faster in 2026: Navigating Payer Changes, Real-Time Claims, and Patient Responsibility
 - Marketing & Digital Front Doors That Work: Online Scheduling and Patient Communications in 2026
 - From Click to Care: How We Optimize Patient Booking and Experience
 - Teleradiology as a Competitive Edge: Elevating Urgent Care Through Faster, Smarter Imaging
- 



CONTINUING MEDICAL EDUCATION

Release Date: November 1, 2025

Expiration Date: October 31, 2027

Target Audience

This continuing medical education (CME) program is intended for urgent care physicians, primary-care physicians, resident physicians, nurse practitioners, and physician assistants currently practicing, or seeking proficiency in, urgent care medicine.

Learning Objectives

Upon completion of this educational activity, the learner will be able to:

1. Provide best practice recommendations for the diagnosis and treatment of common conditions seen in urgent care
2. Review clinical guidelines wherever applicable and discuss their relevancy and utility in the urgent care setting
3. Provide unbiased, expert advice regarding the management and operational success of urgent care practices
4. Support content and recommendations with evidence and literature references rather than personal opinion

Accreditation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Master Clinicians, LLC and the Institute for Urgent Care Medicine. Master Clinicians is accredited by the ACCME to provide continuing medical education for physicians.



Credit Designation

Master Clinicians, LLC designates this journal-based activity for a maximum of 3 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Faculty Disclosure

Master Clinicians, LLC has assessed all reported relationships with ineligible companies disclosed by faculty, speakers, authors, editors, and any other individuals who were in a position to control the content of this CME activity. For this activity, these individuals are **Lindsey E. Fish, MD, FCUCM; Michael B. Weinstock, MD; and Alan A. Ayers, MBA, MAcc.** Unless noted below, none of those in a position to control the content of this educational activity (planners, faculty, authors, etc.) have relevant financial relationship(s) with ineligible companies whose primary business is producing, marketing, selling, re-

selling, or distributing healthcare products used by or on patients to disclose. Prior to participating in this activity, please see the author financial relationship disclosure information at the beginning of each article.

Commercial Support

This activity has received no commercial support.

Instructions

To receive a statement of credit for up to 1.0 *AMA PRA Category 1 Credit™* per article, you must:

1. Review the information on this page.
2. Read the journal article.
3. Successfully answer all post-test questions through **www.UrgentCareCME.com**.
4. Complete the evaluation.

Estimated Time to Complete This Educational Activity

This activity is expected to take 3 hours to complete.

Fee

There is an annual subscription fee of \$145.00 for this program, which includes up to 33 *AMA PRA Category 1 Credits™*.

Email inquiries to info@urgentcarecme.com

Medical Disclaimer

As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required. The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

Although every effort is made to ensure that this material is accurate and up-to-date, it is provided for the convenience of the user and should not be considered definitive. Since medicine is an ever-changing science, neither the authors nor Master Clinicians, LLC nor *The Journal of Urgent Care Medicine* or any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers are encouraged to confirm the information contained herein with other sources. This information should not be construed as personal medical advice and is not intended to replace medical advice offered by physicians. Master Clinicians, LLC and *The Journal of Urgent Care Medicine* will not be liable for any direct, indirect, consequential, special, exemplary, or other damages arising therefrom.



CONTINUING MEDICAL EDUCATION

JUCM CME subscribers can submit responses for CME credit at www.UrgentCareCME.com. Post-test questions are featured below for your convenience. This issue is approved for up to 3 AMA PRA Category 1 Credits™. Credits may be claimed for 2 years from the date of this issue.

Shortness of Breath in Pregnancy: Differentiating Physiology from Pathology in Urgent Care (page 13)

1. What is the greatest risk factor for venous thromboembolism in pregnancy?
 - a. Previous deep vein thromboses or pulmonary embolism
 - b. Previous urinary tract infection
 - c. Low body mass index
 - d. Asthma
2. Pregnancy-associated cardiomyopathy is most likely to occur in which groups?
 - a. Women aged 30 years and older
 - b. Those with parity greater than or equal to 4
 - c. Those with multiple gestation pregnancies
 - d. All of the above
3. When is the risk of pregnancy-related venous thromboembolism greatest?
 - a. First trimester
 - b. Second trimester
 - c. Third trimester and postpartum
 - d. Any time during pregnancy

United States Sexually Transmitted Infections: A Comprehensive Overview and Relevance To Urgent Care Centers (page 23)

1. What population is most at risk for sexually transmitted infections?
 - a. People with multiple sex partners
 - b. Men who have sex with men
 - c. People with HIV infection
 - d. All of the above
2. What is the number 1 sexually transmitted infection reported in the United States?
 - a. HIV
 - b. Chlamydia
 - c. Gonorrhea
 - d. Trichomoniasis

3. How do expedited partner treatment policies help stop the spread of chlamydia and gonorrhea infections?

- a. Allows rapid tests that show results in less than 3 minutes
- b. Allows treatment of sexual partners without in-person evaluation
- c. Allows treatment of 2 sexual partners free of charge
- d. Allows peer-to-peer clinician consultation

A Rare Cardiopulmonary Debut of Systemic Lupus Erythematosus: A Pediatric Case Report (page 31)

1. Approximately how many cases of systemic lupus erythematosus present during childhood or adolescence?
 - a. 1-5%
 - b. 5-10%
 - c. 10-15%
 - d. 15-20%
2. What manifestation of systemic lupus erythematosus may present as pericardial or pleural effusions?
 - a. Serositis
 - b. Uveitis
 - c. Encephalitis
 - d. Bronchitis
3. What is a critical tool to detect pericardial and pleural effusions?
 - a. Point-of-care ultrasound
 - b. Chest imaging
 - c. Electrocardiography
 - d. All of the above

IS IT COVID-19 OR THE FLU?

WHEN SYMPTOMS OVERLAP, CLARITY MATTERS.

BinaxNOW™ COVID-19/Flu A&B delivers rapid, reliable results for COVID-19, Influenza A, and Influenza B—all from a single, patient-friendly nasal swab. Results in 15 minutes help you diagnose and treat in a single visit.

ONE SWAB, THREE RESULTS

COVID-19, Influenza A & B

NO INSTRUMENT REQUIRED

Ideal for urgent care and decentralized settings

STREAMLINED WORKFLOW

Simple procedure supports fast onboarding



AS RESPIRATORY SEASON RAMPS UP, FAST, RELIABLE ANSWERS MATTER MORE THAN EVER.
REACH OUT TO YOUR DISTRIBUTOR REPRESENTATIVE TODAY TO LEARN MORE.



Abbott. BinaxNOW COVID-19/Flu A&B IFU. ISC03411

© 2025. All rights reserved. All trademarks referenced are trademarks of their respective owners. Any photos displayed are for illustrative purposes only. Any person depicted in such photos is a model. RDx-25003526-01 09/25





Shortness of Breath in Pregnancy: Differentiating Physiology from Pathology in Urgent Care

Urgent Message: As shortness of breath and edema are common in pregnancy, urgent care clinicians must distinguish patients with normal physiologic changes from those with emergent conditions like venous thromboembolism, hypertension, eclampsia, and cardiomyopathy.

John Ramos, MMS, PA-C, CAQ-EM

Citation: Ramos J. Shortness of Breath in Pregnancy: Differentiating Physiology from Pathology in Urgent Care. *J Urgent Care Med.* 2025; 20(2):13-20

Key Words: Dyspnea in Pregnancy; Venous Thromboembolism; Pulmonary Embolism; Differential Diagnosis; Cardiovascular Disorders; Urgent Care Evaluation

Abstract

Background: Physiologic changes in pregnancy contribute to shortness of breath and edema. However, these symptoms can also be caused by serious etiologies including venous thromboembolism (VTE) (increased risk in pregnancy and a leading cause of maternal mortality), preeclampsia and eclampsia, cardiomyopathy, and valvular heart disease.

Aim: This review aims to increase urgent care clinician awareness of the differential diagnoses associated with shortness of breath or edema in pregnancy, with special consideration for the diagnosis and management of VTE.

Conclusion: It is essential to consider thromboembolic, hypertensive, and cardiac disorders when evaluating pregnant patients with shortness of breath or edema. Urgent care clinicians must be aware of diagnostic tests and treatment options for VTE as well as indications for emergency department referral.



Introduction

An estimated 60-70% of women experience shortness of breath (SOB) during pregnancy, although it typically does not interfere with daily activities or exercise tolerance.¹ While SOB is commonly ascribed to physiologic changes in pregnancy (Table 1),²⁻⁴ clinicians

Author affiliations: John Ramos, MMS, PA-C, CAQ-EM, Duke University Hospital, Department of Emergency Medicine. Author has no relevant financial relationships with any ineligible companies.

Table 1. Physiologic Changes in Pregnancy that Cause Shortness of Breath	
Hormonal	• Increased circulating progesterone leads to increased CO₂ sensitivity, resulting in increased tidal volume and minute ventilation.^{2,3} • Increased estrogen leads to airway mucosal hyperemia, edema, hypersecretion, and friability.⁴
Anatomic	• Expiratory reserve volume and residual functional capacity decreases as the growing uterus exerts pressure on the diaphragm^{1,2} • Hyperventilation occurs due to reduced lung capacity for diffusion^{1,3}
Metabolic	• Increased oxygen demand and consumption from fetal development¹
Circulatory	• Increase in systemic blood volume and cardiac output¹

Table 2. Anemia Classifications by Mean Corpuscular Volume ⁶		
Microcytic (MCV <80 fL)	Normocytic (MCV 80-100 fL)	Macrocytic (MCV >100 fL)
• Iron deficiency anemia • Thalassemias • Sideroblastic anemia • Copper deficiency • Lead poisoning	• Early iron deficiency anemia • Hemorrhagic or hemolytic • Bone marrow suppression • Chronic kidney disease • Hypothyroidism • Hypopituitarism • Hereditary spherocytosis	• Folic acid deficiency • B12 deficiency • Ethanol abuse • Chronic liver disease
Abbreviations: MCV, mean corpuscular volume		

must exercise caution to distinguish serious or life-threatening pathology. In the urgent care setting, history, physical examination, and diagnostic testing are used to differentiate benign from serious conditions to determine those who require emergency department (ED) evaluation. SOB may also occur because of traumatic injury (eg, rib fractures, pulmonary contusion, diaphragm rupture), which is typically associated with pain and is outside the scope of this article.

Differential Diagnoses for Shortness of Breath
Anemia

About 40% of pregnancies are complicated by some form of anemia.⁵ Anemia may be inherited (eg, hemoglobinopathy, thalassemia) or acquired (eg, nutrient deficiency, aplastic anemia). Anemia is also classified by mean corpuscular volume (**Table 2**). In addition to SOB, patients with anemia may also notice fatigue, lightheadedness, palpitations, and brittle nails. The diagnosis of an underlying hematologic disorder can be challenging in pregnancy as normal plasma volume expands by 40-50% and erythrocyte mass increases 15-25%.⁶ Anemia is diagnosed by a hemoglobin less than 11 g/dL in the first and third trimesters, and less than 10.5 g/dL in the second trimester. Screening for anemia should occur during the first trimester and at 24 weeks to 28 weeks of gestation.⁵ Nutritional deficiencies including iron and B12 should also be considered in pregnant women, especially those with a history of bariatric surgery.⁵

Ferritin <30 ng/L is the most sensitive and specific test for diagnosing iron deficiency anemia.⁶ The prevalence of anemia is highest in non-Hispanic Black mothers as well as teenage mothers of any race. The risk of low birth weight, preterm delivery, and perinatal mortality is increased among pregnant women with iron deficiency anemia.^{5,6}

Asthma

Asthma is the most common chronic disease affecting pregnant women and complicates up to 8% of pregnancies.⁷ It is estimated that about one-fourth of pregnant women with chronic asthma will experience deterioration in asthma control due to physiologic changes of pregnancy including decreased tidal volume due to increased diaphragm elevation, increased oxygen demand (due to relative plasma expansion), and increased minute ventilation.⁸ Physiologic changes may declare a diagnosis of asthma in women previously undiagnosed.^{7,8} Exacerbation triggers include increased susceptibility to viral infections as well as hormone mediated rhinosinusitis and laryngeal edema (prevalent in up to 20% of pregnancies).⁹ Gastroesophageal reflux can also be a trigger, and symptoms of dyspepsia may appear or worsen in pregnancy due to progesterone mediated relaxation of the lower esophageal sphincter.⁸ Poorly controlled asthma in pregnancy has observed associations with low birth weight and intra-uterine growth restriction, as well as an increased risk of pre-

clampsia, gestational diabetes, preterm delivery, and caesarean delivery. Spirometry is used to diagnose and monitor asthma and typically shows evidence of a reversible obstructive pattern. Hospitalization is indicated for patients with forced expiratory volume in the first second (FEV1) less than 50% of predicted FEV1, altered sensorium, or hypercarbia (partial pressure of carbon dioxide >34 to 42 mm Hg).^{8,10}

Respiratory Infections

Infectious respiratory conditions should also be considered for pregnant women with SOB and/or fever, cough, rhinorrhea, or sore throat. These include viral/bacterial pneumonia and viral infections including influenza. In addition to fever, sputum production and pleuritic chest pain may be present in bacterial pneumonia. Physical exam may reveal crackles or wheezing.¹¹ A chest x-ray may be considered to confirm the diagnosis of community acquired pneumonia or complications like parapneumonic effusion or empyema. Pathogen-specific viral testing may be seasonally indicated (eg, influenza, COVID-19), and empiric treatment of influenza is recommended if testing is not immediately available. Postexposure chemoprophylaxis for influenza may also be offered for patients with a history of close contact with infectious individuals.¹²

Obesity and Obstructive Sleep Apnea

Obesity is the most common medical condition impacting women of reproductive age.¹³ Obesity is defined as body mass index (prepregnancy weight in kilograms/height in meters) greater than or equal to 30.¹⁴ When prepregnancy weight is unknown, the initial prenatal visit weight is used to calculate body mass index.¹³ A gestational weight gain of 5.0-9.1 kilograms (11-20 pounds) is acceptable for women with obesity, and 6.8-11.3 kilograms (15-25 pounds) for those with body mass index of 25-29.9.¹³ Physiologically, increased adipose tissue leads to reduced lung volumes and increased respiratory effort. Obesity in pregnancy is associated with an increased risk of miscarriage and recurrent miscarriage, cardiac dysfunction, proteinuria, gestational diabetes, preeclampsia, nonalcoholic fatty liver disease, venous thromboembolism, and obstructive sleep apnea (OSA).¹³ Symptoms of OSA include snoring, excessive daytime sleepiness, and witnessed apneic episodes. OSA should be considered for pregnant women with unexplained hypoxia. When OSA is suspected, patients should be referred to a sleep medicine specialist for evaluation and management.¹³

Cardiovascular Conditions

A not insignificant number of pregnancies are complicated by cardiovascular disorders.¹⁵ Systemic vascular resistance (SVR) normally decreases in the first trimester reaching a nadir of 30% from baseline in the second trimester before returning to prepregnancy levels in the third trimester.¹⁶ Decreased SVR (afterload) and increased blood volume (preload) increase cardiac output by 50% in pregnancy to meet fetal and maternal metabolic needs.¹⁶ While edema and SOB can be normal pregnancy symptoms, abrupt changes in peripheral edema, weight gain, or decreased exercise tolerance may herald emergent pathology including preeclampsia, valvular heart disease, and heart failure.^{15,16} The presence of pulmonary edema (either auscultated crackles or radiographically identified), hypoxia, or increased respiratory effort warrant ED evaluation.

Hypertension

Hypertensive disorders complicate 2-8% of pregnancies and contribute to more than 50,000 maternal and 500,000 fetal deaths globally.¹⁵ Increased SVR associated with hypertension leads to increased capillary permeability, volume retention, and pulmonary edema. Of note, the diagnosis of gestational hypertension (HTN) may be obscured until the third trimester when SVR returns to prepregnancy levels.¹⁶ Gestational hypertension (HTN) may be first diagnosed at 20 weeks of gestation, and is defined as a systolic blood pressure (SBP) greater than or equal to 140 mm Hg or diastolic blood pressure (DBP) greater than or equal to 90 mm Hg on at least 2 occasions at least 4 hours apart.¹⁶ Severe gestational HTN is diagnosed by SBP greater than or equal to 160 mm Hg or DBP greater than or equal to 110 mm on at least 2 occasions at least 15 minutes apart.¹⁶ The presence of HTN and elevated protein (dipstick $\geq 2+$, 24-hour urine ≥ 300 mg, urine protein to creatinine ratio ≥ 0.3) is diagnostic of preeclampsia. Eclampsia is recognized as gestational HTN in the presence of thrombocytopenia (platelets less than $100 \times 10^9/L$), hemolysis, elevated serum creatinine (greater than 1.1 mg/dl or doubling of baseline), transaminitis, pulmonary edema, or unexplained headache and/or visual symptoms.¹⁷

Cardiomyopathy

Pregnancy-associated cardiomyopathy (peripartum or postpartum cardiomyopathy) is a rare disorder characterized by new onset unexplained left ventricular (LV) systolic dysfunction (ejection fraction <45% with or without LV dilation on echocardiography) toward the end of pregnancy or in the postpartum period.¹⁸ The

incidence of pregnancy-associated cardiomyopathy in the United States is about 1 case per 4,000 live births. While the diagnosis can be made at early gestational ages and up to 5 months postpartum, the majority of cases are diagnosed in the final month of pregnancy (19%) or the first month postpartum (75%). Forty-five percent of diagnoses occur in the first week after delivery.¹⁸ Pregnancy associated cardiomyopathy is more likely in women older than 30 years old, parity greater than or equal to 4, and multiple gestation pregnancies.¹⁹ Symptoms include SOB, decreased exercise tolerance, fatigue, orthopnea, pedal edema, and hemoptysis. Peripheral edema and jugular venous distention may be present on physical exam, and hypoxia and/or crackles are more likely with severe disease progression. In 1 large registry, pulmonary rales were present in 59% of patients, and 46% of patients had a third heart sound.²⁰ Echocardiography is the preferred imaging modality for diagnosis. Brain natriuretic peptide is a useful initial laboratory test for clinically stable patients not warranting ED evaluation, although it may be falsely low in patients with obesity.¹⁹

Valvular Heart Disease

Valvular heart disease (VHD), with preserved or reduced ejection fraction, may also contribute to SOB or decreased exercise tolerance. Valvular heart disease is present in less than 1% of pregnancies. Stenotic lesions are not as tolerable as regurgitant lesions, owing to a 50% increase in the transvalvular gradient from increased cardiac output.²⁰ Both regurgitant and stenotic lesions are associated with maternal and fetal complications. Structural intervention prior to pregnancy is recommended for women with at least moderate mitral stenosis. Emergent structural interventions may be required for women with symptoms of VHD refractory to medical therapy, hemodynamic instability, or acute onset of disease (eg, acute chordal rupture and severe mitral regurgitation).^{18,19}

Venous Thromboembolism

Venous thromboembolism (VTE) is a leading cause of maternal mortality in the United States²¹ with a prevalence of 0.5-2.0 per 1,000 pregnant women.^{22,23} The risk of VTE in pregnancy is increased 4-5 fold compared to nonpregnant women with the greatest risk in the third trimester and post-partum periods.²² The majority of VTE in pregnancy are deep vein thromboses (DVT) most commonly occurring in the lower extremities, although upper extremity and ovarian veins are other possible locations. About 20-25% of VTE cases in preg-

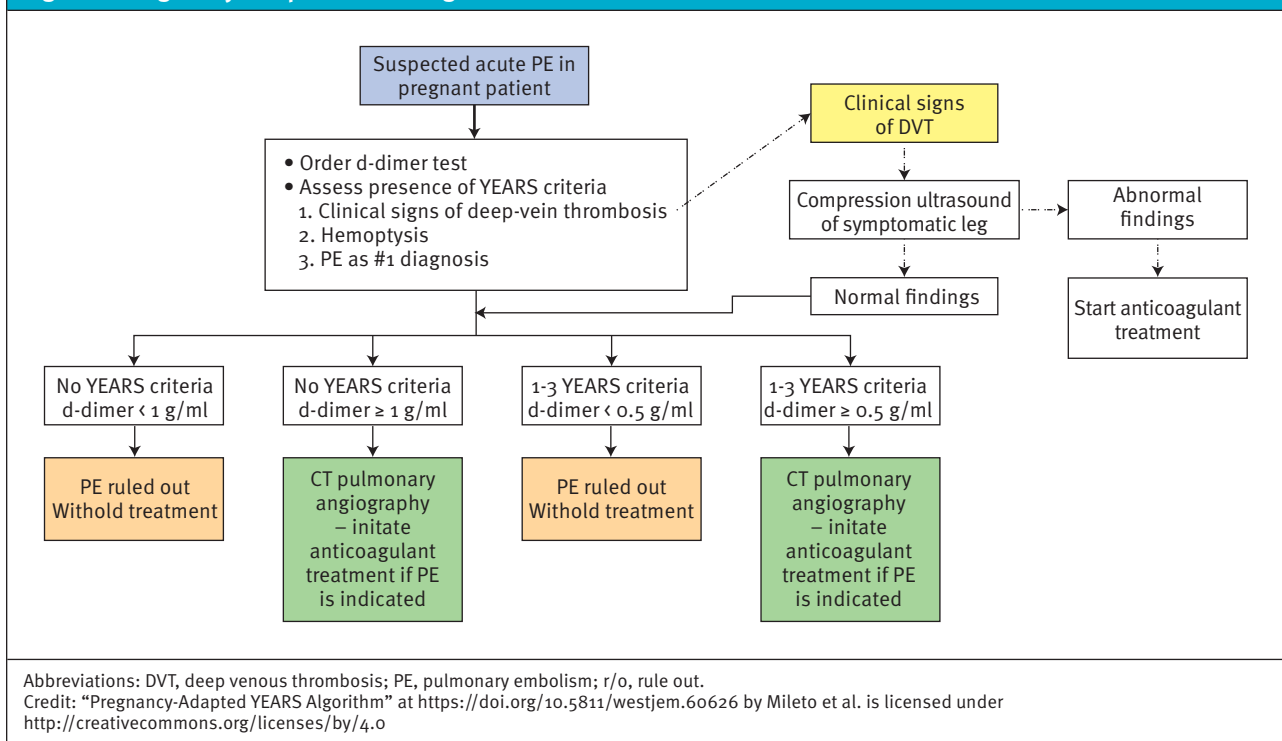
nancy involve a pulmonary embolism (PE).²⁴ VTE results from physiologic changes in pregnancy including hypercoagulability, increased venous stasis, uterine compression of the pelvic veins and inferior vena cava,²⁵ and decreased venous outflow.²⁶ A previous diagnosis of DVT or PE is the greatest risk factor for VTE in pregnancy and is associated with a 3-4 fold increase in risk of recurrent VTE.²⁷ The diagnosis of VTE may include D-dimer and/or imaging tests like lower extremity compression ultrasound, computed tomography (CT) of the chest with intravenous contrast, and/or ventilation perfusion scanning (VQ). The YEARS algorithm incorporates D-dimer testing cut-offs and clinical parameters (signs of DVT, hemoptysis, clinical suspicion for alternative diagnoses) to aid in deciding which patients need chest imaging.²⁸

History

Presenting symptoms of VTE include unilateral lower extremity edema and/or skin discoloration, SOB, hemoptysis, pleuritic chest pain, and syncope. Symptoms of VTE tend to reach maximal intensity over 2-3 days, in contrast to conditions like anemia that have a more insidious onset.²⁹ Delayed presentations are not uncommon. VTE is more likely in pregnant women with a past medical history of VTE, thrombophilia (20-50% of pregnancy related VTE), sickle cell disease, systemic lupus erythematosus, nephrotic syndrome, venous insufficiency, and recent systemic infection.^{29,30} In addition, antiphospholipid syndrome is the most commonly acquired thrombophilia in pregnancy leading to a more hypercoagulable state.³¹ Other pregnancy related risk factors include any history of hyperemesis gravidarum, ovarian hyperstimulation syndrome, cesarean delivery of index pregnancy, preeclampsia, and postpartum hemorrhage >1 liter.^{30,32} Obesity, age >35 years, and parity ≥ 3 are risk factors that are increasing in prevalence.³³

Physical Exam

Findings of VTE can be subtle; the incidence of asymptomatic DVT diagnosed with PE is 30%, while 40-50% of DVTs are associated with asymptomatic PE.³⁴ Tachycardia is the most common physical exam finding in PE. Although research on normal heart rates (HR) in pregnancy are limited, 1 study found HR to be 63-105 beats per minute (BPM) at 12 weeks of gestation, and 68-115 BPM at 34.1 weeks of gestation.³⁵ Jugular venous distention (JVD, defined as point of maximal impulse >4 cm from the sternal angle) may be seen in PE due to increased cardiac output and venous obstruction.³⁶ Ad-

Figure 1. Pregnancy-Adapted YEARS Algorithm

ditional findings with PE include increased respiratory effort, normal lung sounds, and fever. A unilateral calf circumference discrepancy of at least 2 cm was found in 80% of pregnant women with confirmed DVT.²⁹ In addition to calf circumference discrepancy, symptoms isolated to the left lower extremity and symptom occurrence during the first trimester increase the pre-test probability of DVT.³⁷

Complications of DVT

There is a high proportion of proximal DVTs in the pregnant population.³⁸ Left-sided DVT should raise suspicion for compression of the left common iliac vein between the right common iliac artery and lumbar vertebrae (May Thurner syndrome).³⁸ While uncommon, massive iliofemoral vein thrombosis can result in pitting edema and pallor of the affected extremity (phlegmasia alba dolens). Venous obstruction can rarely lead to compartment syndrome and venous ischemia (phlegmasia cerulea dolens) characterized by tense muscular compartments and tissue cyanosis or poikilothermia.³⁹ Extremity pulselessness, delayed capillary refill, pallor, tense compartments, or pain with passive stretch are signs of limb threatening illness and warrant emergent medical attention. Hypoxia, hypotension, and tachy-

cardia are worrisome for massive PE and also warrant emergent medical attention.

Diagnostic Testing for VTE

In hemodynamically stable pregnant patients with low to moderate pretest probability of PE and DVT, the YEARS algorithm (Figure 1) recommends lower extremity compression ultrasound (CUS) and, if positive, to treat with anticoagulation (low molecular weight heparin) and withhold chest imaging.²⁸ In patients where there is only clinical suspicion for DVT, it is reasonable to first perform CUS, and if the study is negative or non-diagnostic to repeat CUS in 5 to 7 days as infra-popliteal vein thrombi may propagate during this time period.⁴⁰ Whole leg US is an alternative to CUS demonstrating better detection of infra-popliteal vein thrombi, although the clinical significance is not well studied in pregnancy.⁴⁰ In patients concerning for PE without signs and symptoms of DVT, the YEARS algorithm recommends a D-dimer test. An elevated D-dimer, or patients with high pretest probability, must be further investigated with diagnostic chest imaging, depending on assay and cut-off threshold. The 2 major imaging modalities include CT and nuclear scintigraphy (VQ) for patients with a normal chest x-ray and no chronic

respiratory conditions.²⁹ Although not formally studied, the evaluation of VTE in urgent care may be appropriate for patients without emergent features provided there is reliable access to D-dimer and CUS.

Imaging for PE

About two-thirds of pregnant women require some form of diagnostic chest imaging for the evaluation of PE.⁴⁰ The European Society of Cardiology (ESC), American College of Obstetrics and Gynecology (ACOG), and American Thoracic Society (ATS) recommend CT or VQ as reasonable tests to exclude PE in pregnant women.^{29,41,42} A 2017 Cochrane review cautioned that similar pooled rates of nondiagnostic results exist (14% in CT, 12% in VQ),⁴³ although since its publication there has been widespread adoption of CT protocols that adjust contrast dose and administration rate to accommodate changes in maternal blood volume and tachycardia.^{44,45} CT is the gold standard for diagnosing PE in pregnant and nonpregnant adults, however the fear of radiation exposure may influence the decision to order a VQ scan.⁴⁶ Although exposure varies with gestational age and maternal body habitus, the estimated fetal dose of ionizing radiation is 0.01-0.66 mGy and 0.1-0.5 mGy for CT and VQ, respectively.⁴⁷ These are both well below the threshold of 50 mGy associated with increased risk of fetal anomalies, growth restrictions, and abortion.⁴⁸ Around 20% of VQ scans in pregnant patients have indeterminate probability, therefore requiring CT imaging and increasing the cumulative fetal and maternal radiation exposure.⁴⁹ ATS guidelines,⁴² cited in ESC⁴¹ and ACOG²⁹ consensus statements, still recommend VQ, albeit with low certainty due to low quality evidence of maternal risk for breast cancer from CT radiation exposure: “uncertainties are large, and the risk estimates vary widely.”^{42,50} More recent evidence suggests no significant short-term risk of breast cancer from CT imaging in pregnant women.⁵¹

Management

The treatment of VTE in pregnancy varies based on clinical stability and the risk of clinical deterioration. Clinically stable patients with VTE are typically managed in the outpatient setting with low molecular weight heparin. DVT associated with May Thurner syndrome typically requires vascular stenting in addition to anticoagulation.³⁸ High-risk PE is classified as cardiac arrest or obstructive shock. Circulatory compromise is evidenced by hypotension (systolic blood pressure <90 mm Hg or drop of ≥ 40 mm Hg), right ventricular dilation on CT or echocardiogram, and elevated troponin or B-type natriuretic

peptide.^{41,52} High risk PE and DVT with limb threatening features warrant hospital or intensive care unit admission and may be managed with intravenous thrombolytics or unfractionated heparin, catheter-based thrombolysis, and/or mechanical thrombectomy.⁴¹

Urgent Care Approach to SOB in Pregnancy

A full history and physical examination are essential to distinguish emergent pathology from more benign causes of SOB in pregnancy. Urgent care (UC) providers should evaluate for changes in exercise tolerance, peripheral edema, or weight gain. Key physical exam findings indicating cardiopulmonary abnormalities include pulmonary rales or crackles, JVD, pitting edema, or popliteal fossa tenderness. A complete set of vitals should be obtained, including HR, BP, oxygen saturation, respiratory rate, temperature, and fetal heart tones if available. Although HR greater than 100 BPM may be normal after 18 weeks of gestation, new onset or undifferentiated tachycardia warrants urgent investigation (eg, electrocardiogram, urinalysis, evaluation for anemia and thyroid) unless emergent evaluation is otherwise indicated.^{53,54} Less than 3% of healthy pregnant patients have a SBP less than 95 to 102 mm Hg—a SBP less than 90 mm Hg is worrisome.⁵⁵ Diagnostic testing in UC should include a complete blood count (evaluate for leukocytosis, thrombocytopenia, new or worsened anemia), urinalysis, electrocardiogram, and chest x-ray. Pregnant patients with SOB accompanied by chest pain, loss of consciousness, dizziness or presyncope, tachycardia (HR >100 BPM), hypotension (SBP <90 mm Hg), hemoptysis, hypoxia, severe edema, popliteal fossa tenderness, and preeclampsia/eclampsia symptoms (headache, visual changes, seizure activity, right upper quadrant pain) or signs (hypertension, new neurologic deficits, hemolysis, transaminitis, proteinuria) should be referred to the ED without delay.^{6,10,11-12,17-19, 53-55} While awaiting ED transport, it is reasonable to administer treatments in UC such as supplemental oxygen or nebulized breathing treatments. In the absence of emergent features, communicating with a patient's obstetrician is prudent to coordinate follow-up care, and this may also reveal additional medical concerns not expressed by the patient.

Takeaway Points

- SOB and edema are common symptoms during pregnancy.
- New onset or undifferentiated tachycardia (HR greater than 100) warrant urgent investigation (eg, ECG, urinalysis, evaluation of anemia and thyroid) unless

emergent evaluation is otherwise indicated.⁵⁴

- SBP less than 90 mm Hg defines hypotension in pregnancy.⁵⁵
- Gestational hypertension is defined as SBP $\geq$ 140 mm Hg or DBP $\geq$ 90 mm Hg on $\geq$ 2 occasions $\geq$ 4 hours apart; Severe gestational hypertension is defined as SBP $\geq$ 160 mm Hg or $\geq$ 110 mm on $\geq$ 2 occasions $\geq$ 15 minutes apart.¹⁷
- The risk of pregnancy related VTE is greatest in the third trimester and postpartum periods.²⁹
- Eighty percent of pregnant women with VTE present with signs and symptoms of DVT; a unilateral calf circumference discrepancy of at least 2 cm strongly suggests a diagnosis of DVT.²⁹
- The YEARS algorithm guides diagnostic testing for PE using D-dimer cutoffs based on symptoms and clinical gestalt.²⁸
- Low molecular weight heparin is the outpatient treatment of choice for VTE in pregnancy.²⁹ ■

Manuscript submitted May 19, 2025; accepted September 3, 2025.

References

1. Gilbert R, Auchincloss JH Jr. Dyspnea of pregnancy. Clinical and physiological observations. *Am J Med Sci*. 1966;252(3):270-276. doi:10.1097/00000441-196609000-00004
2. Jensen D, Wolfe LA, Slatkovska L, Webb KA, Davies GA, O'Donnell DE. Effects of human pregnancy on the ventilatory chemoreflex response to carbon dioxide. *Am J Physiol Regul Integr Comp Physiol*. 2005;288(5):R1369-R1375. doi:10.1152/ajpregu.00862.2004
3. Jensen D, Duffin J, Lam YM, et al. Physiological mechanisms of hyperventilation during human pregnancy. *Respir Physiol Neurobiol*. 2008;161(1):76-86. doi:10.1016/j.resp.2008.01.001
4. Koehler KF, Helguero LA, Haldosén LA, Warner M, Gustafsson JA. Reflections on the discovery and significance of estrogen receptor beta. *Endocr Rev*. 2005;26(3):465-478. doi:10.1210/er.2004-0027
5. Wu Y, Ye H, Liu J, et al. Prevalence of anemia and sociodemographic characteristics among pregnant and non-pregnant women in southwest China: a longitudinal observational study. *BMC Pregnancy Childbirth*. 2020;20(1):535. Published 2020 Sep 14. doi:10.1186/s12884-020-03222-1
6. American College of O, Gynecologists' Committee on Practice B-O. Anemia in Pregnancy: ACOG Practice Bulletin, Number 233. *Obstet Gynecol*. 2021;138(2):e55-e64. doi:10.1097/aog.0000000000004477
7. Jones CE, Jamil Y. Management of asthma in pregnancy. *Clin Med (Lond)*. 2025;25(1):100277. doi:10.1016/j.clinme.2024.100277
8. Bravo-Solarte DC, García-Guaqueta DP, Chiarella SE. Asthma in pregnancy. *Allergy Asthma Proc*. 2023;44(1):24-34. doi:10.2500/aap.2023.44.220077
9. Eltawil Y, Callander JK, Loftus PA. Rhinologic Conditions of Pregnancy: A Retrospective Cohort Study. *OTO Open*. 2025;9(2):e70114. Published 2025 Apr 25. doi:10.1002/oto2.70114
10. Dombrowski MP, Schatz M; ACOG Committee on Practice Bulletins-Obstetrics. ACOG practice bulletin: clinical management guidelines for obstetrician-gynecologists number 90, February 2008: asthma in pregnancy. *Obstet Gynecol*. 2008;111(2 Pt 1):457-464. doi:10.1097/AOG.0b013e3181665ff4
11. Ashby T, Staiano P, Najjar N, Louis M. Bacterial pneumonia infection in pregnancy. *Best Pract Res Clin Obstet Gynaecol*. 2022;85(Pt A):26-33. doi:10.1016/j.bpobgyn.2022.07.001
12. Influenza in Pregnancy: Prevention and Treatment: ACOG Committee Statement No. 7. *Obstet Gynecol*. 2024;143(2):e24-e30. doi:10.1097/AOG.0000000000005479
13. Obesity in Pregnancy: ACOG Practice Bulletin, Number 230. *Obstet Gynecol*. 2021;137(6):e128-e144. doi:10.1097/AOG.0000000000004395
14. ACOG Practice Bulletin No 156: Obesity in Pregnancy [published correction appears in *Obstet Gynecol*. 2016 Dec;128(6):1450. doi: 10.1097/AOG.0000000000001807]. *Obstet Gynecol*. 2015;126(6):e112-e126. doi:10.1097/AOG.0000000000001211
15. Macedo TCC, Montagna E, Trevisan CM, Zaia V, de Oliveira R, Barbosa CP, Lagana AS, Bianco B. Prevalence of preeclampsia and eclampsia in adolescent pregnancy: A systematic review and meta-analysis of 291,247 adolescents worldwide since 1969. *Eur J Obstet Gynecol Reprod Biol*. 2020 May;248:177-186.
16. Battarbee AN, Sinkey RG, Harper LM, Oparil S, Tita ATN. Chronic hypertension in pregnancy. *Am J Obstet Gynecol*. 2020 Jun;222(6):532-541.
17. Gestational Hypertension and Preeclampsia: ACOG Practice Bulletin Summary, Number 222. *Obstet Gynecol*. 2020;135(6):1492-1495. doi:10.1097/AOG.00000000000003892
18. Bauersachs J, König T, van der Meer P, Petrie MC, Hilfiker-Kleiner D, Mbakwem A, Hamdan R, Jackson AM, Forsyth P, de Boer RA, Mueller C, Lyon AR, Lund LH, Piepoli MF, Heymans S, Chioncel O, Anker SD, Ponikowski P, Seferovic PM, Johnson MR, Mebazaa A, Sliwa K. Pathophysiology, diagnosis and management of peripartum cardiomyopathy: a position statement from the Heart Failure Association of the European Society of Cardiology Study Group on peripartum cardiomyopathy. *Eur J Heart Fail*. 2019 Jul;21(7):827-843.
19. American College of Obstetricians and Gynecologists' Presidential Task Force on Pregnancy and Heart Disease and Committee on Practice Bulletins—Obstetrics. ACOG Practice Bulletin No. 212: Pregnancy and Heart Disease. *Obstet Gynecol*. 2019;133(5):e320-e356. doi:10.1097/AOG.0000000000003243
20. Minhas AS, Rahman F, Gavin N, et al. Cardiovascular and Obstetric Delivery Complications in Pregnant Women With Valvular Heart Disease. *Am J Cardiol*. 2021;158:90-97. doi:10.1016/j.amjcard.2021.07.038
21. Creanga AA, Syverston C, Seed K, Callaghan WM. Pregnancy-Related Mortality in the United States, 2011-2013. *Obstet Gynecol*. 2017;130(2):366-373. doi:10.1097/AOG.0000000000002114
22. Heit JA, Kobbervig CE, James AH, Petterson TM, Bailey KR, Melton LJ 3rd. Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30-year population-based study. *Ann Intern Med*. 2005;143(10):697-706. doi:10.7326/0003-4819-143-10-200511150-00006
23. Pomp ER, Lenselink AM, Rosendaal FR, Doggen CJ. Pregnancy, the postpartum period and prothrombotic defects: risk of venous thrombosis in the MEGA study. *J Thromb Haemost*. 2008;6(4):632-637. doi:10.1111/j.1538-7836.2008.02921.x
24. Blanco-Molina A, Rota LL, Di Micco P, et al. Venous thromboembolism during pregnancy, postpartum or during contraceptive use. *Thromb Haemost*. 2010;103(2):306-311. doi:10.1160/TH09-08-0559
25. Varrias D, Spanos M, Kokkinidis DG, Zoumpoulis P, Kalaitzopoulos DR. Venous Thromboembolism in Pregnancy: Challenges and Solutions. *Vasc Health Risk Manag*. 2023;19:469-484. Published 2023 Jul 20. doi:10.2147/VHRM.S404537
26. Langer AL, Connell NT. Update on pregnancy-associated venous thromboembolism. *Thrombosis Update*. 2022;8:100107. https://doi.org/10.1016/j.tru.2022.100107
27. Pabinger I, Grafenhofer H, Kyrle PA, et al. Temporary increase in the risk for recurrence during pregnancy in women with a history of venous thromboembolism. *Blood*. 2002;100(3):1060-1062. doi:10.1182/blood-2002-01-0149
28. Mileto A, Rossi G, Krouse B, et al. Pregnancy-adapted YEARS Algorithm: A Retrospective Analysis. *West J Emerg Med*. 2024;25(1):136-143. doi:10.5811/westjem.60626
29. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Obstetrics. ACOG Practice Bulletin No. 196: Thromboembolism in Pregnancy [published correction appears in *Obstet Gynecol*. 2018 Oct;132(4):1068. doi: 10.1097/AOG.0000000000002923]. *Obstet Gynecol*. 2018;132(1):e1-e17. doi:10.1097/AOG.0000000000002706
30. Nelson-Piercy C, MacCallum P, Mackillop L. Green-top Guideline No. 37a - reducing the risk of venous thromboembolism during pregnancy and the puerperium. London, Royal College of Obstetricians and Gynaecologists, 2015
31. Khare M, Nelson-Piercy C. Acquired thrombophilias and pregnancy. *Best Pract Res Clin Obstet Gynaecol*. 2003;17(3):491-507. doi:10.1016/s1521-6934(03)00013-0
32. Havers-Borgersen E, Butt JH, Johansen M, et al. Preeclampsia and Long-Term Risk of Venous Thromboembolism. *JAMA Netw Open*. 2023;6(11):e2343804. doi:10.1001/jamanetworkopen.2023.43804
33. Simcox LE, Ormsher L, Tower C, Greer IA. Pulmonary thrombo-embolism in pregnancy: diagnosis and management. *Breathe (Sheff)*. 2015;11(4):282-289. doi:10.1183/20734735.008815
34. Marik PE, Plante LA. Venous thromboembolic disease and pregnancy. *N Engl J Med*. 2008;359(19):2025-2033. doi:10.1056/NEJMr0707993
35. Green LJ, Mackillop LH, Salvi D, et al. Gestation-Specific Vital Sign Reference Ranges in Pregnancy. *Obstet Gynecol*. 2020;135(3):653-664. doi:10.1097/AOG.0000000000003721
36. Wagner SM, Waldman IN, Karikari KA, Kunselman AR, Smith ER, Deimling TA. The Impact of Pregnancy on the Evaluation of Chest Pain and Shortness of Breath in the Emergency Department. *J Acute Med*. 2018;8(4):149-153. doi:10.6705/j.jacme.201812_8(4).0002
37. Le Moigne E, Genty C, Meunier J, et al. Validation of the LEFT score, a newly proposed diagnostic tool for deep vein thrombosis in pregnant women. *Thromb Res*. 2014;134(3):664-667. doi:10.1016/j.thromres.2014.07.009

38. Schrufer-Poland TL, Florio K, Grodzinsky A, Borsa JJ, Schmidt L. Management of May Thurner Syndrome in Pregnant Patients. *J Cardiovasc Dev Dis*. 2022;9(12):410. Published 2022 Nov 23. doi:10.3390/jcdd9120410
39. Durrani M, Hamidi A, Lampley C, Dasgupta S. Catheter directed thrombolysis of Phlegmasia Cerulea Dolens: A case report. *JEM Reports*. 2023;(2). doi.org/10.1016/j.jemrpt.2023.100010
40. Bellesini M, Robert-Ebadi H, Combescure C, Dedionigi C, Le Gal G, Righini M. D-dimer to rule out venous thromboembolism during pregnancy: A systematic review and meta-analysis. *J Thromb Haemost*. 2021;19(10):2454-2467. doi:10.1111/jth.15432
41. Konstantinides SV, Meyer G, Becattini C, et al. 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *Eur Heart J*. 2020;41(4):543-603. doi:10.1093/eurheartj/ehz405
42. Leung AN, Bull TM, Jaeschke R, et al. American Thoracic Society documents: an official American Thoracic Society/Society of Thoracic Radiology Clinical Practice Guideline—Evaluation of Suspected Pulmonary Embolism in Pregnancy. *Radiology*. 2012;262(2):635-646. doi:10.1148/radiol.11114045
43. van Mens TE, Scheres LJ, de Jong PG, Leeftang MM, Nijkeuter M, Middeldorp S. Imaging for the exclusion of pulmonary embolism in pregnancy. *Cochrane Database Syst Rev*. 2017;1(1):CD011053. Published 2017 Jan 26. doi:10.1002/14651858.CD011053.pub2
44. Mehdipoor G, Jimenez D, Bertoletti L, et al. Imaging modalities for confirming pulmonary embolism during pregnancy: results from a multicenter international study. *Eur Radiol*. 2022;32(2):1238-1246. doi:10.1007/s00330-021-08161-9
45. Picone C, Fusco R, Tonerini M, et al. Dose Reduction Strategies for Pregnant Women in Emergency Settings. *J Clin Med*. 2023;12(5):1847. Published 2023 Feb 25. doi:10.3390/jcm12051847
46. Tromeur C, van der Pol LM, Le Roux PY, et al. Computed tomography pulmonary angiography versus ventilation-perfusion lung scanning for diagnosing pulmonary embolism during pregnancy: a systematic review and meta-analysis. *Haematologica*. 2019;104(1):176-188. doi:10.3324/haematol.2018.196121
47. Tremblay E, Therasse E, Thomassin-Naggara I, Trop I. Quality initiatives: guidelines for use of medical imaging during pregnancy and lactation. *Radiographics*. 2012;32(3):897-911. doi:10.1148/rg.323115120
48. Committee Opinion No. 723: Guidelines for Diagnostic Imaging During Pregnancy and Lactation [published correction appears in *Obstet Gynecol*. 2018 Sep;132(3):786. doi: 10.1097/AOG.0000000000002858.]. *Obstet Gynecol*. 2017;130(4):e210-e216. doi:10.1097/AOG.0000000000002355
49. Sadeghi S, Arabi Z, Moradi M, Raofi E. Diagnostic imaging to investigate pulmonary embolism in pregnancy using CT-Pulmonary angiography versus perfusion scan. *J Res Med Sci*. 2021;26:37. Published 2021 Jun 30. doi:10.4103/jrms.JRMS_113_20
50. National Research Council. Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2. 2006; Washington, DC: The National Academies Press. Retrieved 27 March 2025 from https://www.philrutherford.com/Radiation_Risk/BEIR/BEIR_VII.pdf.
51. Burton KR, Park AL, Fralick M, Ray JG. Risk of early-onset breast cancer among women exposed to thoracic computed tomography in pregnancy or early postpartum. *J Thromb Haemost*. 2018;16(5):876-885. doi:10.1111/jth.13980
52. Righini M, Robert-Ebadi H, Elias A, et al. Diagnosis of Pulmonary Embolism During Pregnancy: A Multicenter Prospective Management Outcome Study. *Ann Intern Med*. 2018;169(11):766-773. doi:10.7326/M18-1670
53. Centers for Disease Control and Prevention. *Hear Her: Recognizing Urgent Maternal Warning Signs*. Updated 2023. <https://www.cdc.gov/hearher>. Accessed June 17, 2025.
54. Coad F, Frise C. Tachycardia in pregnancy: when to worry?. *Clin Med (Lond)*. 2021;21(5):e434-e437. doi:10.7861/clinmed.2021-0495
55. Green LJ, Kennedy SH, Mackillop L, et al. International gestational age-specific centiles for blood pressure in pregnancy from the INTERGROWTH-21st Project in 8 countries: A longitudinal cohort study. *PLoS Med*. 2021;18(4):e1003611. Published 2021 Apr 27. doi:10.1371/journal.pmed.1003611

200+ CME Hours.
1 Subscription.
Zero Extra Hassle.

EXPERTITY CLIENT EXCLUSIVE!

Keep your team sharp, certified, and compliant with exclusive access to a curated bundle of urgent care-specific training.

Learn more at www.masterclinicians.net/expertity-subscription



LEARN MORE



EXPERTITY®

CME CONTENT

DELIVERED

JUCM CME Subscription

- Includes 11 mailed copies of the Journal, each containing 3 CME articles
- ACCME accredited through Master Clinicians
- 33 articles available annually, each providing up to 1 *AMA PRA Category 1 Credits™*
- Individual and bulk corporate subscriptions available

Begin your journey or sharpen your skills while earning your CME credits with IUCM — the proven leader in practical mastery for urgent care professionals.



LEARN MORE



Accreditation Statement: This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Master Clinicians, LLC and the Institute for Urgent Care Medicine. Master Clinicians is accredited by the ACCME to provide continuing medical education for physicians.



JUCM®

THE JOURNAL OF URGENT CARE MEDICINE®

www.jucm.com

The Official Publication of the UCA and

SEPTEMBER
VOLUME 16

UCA



Expand human impact at every urgent care touchpoint

EMR/PM + AI SCRIBE

The Only ✨ EMR Built for Urgent Care



Deliver faster, better care while optimizing operations, revenue, and compliance using the only EMR built for urgent care. To reduce documentation time and tech distraction, our fully integrated **AI Scribe automatically converts patient encounters into structured EMR-ready notes**, populating structured fields and reducing clicks – all within the flow of the patient visit. That means more focus on patients, more patient and provider satisfaction, and better outcomes.



“When you’re seeing 60+ patients a day, you need an exceptional staff and an exceptional EMR/PM. I think Experity provides that software so we can deliver the best care.”

ABBY BUZZELL

Physician's Assistant, Zip Clinic

* A commissioned study conducted by Forrester Consulting on behalf Experity, 2/21/25 ** Experity Data





United States Sexually Transmitted Infections: A Comprehensive Overview and Relevance To Urgent Care Centers

Urgent Message: Patients frequently utilize urgent care centers for testing and treatment of sexually transmitted infections. All clinicians can be a first line defense to control the spread and combat the current epidemic.

Alexandra Faraj, PA-S; Nadesha Muniz, MS Ed, PA-C

Citation: Faraj A, Muniz N. United States Sexually Transmitted Infections: A Comprehensive Overview and Relevance To Urgent Care Centers. *J Urgent Care Med.* 2025; 20(2):23-28

Key Words: Sexually Transmitted Infections; Chlamydia; Gonorrhea; Syphilis; Expedited Partner Therapy; Urgent Care

Abstract

The rise in sexually transmitted infections (STIs) in the United States is a major public health concern. Patients frequently utilize urgent care centers for addressing STI-related complaints due to quick appointments, discreetness, and availability. All healthcare providers, especially those in urgent care centers, should be familiar with patient assessment, diagnostic tests, screening guidelines, and updated treatments for STIs.

Introduction

The rise in some sexually transmitted infections (STIs) and the increasing demand for screening has become a growing public health concern in the United States. In 2023, the United States Centers for Disease Control and Prevention (CDC) reported approximately 2.4 million cases of chlamydia, gonorrhea, and syphilis combined.¹ From 2022 to 2023, the number of reported chlamydia cases increased among men by 1.3%. The reported cases of syphilis (all stages) increased by 1.0%, and the number of unknown duration or latent syphilis



increased by 12.8%.¹ The 2023 STI surveillance report is in vast contrast to the CDC report in 2020-2021 showing decreased STIs, which may be attributed to the restrictions in place during the global COVID-19 pandemic that essentially limited patients' access to healthcare and testing services for non-emergent illnesses.² As the number of patients seeking treatment for STI complaints increases, urgent care centers have become the frontline for addressing these concerns.

Sexually Transmitted Infections At A Glance

In 2023, chlamydia, gonorrhea, and syphilis were the most treated STIs in the United States.¹ Chlamydia and

Author affiliations: Alexandra Faraj, PA-S, St. John's University. Nadesha Muniz, MS Ed, PA-C, St. John's University. Authors have no relevant financial relationships with any ineligible companies.

Table 1. Sexually Transmitted Infection Risk Factors⁵

Risk Factors	High-Risk Groups
• New sex partner or multiple sex partners • Sex partner(s) with multiple concurrent sex partners • Sex with no or inconsistent condom use outside of a monogamous partnership • Exchanging sex for drugs or money • Sexual contact (oral, anal, penile, or vaginal) with sex workers	• Ages 15 to 24 years old • Patients ≥25 years old with a history of prior STIs or new sex partner • Pregnancy • Men who have sex with men • Illicit drug use • HIV infection • History of incarceration

gonorrhea infections are often asymptomatic in both sexes, however, common symptoms include vaginal discharge in females and urethritis in males. Females are more likely to present with atypical symptoms including vaginal pruritis, intermenstrual bleeding, or menorrhagia.^{3,4} The most common sites for inoculation are the urogenital tract, but other sites such as the oropharynx, rectum, and eye in both sexes may be involved.⁴ Young sexually active individuals or adults in high-risk groups and specific behavioral risk factors (Table 1) are associated with increased risk of STIs and infection-related morbidity.⁵

Chlamydia

Chlamydia is the number 1 reported STI in the United States with over 1.6 million reported cases in 2023. Young women ages 20 to 24 have the highest rate of chlamydia.¹ Chlamydia is caused by *Chlamydia trachomatis*, an obligate intracellular Gram-negative bacterium with a distinct life cycle that contributes to its survival in hosts and ongoing transmission.⁶ Chlamydia has an incubation period of 5 to 14 days for symptomatic infections and an unknown length of time for asymptomatic infections. Over 70% of urogenital infections and 90% of rectal and pharyngeal chlamydia infections are asymptomatic.⁴ Symptomatic chlamydia infections have clinical manifestations including urethritis (dysuria or urethral discharge), cervicitis (mucopurulent discharge), epididymitis (fever, testicular pain), and pelvic inflammatory disease (PID).⁴

Gonorrhea

The CDC reported over 600,000 cases of gonorrhea in 2023.¹ Gonorrhea is caused by the *Neisseria gonorrhoeae* (*N. gonorrhoeae*) bacterium, a Gram-negative diplococcal aerobe. *N. gonorrhoeae* has physical and genetic properties that can quickly develop antibiotic resistance.⁷ Following transmission, colonization, and an incubation period of about 2-8 days, human hosts may develop symptoms of an active infection. Ninety percent of

symptomatic men with urogenital gonorrhea have urethritis (urethral discharge and dysuria).⁸ However, up to 86% of urogenital gonorrhea infections in men and 92% of urogenital gonorrhea in women may be asymptomatic.^{4,9} Without significant symptomatic distinction, the CDC recommendation is to test concurrently for chlamydia and gonorrhea infections and to treat for both while waiting for results of lab testing.

Long-Term Effects of Untreated Chlamydia and Gonorrhea

Although many patients are asymptomatic, they are still at risk for chronic sequelae from untreated infections and can transmit the infection to others. The long-term effects of untreated STIs may cause irreversible damage to the urogenital system or affect other organ systems.¹⁰

In women, pelvic inflammatory disease (PID) is among the most concerning complications of a chlamydia or gonorrhea infection. PID is an acute or subacute infection of the upper genital tract (uterus, fallopian tubes, or ovaries). Despite its typical origin stemming from an untreated chlamydia or gonorrhea infection, PID is considered a separate STI itself. PID is a clinical diagnosis, and providers should have a low threshold for diagnosis and treatment.¹⁰

The CDC criteria that support the diagnosis of PID include:¹¹

- Sexually active young women and other women at risk for STI presenting with unexplained pelvic or lower abdominal pain and have 1 of the 3 minimum clinical criteria present on pelvic examination: cervical motion tenderness; uterine tenderness; or adnexal tenderness on exam
- Additionally, 1 of the following criteria can support a PID diagnosis:
 - Fever with an oral temperature >101°F or (>38.3°C)
 - Mucopurulent cervical discharge or cervical friability (easily bleeds)
 - Multiple white blood cells in vaginal fluid visu-

alized on saline microscopy

- Increased erythrocyte sedimentation rate (ESR)
- Increased C-reactive protein (CRP)
- Positive laboratory documentation of *N. gonorrhoeae* or *C. trachomatis*

Common complications of PID include:¹⁰

- **Endometritis:** acute localized inflammation of the endometrium (uterine lining)
- **Salpingitis:** acute inflammation of 1 or both fallopian tubes
- **Tubo-ovarian abscess:** a pocket of pus in the fallopian tube that extends into the ovaries
- **Pelvic peritonitis:** inflammation and infection of the peritoneum
- **Infertility:** difficulty getting pregnant
- **Ectopic pregnancy:** pregnancy outside of the uterus, typically in the fallopian tube or ovary

Systemic complications of PID include:

- **Perihepatitis (Fitz-Hugh-Curtis syndrome):** inflammation of the liver capsule and peritoneal surface, which excludes the liver tissue, and leads to adhesion formation¹²
- **Reactive arthritis:** inflammation of the joints. For patients who present with a triad of conjunctivitis, urethritis, and arthritis, the differential diagnosis should include STIs^{12,13}

Syphilis

Treponema pallidum (*T. pallidum*), commonly known as syphilis, is theorized to have existed as far back as the late 1400s. Recently, syphilis infections have increased, with approximately 209,000 cases reported in 2023.¹ *T. pallidum* is a spirochete, and humans are the only known hosts. With a long incubation period of 3-4 weeks and a slow replication rate of approximately 30 hours, there is ample room to screen and detect syphilis. The bacterium is known for its stealth, with physical characteristics and properties that make it difficult to identify for both immune systems and routine microscopy lab testing.¹⁴

After an initial inoculation, syphilis progresses in 4 infectious stages if untreated. In contrast to chlamydia and gonorrhea, symptoms of syphilis are significantly more distinct in early infection. A single, painless chancre is 1 of the initial clinical manifestations of stage 1 syphilis infection. A chancre is a local immune response that manifests as a painless ulcer, signifying the initial site where the bacterium entered host tissue. It starts as a papule and progresses to a round, indurated ulcer. Unfortunately, unless the point of inoculation is external, many patients progress through this stage unaware

of an active infection. Shortly after primary syphilis, patients develop secondary and ultimately tertiary syphilis infection caused by bacteria dissemination, during which it is challenging to identify (thus why it is known as “the great imitator”). Syphilis can affect almost every organ upon dissemination, from a macular rash (secondary syphilis) and cardiovascular involvement (tertiary syphilis) to stroke and dementia (neurosyphilis), which may become apparent as many as 30 years after the initial infection.¹⁴ Of note, syphilis can be fatal in rare cases. In 2023, the CDC reported 279 congenital syphilis stillbirths and neonatal/infant deaths.¹ As such, diagnosis and treatment of pregnant women is critical to prevent neonatal infections.

STI Diagnosis and Screening Tests

Screening is among the most crucial steps to combat the STI epidemic.¹⁵ Previously, local health department specialty STI clinics were the primary location for screening and treatment services. More recently, this responsibility has expanded beyond STI clinics due to a lack of government funding and subsequent closures.¹⁶ With this, the demand for STI-related services has increased in primary care, urgent care, family planning clinics, and emergency departments. According to the CDC, in 2018 non-STI clinics reported almost 80% of all STI cases. As such, a multispecialty approach is necessary to help combat the STI epidemic, with all providers playing a crucial role in diagnosing and treating STIs.¹⁷

The framework of STI screening and testing is based heavily on taking an accurate sexual history. According to the American Academy of Family Physicians (AAFP), the best practice is to obtain an accurate sexual history with the “5 P’s of Sexual Health.”¹⁸ The 5 P’s represent the core information that is pertinent to a patient’s sexual health and significantly contributes to STI screening. The 5 P’s provide detailed information about:

1. **Patient’s partners:** ask about current sexual partners of any gender or type of sex
2. **Practices (sexual):** ask specific questions about type of sex (vaginal, anal, or oral)
3. **Protection from STIs:** ask about prevention of STIs, specifying condom use
4. **Past history of STIs:** include questions about past testing and past diagnosis of STIs of the patient and partners
5. **Pregnancy prevention:** include questions about plans for children and use of contraceptives; offer options for preventing pregnancy if patient desires. An accurate sexual history helps providers identify patients at higher risk for STIs. The United States Pre-

Table 2: Treatment Guidelines for Uncomplicated Chlamydia, Gonorrhea, and Syphilis ¹⁹		
STI	Treatment	Partners
Chlamydia	Recommended regimen • Nonpregnant individual: Doxycycline 100 mg PO twice daily for 7 days • Pregnant individual: Azithromycin 1 gm PO in a single dose Alternative regimen • Azithromycin 1 gm PO in a single dose <i>Plus presumptive treatment of gonorrhea</i>	Use EPT: • Any sex partner within 60 days of infection • The most recent sex partner if > 60 days from infection
Gonorrhea	Recommended regimen • Ceftriaxone: 500 mg (weight < 150 kg) or 1 gm (weight ≥ 150 kg) IM in a single dose Alternative regimens • Ceftizoxime 500 mg IM in a single dose • Cefixime 800 mg PO in a single dose • Azithromycin 2 g PO in a single dose plus gentamycin 240 mg IM in a single dose <i>Plus presumptive treatment of chlamydia</i>	Use EPT: • Any sex partner within 60 days of infection • The most recent sex partner if > 60 days from infection
Syphilis	Primary, secondary, and early latent (less than 12 months) Recommended regimen • Penicillin G benzathine 2.4 million units IM in a single dose Alternative regimens • Doxycycline 100 mg PO twice daily for 14 days • Ceftriaxone 1 gm daily IM or IV for 10 to 14 days Tertiary or late latent syphilis (12 months or longer) Recommended regimen • Penicillin G benzathine 2.4 million units IM once weekly for 3 weeks Alternative regimens • Doxycycline 100 mg PO twice daily for 4 weeks • Ceftriaxone 2 g daily IM or IV for 10 to 14 days <i>In pregnancy, the only recommended treatment is penicillin, and patients with penicillin allergy require penicillin desensitization</i>	No EPT

Abbreviations: EPT—expedited partner treatment; IM—intramuscular; IV—intravenous; PO—per os (oral)

ventive Services Task Force (USPSTF) and the CDC suggest at least annual screening of all sexually active women age 24 or younger and women 25 and older (including pregnant women) who are at increased risk of chlamydia and gonorrhea infection. Patients who are not sexually active or in a monogamous relationship are not at increased risk.^{18,19} The CDC additionally recommends screening all pregnant women during their first obstetric visit for syphilis.¹⁸

Chlamydia and Gonorrhea Testing

Nucleic acid amplification tests (NAATs) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* organisms are the gold standard for diagnosis due to their high sensitivity and specificity. NAATs can be performed on urine specimens; female endocervical and vaginal specimens; and male urethral, rectal, and pharyngeal specimens.^{15,20} A vaginal swab (including a self-collected swab) specimen is preferred in women, and first-catch urine spe-

cimen is preferred in men.¹⁹ In addition to NAAT, culture should remain an option for symptomatic individuals, especially if there are concerns of antibiotic resistance or in legal cases.²⁰

“For a suspected or confirmed diagnosis of an STI, the patient should be provided prescription medication and education about sexual health and protection.”

Syphilis Testing

Typically, diagnosis of syphilis requires 2 laboratory serologic tests: a nontreponemal (lipoidal antigen) test (venereal disease research laboratory or rapid plasma reagin test); and a treponemal test (*T. pallidum* passive particle agglutination) assay.⁴ Primary lesions concerning for chancre can be swabbed and sent to lab for identification via polymerase chain reaction (PCR).²¹

Treatment Protocols

Pharmacologic treatment guidelines for STIs are concise and straightforward. For a suspected or confirmed diagnosis of an STI, the patient should be provided prescription medication and education about sexual health and protection. Additionally, the provider may offer expedited partner treatment (EPT). In 2021, the CDC updated its guidelines for the treatment of chlamydia, gonorrhea, and syphilis (Table 2).¹⁹

Follow-Up

To combat high rates of transmission, patients should refrain from sexual activity until treatment is completed, and providers should discuss the use of protection to decrease the risk of contracting future STIs. As such, providers may reference the “Five P’s of Sexual Health” to guide this conversation. Patients should not follow up for repeat testing until at least 3 months following treatment of urogenital infection.¹⁹ The treatment protocols for STIs are concrete and practical, allowing our public healthcare system to reduce the transmission rate.

EPT has enabled providers to make impact on slowing the spread of STIs. EPT was enacted in 2009, which gave providers the ability to treat sexual partners of patients diagnosed with chlamydia or gonorrhea without the

need for evaluation in person.²² This public health strategy not only gives providers better access to patients’ sexual partners for treatment, but it also allows those partners to remain somewhat anonymous, increasing their likelihood to undergo treatment. However, EPT is often underutilized by providers and patients. According to the CDC, EPT is legal in many states and can be a valuable option for patients especially when packaged oral medication is offered and accompanied by educational materials on use and potential allergies. Providers are encouraged to visit the CDC website to obtain updated information for their state.²³

Urgent Care’s Role

A survey found that more than 60% of STI specialty clinics report budget cuts while the demand for STI-related healthcare continues.¹⁶ Urgent care centers are attractive for patients looking for screening, testing, or treatment of an STI quickly and discreetly.²⁴ Most urgent cares can perform STI testing with a simple urine sample, which is collected and sent to a lab for PCR testing with a 3–5-day turnaround time. However, some offer NAAT point-of-care testing, which entails rapid STI testing performed in as little as 30 minutes.²⁵ Additionally, patients may utilize an at-home test for common STIs, thus presenting to urgent care centers for treatment following an at-home positive result.

Takeaway Points

- Chlamydia, gonorrhea, and syphilis infections are on the rise.
- Young sexually active patients or older patients with high-risk behaviors are at higher risk for acquiring STIs.
- Asymptomatic or atypical presentations of chlamydia lead to an increased risk of delayed diagnosis and potential complications.
- USPSTF and CDC have released updated STI screening, diagnosis, and treatment guidelines addressing resistance, allergies, specific patient considerations, and recommendations for EPT.
- Urgent care centers are one of the most promising settings for controlling the spread and combating the STI epidemic. ■

Manuscript submitted May 5, 2025; accepted September 16, 2025.

References

1. Centers for Disease Control and Prevention. National overview of STIs in 2023. Published November 14, 2024. Accessed August 18, 2025. <https://www.cdc.gov/sti-statistics/annual/summary>
2. Pagaoa M, Grey J, Torrone E, Kreisel K, Stenger M, Weinstock H. Trends in na-

tionally notifiable sexually transmitted disease case reports during the US COVID-19 pandemic, January to December 2020. *Sex Transm Dis*. 2021;48(10):798-804. doi:10.1097/OLQ.0000000000001506

3. Cantor A, Dana T, Griffin JC, et al. Screening for chlamydial and gonococcal infections: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021;326(10):957-966. doi:10.1001/jama.2021.10577

4. Tuddenham S, Hamill MM, Ghanem KG. Diagnosis and treatment of sexually transmitted infections: a review. *JAMA*. 2022;327:161-172. doi:10.1001/jama.2021.23487

5. Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines, 2021: STI and HIV infection risk assessment. Published July 22, 2021. Accessed August 18, 2025. <https://www.cdc.gov/std/treatment-guidelines/default.htm>

6. Witkin SS, Minis E, Athanasiou A, Leizer J, Linhares IM. Chlamydia trachomatis: the persistent pathogen. *Clin Vaccine Immunol*. 2017;24(10):e00203-17. doi:10.1128/CVI.00203-17

7. Criss AK, Seifert HS. A bacterial siren song: intimate interactions between *Neisseria* and neutrophils. *Nat Rev Microbiol*. 2012;10(3):178-190. doi:10.1038/nrmi-cro2713

8. Unemo M, Seifert HS, Hook EW 3rd, Hawkes S, Ndowa F, Dillon JAR. Gonorrhoea. *Nat Rev Dis Primers*. 2019;5(1):79. doi:10.1038/s41572-019-0128-6

9. Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines, 2021: Gonococcal infections among adolescents and adults. Accessed August 18, 2025. <https://www.cdc.gov/std/treatment-guidelines/gonorrhea-adults.htm>

10. Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines, 2021: Pelvic inflammatory disease (PID). Accessed August 18, 2025. <https://www.cdc.gov/std/treatment-guidelines/pid.htm>

11. He W, Jin Y, Zhu H, Zheng Y, Qian J. Effect of Chlamydia trachomatis on adverse pregnancy outcomes: a meta-analysis. *Arch Gynecol Obstet*. 2020;302(3):553-567. doi:10.1007/s00404-020-05664-6

12. Aitken-Saavedra J, Maturana-Ramirez A, Fernández Moraga J, Doro Dias V, Galindo-Santos L, Pineda Flores D. Reactive arthritis: images. *Dermatol Online J*. 2021;27(7). doi:10.5070/D327754373

13. Ghanem KG, Ram S, Rice PA. The modern epidemic of syphilis. *N Engl J Med*. 2020;382(9):845-854. doi:10.1056/NEJMra1901593

14. Greydanus DE, Cabral MD, Patel DR. Pelvic inflammatory disease in the adolescent and young adult: an update. *Dis Mon*. 2022;68(3):101287. doi:10.1016/j.disamonth.2021.101287

15. Cantor A, Dana T, Griffin JC, et al. Screening for chlamydial and gonococcal infections: a systematic review update for the US Preventive Services Task Force (Evidence Synthesis No. 206). Agency for Healthcare Research and Quality; 2021. AHRQ Publication No. 21-05275-EF-1.

16. Luk C, Palar K, Ludovic J, et al. Staffing and Budget Levels at Local Sexually Transmitted Disease Programs by County-Level Sociodemographic Characteristics During COVID-19. *Sex Transm Dis*. 2025;52(8):e37-e40. doi:10.1097/OLQ.0000000000002152

17. Barrow RY, Ahmed F, Bolan GA, Workowski KA. Recommendations for providing quality sexually transmitted diseases clinical services, 2020. *MMWR Recomm Rep*. 2020;68(RR-5):1-20. doi:10.15585/mmwr.rr6805a1

18. Yonke N, Aragón M, Phillips JK. Chlamydial and gonococcal infections: screening, diagnosis, and treatment. *Am Fam Physician*. 2022;105(4):388-396.

19. Workowski KA, Bachmann LH, Chan PA, et al. Sexually transmitted infections treatment guidelines, 2021. *MMWR Recomm Rep*. 2021;70(4):1-187. doi:10.15585/mmwr.rr7004a1

20. Centers for Disease Control and Prevention. Recommendations for the laboratory-based detection of Chlamydia trachomatis and *Neisseria gonorrhoeae*—2014. *MMWR Recomm Rep*. 2014;63(RR-02):1-19.

21. Theel ES, Katz SS, Pillay A. Molecular and direct detection tests for *Treponema pallidum* subspecies pallidum: a review of the literature, 1964–2017. *Clin Infect Dis*. 2020;71(Suppl 1):S4-S12. doi:10.1093/cid/cia176

22. Jackson KJ, Pickett ML. Expedited partner therapy review. *Pediatr Emerg Care*. 2024;40(11):828-832. doi:10.1097/PEC.0000000000003275

23. Centers for Disease Control and Prevention. Sexually Transmitted Infections Treatment Guidelines, 2021: Expedited Partner Therapy. Published July 22, 2021. Accessed August 18, 2025. <https://www.cdc.gov/std/treatment-guidelines/ep-tx.htm>

24. Ayers A. The business case for STI testing in urgent care centers. *J Urgent Care Med*. 2024;18(10):39-42.

25. Fisk KM, Derouin A, Holm G, Hicks L. Getting it right: the impact of point-of-care testing for gonorrhea and chlamydia in the urgent care setting. *J Nurse Pract*. 2020;16(5):388-393. doi:10.1016/j.nurpra.2020.01.006



JUCM® is calling—it's for you

JUCM, *The Journal of Urgent Care Medicine* is known as the voice of the urgent care community, thanks to the contributions of urgent care professionals just like you.

Whether you're a physician, nurse practitioner, a physician assistant—or an owner, manager, billing and coding specialist, lawyer, or anyone else with expertise that could benefit our readers—you're qualified to submit an article.

So, if you've ever had a situation arise in your urgent care center and thought *somebody should write an article about this*, maybe you should be that "somebody." Describe it in an email to editor@jucm.com and we'll help you get started.

JUCM
THE JOURNAL OF URGENT CARE MEDICINE®

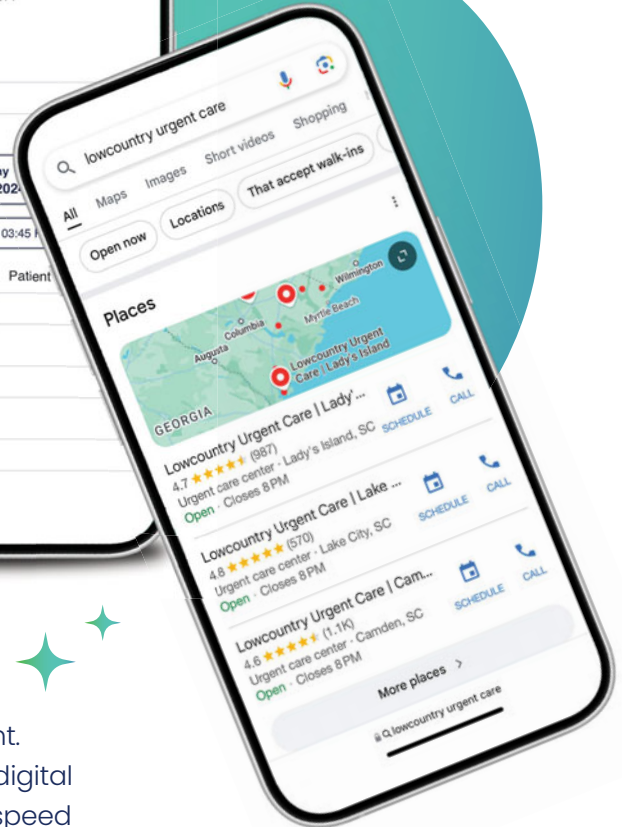
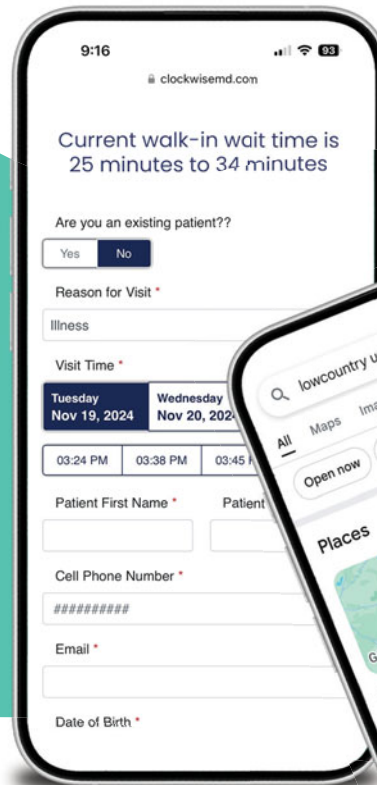
Our content works for the urgent care community because it comes from the urgent care community. And we aim to keep it that way.

*JUCM has garnered 17 awards in the prestigious American Society of Healthcare Publication Editors annual awards competition.

Expand human impact
at every urgent care
touchpoint

PATIENT ENGAGEMENT
+ CARE AGENT

Engaging Your Patients Pays Dividends for Your Practice



Deliver a seamless, digital-first, patient journey, to expand human impact at every urgent care touchpoint. By consolidating online visibility, real-time scheduling, digital intake, and automated outreach in one platform, you speed up visits—without disrupting the pace or quality of care.



80%
REDUCTION
IN WAIT TIMES



< 8
MINUTES
TO REGISTER PATIENT



3X
MORE
ONLINE REVIEWS

"By offering a user-friendly channel to schedule an appointment while waiting elsewhere, rather than in a line outside, our partnership with Experity has already improved our Net Promoter Score."

DR. VINCENT CAMPASANO

Chief Operating Officer, CityMD





With the BD Veritor™ Plus System you're

“All set!”

Enable more efficient diagnosis and care for respiratory illnesses with reliable tests for COVID-19 & Flu A+B,* COVID-19, Flu A+B, Group A Strep and RSV.

In seasons of high demand, lean on clear, rapid results in 15 minutes or less to streamline appointments and get your urgent care patients back to what matters most.[†]

Elevate patient experiences with rapid answers from the portable, simple-to-use BD Veritor™ Plus System.



Ready, set, go to **bdveritor.com**





A Rare Cardiopulmonary Debut of Systemic Lupus Erythematosus: A Pediatric Case Report

Urgent Message: In adolescents presenting with persistent chest pain and systemic symptoms, clinicians should maintain a high index of suspicion for autoimmune etiologies such as systemic lupus erythematosus causing pericardial and pleural effusions.

Asra Usmani, MBBS, MD; Ali Baidoun, MD; Aaron Mahoney, DO; Megan Sikkema, DO

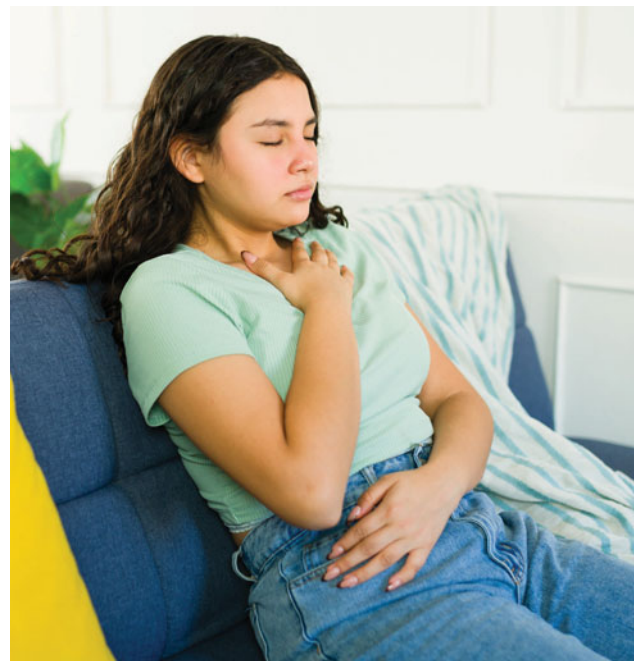
Citation: Usmani A, Baidoun A, Mahoney A, Sikkema M. A Rare Cardiopulmonary Debut of Systemic Lupus Erythematosus: A Pediatric Case Report. *J Urgent Care Med.* 2025; 20 (2):31-36

Key Words: Pericardial Effusion, Pleural Effusion, Systemic Lupus Erythematosus, Chest Pain, Adolescent

Abstract

Introduction: Systemic lupus erythematosus (SLE) is a chronic autoimmune condition that can affect multiple organ systems. Its clinical presentation ranges from mild with localized symptoms to life-threatening, multiorgan system involvement. Early recognition is essential to initiate prompt treatment and prevent disease progression.

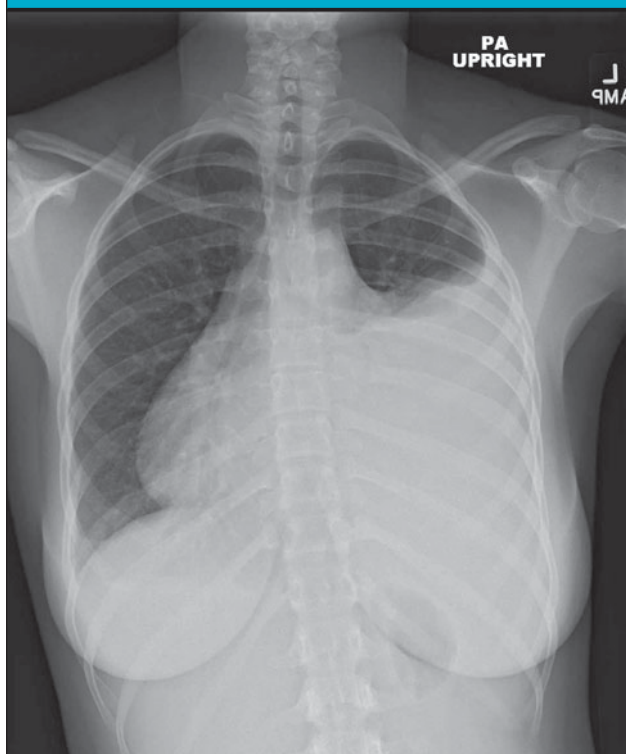
Clinical Presentation: A 16-year-old, previously healthy girl presented urgently to her pediatrician with a 4-week history of persistent left-sided chest pain. She was initially treated for presumed gastroesophageal reflux disease with omeprazole after presenting on December 5, 2023. Over the following 4 weeks she developed intermittent fevers, shortness of breath, and pleuritic chest pain. A chest x-ray on December 29, 2023, revealed bilateral pleural effusions and left lower lobe consolidation. Despite antibiotics, symptoms worsened, leading to admission on January 2, 2024.



sions and left lower lobe consolidation. Despite antibiotics, symptoms worsened, leading to admission on January 2, 2024.

Author Affiliations: Asra Usmani, MBBS, MD, Department of Pediatrics, Western Michigan University Homer Stryker, MD, School of Medicine, Kalamazoo, Michigan. Ali Baidoun, MD, Department of Pediatrics, Western Michigan University Homer Stryker, MD, School of Medicine, Kalamazoo, Michigan. Aaron Mahoney, DO, Department of Emergency Medicine, Western Michigan University Homer Stryker, MD, School of Medicine, Kalamazoo, Michigan. Megan Sikkema, DO, Department of Pediatrics, Western Michigan University Homer Stryker, MD, School of Medicine, Kalamazoo, Michigan, and Bronson Children Hospital, Kalamazoo, Michigan. Authors have no relevant financial relationships with any ineligible companies.

Figure 1. Chest X-ray With Left Lower Lobe Consolidation



Diagnosis: Upon worsening symptoms, she was admitted, and computed tomography imaging revealed a large pericardial effusion and a significant left pleural effusion causing near-complete lung collapse. She was transferred to the pediatric intensive care unit and underwent urgent pericardiocentesis with pericardial drain placement and left chest tube drainage. Subsequent autoimmune workup revealed a high antinuclear antibody titer ($>1:640$, speckled pattern), elevated anti-double stranded DNA antibodies, and inflammatory markers consistent with a new diagnosis of SLE with serositis.

Resolution: The patient was initiated on high-dose corticosteroids, which resulted in rapid clinical improvement. The pericardial and pleural effusions resolved, and the patient was discharged with a tapering steroid regimen and started on hydroxychloroquine and azathioprine with rheumatology follow-up.

Conclusion: Concurrent pericardial and pleural effusions as the initial presentation of pediatric SLE is rare. This case underscores the importance of maintaining a broad differential diagnosis in adolescents presenting

with persistent chest pain and systemic symptoms. Early use of imaging and autoimmune serologies can facilitate timely diagnosis and initiation of appropriate immunosuppressive therapy.

Introduction

Systemic lupus erythematosus (SLE) is a complex, chronic autoimmune disease characterized by the production of autoantibodies and multiorgan involvement. It can present with a wide array of clinical manifestations, ranging from subtle constitutional symptoms to fulminant organ failure. Although the disease predominantly affects women of reproductive age, approximately 15–20% of cases present during childhood or adolescence, where the disease course tends to be more severe and systemic in nature.^{1,2}

Cardiopulmonary involvement is common in SLE but is often under-recognized during initial evaluations, especially in pediatric patients presenting with nonspecific symptoms such as fatigue, fever, and chest pain.³ Pericarditis is the most frequent cardiac manifestation of lupus and may occur in up to 25% of pediatric SLE patients during the disease course.⁴ Pleural effusions are also frequently observed in SLE but are rarely the initial presenting feature.⁵ The simultaneous occurrence of both pericardial and pleural effusions as an initial presentation of lupus, especially without a previously established diagnosis, is exceedingly rare and can obscure the underlying etiology.⁶

Early recognition and diagnosis of SLE are crucial to prevent potentially life-threatening complications and organ damage.⁷ When presenting symptoms mimic more common conditions, such as viral infections, pneumonia, or gastroesophageal reflux disease, it is imperative for clinicians, especially those in urgent care and primary care settings, to maintain a broad differential diagnosis. Inflammatory markers, serological testing, and timely imaging can help unveil atypical presentations and guide appropriate referrals.

This case report discusses a 16-year-old girl who presented with both pericardial and pleural effusions, leading to the diagnosis of SLE. Similar cases in the literature reinforce the importance of recognizing serosal effusions as early signs of SLE. Yost et al. described a patient with known SLE who developed recurrent pleural and pericardial effusions requiring repeated drainage and immunosuppression.⁸ In another report, a patient with undiagnosed SLE and COVID-19 presented with similar findings, complicating the diagnosis.⁹ Misra et al. reported pediatric cases where pericarditis and serositis were the first signs of SLE, often misdiagnosed initially.¹⁰

Figure 2. Computed Tomography With Contrast Showing Pericardial Effusion, Left-Sided Pleural Effusion, Near-Complete Left Lung Collapse



These cases highlight the diagnostic value of early recognition of sterile, exudative effusions in prompting autoimmune evaluation, particularly in pediatric populations. This case underscores the importance of considering autoimmune etiologies in patients with unexplained serosal effusions and highlights the need for a high index of suspicion to facilitate timely diagnosis and management.

Case Presentation

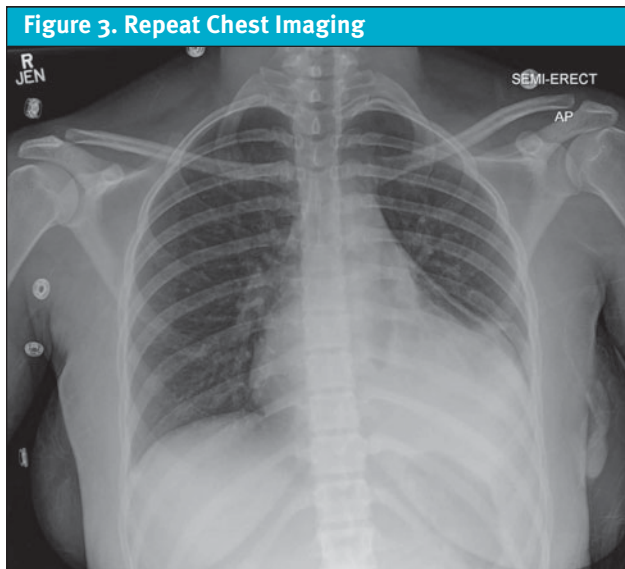
A 16-year-old, previously healthy girl presented urgently to her pediatrician due to worsening left-sided chest pain that had been ongoing for approximately 4 weeks. The patient was noted to be of mixed ethnicity, and family history was notable for type 1 diabetes mellitus in the maternal grandmother and older sister, who also had celiac disease. There was no known family history of SLE, rheumatoid arthritis, psoriasis, or inflammatory bowel disease. At that initial visit, she was diagnosed with gastroesophageal reflux disease (GERD) and managed conservatively with omeprazole 20 mg daily.

Despite this, her symptoms persisted and gradually worsened. Over the following 2 weeks, she developed intermittent fevers with a peak temperature of 102.6°F (39.2°C), pleuritic chest pain radiating to the back, shortness of breath, and left breast discomfort. She was re-evaluated for a presumed viral upper respiratory tract infection; however, viral panels were negative, and no infectious etiology was found. Given the persistence and evolution of her symptoms, a chest x-ray was obtained. Imaging revealed left lower lobe consolidation suggestive of pneumonia, along with a moderate left pleural effusion and a small right pleural effusion (Figure 1). She was started on a course of amoxicillin and inhaled albuterol.

Despite initiation and compliance to treatment, her symptoms did not improve, and her chest pain further intensified significantly. This prompted patient to present for the urgent visit, at which time, given concern for worsening pulmonary pathology, she was urgently admitted for further workup.

Upon hospital admission, vitals were: blood pressure of 113/74; heart rate of 121 beats per minute; respiratory rate of 22 breaths per minute; temperature of 99.7°F (37.6°C), O₂ saturation of 98% on room air. She was ill-appearing, tachycardic, with diminished breath sounds over the left lung fields. A bedside point-of-care chest ultrasound revealed a large left pleural effusion with complex echogenicity concerning for an underlying pericardial effusion or necrotizing pneumonia. A computed tomography (CT) chest scan with contrast was promptly obtained, which demonstrated a large pericardial effusion, a significant left-sided pleural effusion, and near-complete left lung collapse (Figure 2). Given the severity of these findings, the patient was transferred to the pediatric intensive care unit (PICU) for advanced care.

In the PICU, a bedside echocardiogram confirmed a large pericardial effusion without signs of tamponade. Cardiology was consulted, and the patient was urgently taken to the cardiac catheterization lab for therapeutic and diagnostic pericardiocentesis, during which 800 mL of serosanguinous fluid was removed. A pericardial drain was left in place for continued monitoring. Simultaneously, a left-sided chest tube was placed due to moderate dyspnea with minimal movement, and approximately 550 mL of pleural fluid was drained. Initial laboratory evaluation revealed a microcytic anemia, elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), and a neutrophilic predominance



in pericardial fluid, without any identified organisms on Gram stain or culture. An autoimmune workup was initiated due to the exudative and inflammatory nature of the pericardial fluid. Notably, her antinuclear antibody (ANA) returned strongly positive at 1:640 (speckled pattern) with anti-Sjögren-syndrome-related antigen A (anti-SSA) positivity and low complement component 4 (C4) levels. Additional autoimmune markers were sent.

Given the serological findings and the clinical picture of polyserositis (pericarditis and pleuritis), the patient was diagnosed with new-onset SLE. She was started on high-dose corticosteroids (methylprednisolone 30 mg/kg/day for 3 days) and transitioned to scheduled non-steroidal anti-inflammatory drugs (NSAIDs) for pain control. She showed rapid clinical improvement. The pericardial drain was removed on day 2, and the chest tube on day 3, following resolution of effusions confirmed on repeat echocardiogram and chest imaging (**Figure 3**).

The patient was discharged on a tapering dose of steroids with outpatient follow-up by pediatric rheumatology. At follow-up with rheumatology, it was assessed that her SLE was clinically active on medications as evidenced by ongoing symptoms. She was started on hydroxychloroquine and azathioprine with a steroid taper. No ECG was obtained at outpatient visits or during hospital admission, where management focused on urgent drainage and stabilization. The patient was monitored on continuous telemetry in the PICU, though tracings were not preserved. The first formal ECG was performed approximately 4 weeks after symptom onset, by which time she had improved clinically. It demonstrated normal sinus

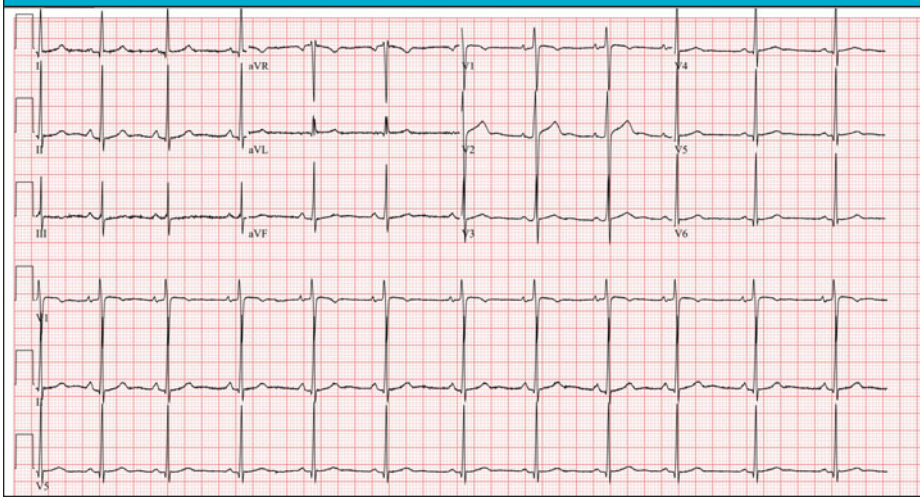
rhythm with respiratory sinus arrhythmia and mild non-specific T-wave abnormalities (**Figure 4**). Notably, it did not show findings typically associated with acute pericarditis or large pericardial effusion, such as diffuse ST-segment elevation or PR depression. Patient was managed on hydroxychloroquine and azathioprine until later follow-ups with rheumatology revealed that her SLE was clinically quiescent with a SELDAI-2K (Systemic Lupus Erythematosus Disease Activity Index) score of 0, normalized complements, and no recurrence of pericardial or pleural effusions.

In summary, the patient's illness evolved over the course of 4 weeks. She was first seen on December 5, 2023, in her pediatrician's office with chest pain and diagnosed with GERD, for which she was started on omeprazole. Ten days later, on December 15, she returned with fever and upper respiratory symptoms. Viral testing was negative, and she was managed conservatively. On December 29, a third pediatrician office visit prompted chest radiography, which demonstrated pneumonia with bilateral pleural effusions, and she was prescribed amoxicillin and albuterol. Despite treatment, her symptoms worsened, and on January 2, 2024, she presented to urgent care with escalating chest pain, dyspnea, and fever. This ultimately led to her admission, advanced imaging, identification of large pericardial and pleural effusions, and transfer to the PICU for urgent drainage and further evaluation.

Medical Decision Making

In the outpatient setting, medical decision making initially focused on common diagnoses such as GERD (visit 1) and viral or bacterial respiratory infection (visits 2 and 3). These represent common and reasonable considerations in adolescents with chest pain. However, the persistence of symptoms despite therapy, evolution to pleuritic pain, and association with fever were red flags suggesting a broader differential. For urgent care and primary clinicians, differentials for adolescent chest pain with systemic features should include pneumonia with effusion, viral pericarditis, myocarditis, autoimmune serositis, and less commonly, oncologic processes.

In the hospital, the patient's workup rapidly evolved due to the unexpected severity and chronicity of her chest symptoms. The differential included infectious causes (bacterial, viral, atypical organisms), inflammatory, and autoimmune etiologies. Imaging played a pivotal role in detecting pericardial and pleural fluid collections. Given her hemodynamic stability but large pericardial effusion, pericardiocentesis was pursued to prevent tamponade and clarify etiology.

Figure 4. EKG Obtained 4 Weeks After Symptom Onset

With no organisms seen on Gram stain and no growth in cultures, and pericardial fluid characteristics suggestive of an exudative inflammatory process, autoimmune causes became a priority. Strong ANA positivity with specific extractable nuclear antigens (SSA) and low complement supported a diagnosis of SLE with serositis. Collaborative management between cardiology, infectious diseases, and rheumatology enabled timely initiation of high-dose steroids, followed by immunomodulatory therapy with azathioprine and hydroxychloroquine.

Differential Diagnosis and Final Diagnosis

At hospital admission, differential diagnoses considered included:

- Infectious pericarditis (bacterial, viral, atypical pneumonia-related)
- Parapneumonic effusion/empyema
- Reactive pericarditis post-viral illness
- Autoimmune serositis (lupus pericarditis)
- Oncologic processes (lymphoma, leukemia)

The final diagnosis was determined to be SLE presenting with pericarditis and pleuritis, confirmed by:

- Positive ANA (1:640, speckled pattern)
- SSA, anti-dsDNA, chromatin antibodies
- Hypocomplementemia
- Clinical criteria of serositis (pericardial and pleural effusion)

Discussion

This case highlights the diagnostic complexity and urgency surrounding a seemingly common chief complaint, chest pain, in an adolescent female. While musculoskeletal and gastrointestinal causes often predominate

in this age group, the evolution of symptoms over a 4-week period, including pleuritic pain, dyspnea, and intermittent fevers, demanded deeper investigation.

Epidemiologically, SLE is a rare but important cause of pericarditis and pleuritis in pediatric patients, with peak incidence during adolescence and a strong female predominance.⁶ Serositis is a well-described manifestation of SLE and may present as pericardial or pleural effusions, sometimes preceding the formal diagnosis of lupus.¹¹ In this

case, SLE initially presenting as isolated chest pain mimicked benign or infectious etiologies, including GERD, pneumonia, and viral pericarditis, which lead to initial misdiagnoses and outpatient treatment with antibiotics and proton pump inhibitors.

Key to this patient's diagnostic turnaround was her return to care due to worsening symptoms. Point-of-care ultrasound and chest imaging upon urgent admission to the hospital revealed bilateral pleural effusions and a large pericardial effusion, prompting escalation of care and transfer to the PICU. The pericardial effusion was large enough to risk progression to tamponade, justifying urgent pericardiocentesis, which was both therapeutic and diagnostic. Fluid analysis revealed a sterile, neutrophil-predominant exudate, and the presence of systemic inflammation prompted autoimmune serologies. The subsequent ANA titer (1:640) and SSA positivity, with low complement levels, confirmed the diagnosis of new-onset pediatric SLE presenting with serositis.

Although ECG is a key diagnostic tool in suspected pericarditis or pericardial effusion, its sensitivity depends on the timing of acquisition relative to symptom onset. In this case, the ECG was obtained 4 weeks after the initial presentation and did not demonstrate classical findings of pericarditis. Earlier ECGs in similar cases may reveal low-voltage QRS complexes or electrical alternans in the setting of large effusions. This case underscores the importance of timely ECG evaluation in adolescents presenting with unexplained chest pain, even when vital signs and exam findings are initially nonspecific.

Published cases suggest that early recognition of ster-

ile, exudative pleural or pericardial effusions, particularly when unresponsive to antibiotics, should prompt autoimmune workup. Yost et al. noted that recurrent serosal effusions in known SLE can indicate disease activity, while Misra et al. described pediatric patients whose first SLE sign was pericarditis or polyserositis. Similarly, Amro et al. reported diagnostic delay in a case of lupus complicated by COVID-19.⁸⁻¹⁰ In our case, the combination of unexplained polyserositis, elevated inflammatory markers, and negative infectious workup paralleled these patterns and helped guide rheumatologic evaluation and diagnosis.

This case underscores the value of revisiting the differential diagnosis when symptoms persist beyond the expected course, especially in adolescents presenting repeatedly with chest pain and systemic symptoms. Urgent care clinicians are often the first point of contact for such patients and play a pivotal role in recognizing red flags (eg, pleuritic quality, systemic features, poor response to treatment) that should prompt escalation to imaging and specialist referral. Correct diagnosis and multidisciplinary care coordination led to management of this potentially life-threatening autoimmune condition.

Disposition

The patient was discharged home in stable condition on hospital day 4 after pericardial and pleural fluid drainage with no recurrence on follow-up echocardiograms. She was started on high-dose corticosteroids, hydroxychloroquine, and azathioprine with a tapering steroid plan. At 2-week rheumatology follow-up, her SLE was assessed as active with a SELDAI-2K score of 17. She was managed and followed by rheumatology while remaining on azathioprine and hydroxychloroquine. A 2-month follow-up revealed that her SLE was clinically quiescent with a SELDAI-2K score of 0, normalization of complements and anti-dsDNA, and no recurrence of pericardial or pleural effusions. She remains on close follow-up with rheumatology for continued immunosuppressive therapy and disease monitoring.

Ethics Statement

Informed written consent was obtained from the parent of the patient for publication of this case.

Takeaway Points

- Persistent chest pain with systemic features in adolescents warrants reassessment—especially when initial treatment fails.
- Lupus pericarditis can present as isolated chest pain

with pleural effusion and may mimic pneumonia or viral illness early in its course.

- Point-of-care ultrasound, chest imaging, and early electrocardiography are critical tools in urgent care clinics to detect pericardial and pleural effusions that may require emergent intervention.
- A large pericardial effusion in a stable patient still requires prompt evaluation due to the risk of tamponade, even in the absence of classic signs.
- Early rheumatologic evaluation is essential when pericardial effusion is exudative and sterile, especially with positive ANA or hypocomplementemia. ■

Manuscript submitted April 22, 2025; accepted September 11, 2025.

References

1. Nusbaum JS, Mirza I, Shum J, et al. Sex differences in systemic lupus erythematosus: epidemiology, clinical considerations, and disease pathogenesis. *Mayo Clin Proc.* 2020;95(2):384-394. doi:10.1016/j.mayocp.2019.09.012
2. Aggarwal A, Srivastava P. Childhood onset systemic lupus erythematosus: how is it different from adult SLE? *Int J Rheum Dis.* 2015;18(2):182-191. doi:10.1111/1756-185X.12419
3. Barradas MI, Duarte F, dos Santos IC, et al. Cardiac Tamponade as the First Manifestation of a Systemic Disease. *Int J Clin Cardiol.* 2023;10:287. doi:10.23937/2378-2951/1410287
4. Maharaj SS, Chang SM. Cardiac tamponade as the initial presentation of systemic lupus erythematosus: a case report and review of the literature. *Pediatr Rheumatol Online J.* 2015;13:9. doi:10.1186/s12969-015-0005-0
5. De Matteis A, Sacco E, Celani C, et al. Tocilizumab for massive refractory pleural effusion in an adolescent with systemic lupus erythematosus. *Pediatr Rheumatol Online J.* 2021;19(1):144. doi:10.1186/s12969-021-00635-w
6. Chen YJ, Lin YJ. Pediatric Lupus Presenting as Pulmonary Hypertension, Myocarditis, and Massive Pericardial Effusion in an 11-Year-Old Girl: A Case Report and Literature Review. *Front Pediatr.* 2022;10:829166. doi:10.3389/fped.2022.772422
7. Mitchell JL. Understanding the impact of delayed diagnosis and misdiagnosis of systemic lupus erythematosus (SLE). *J Family Med Prim Care.* 2024;13(11):4819-4823. doi:10.4103/jfmpc.jfmpc_1177_24
8. Yost C, Vercillo D, Abuqare A, Yost MB, Love AN, Vercillo DM. Pleural and Pericardial Effusion With COVID-19 and Systemic Lupus Erythematosus and Its Recurrence: A Case Study. *Cureus.* 2023 Apr 22;15(4). doi: 10.7759/cureus.37988
9. Amro AM, Deeb S, Rije R, Deeb N, Qunaibi YY, Amr B, Irzeqat K, Alhadad B, Emar A, Deeb S. Systemic lupus erythematosus presenting as cardiac tamponade and pleural effusion: a case report. *Cureus.* 2024 Jan 25;16(1). doi:10.7759/cureus.52894
10. Ryu S, Fu W, Petri MA. Associates and predictors of pleurisy or pericarditis in SLE. *Lupus Science & Medicine.* 2017 Oct 1;4(1):e000221. doi:10.1136/lupus-2017-000221
11. Harrison MJ, Zühlke LJ, Lewandowski LB, Scott C. Pediatric systemic lupus erythematosus patients in South Africa have high prevalence and severity of cardiac and vascular manifestations. *Pediatr Rheumatol.* 2019;17(1):1-10. doi:10.1186/s12969-019-0382-x



Expand Human Impact at Every Urgent Care Touchpoint

AI is here. A practical tool for urgent care clinics to reduce administrative burden, improve patient flow, and enhance care delivery. Artificial intelligence expands your staff, reducing routine work and maximizing human impact by creating space for more meaningful patient interactions.

INTRODUCING...

Care Agent - Deliver always-on, personalized patient engagement

Built to serve as your digital front door around the clock, Care Agent operates through secure text messaging and web-based interactions, eliminating the need for apps or logins while preserving full HIPAA compliance. Explore Care Agent's initial AI skills today.

AI Insurance Matching - Turn check-in into a competitive advantage

This new integration allows patients to upload their driver's license and insurance card during online registration, speeding up patient flow and making sure claims are clean from the start.

AI Scribe - Free up providers by automating the burden of charting

AI Scribe listens during the patient encounter, transcribes the conversation, and generates structured clinical notes that can be integrated directly into the Experity EMR. (Coming late 2025)

DISCOVER EXPERITY AI



EXPERITY®

ExperityHealth.com | 815.544.7480

Starting an **urgent care** center starts here.

 UrgentCareConsultants.com
 info@urgentcareconsultants.com



Join us for the only 2026 conference focused exclusively on **starting an urgent care.**

In this two-day bootcamp, topics include:

- + Defining and Differentiating Urgent Care Services
- + Evolution of the Urgent Care Industry
- + Basic Economics of Urgent Care Centers
- + Urgent Care Business Plan Development
- + Urgent Care Pro Forma Financial Planning
- + Recruiting and Scheduling Providers and Staff
- + Urgent Care Considerations for X-Ray and Lab
- + Insights on Certification and Accreditation
- + Occupational Medicine and Other Ancillary Services
- + Grassroots, Online and Media Marketing Strategies
- + Top Mistakes and Obstacles for Urgent Care Operators
- + Planning for Urgent Care's Future

February 23-24, 2026 | Grand Hyatt Nashville, Tennessee

For more information visit: www.UrgentCareMeeting.com

What Does ‘Standard of Care’ Mean from a Legal Compliance Perspective?

Urgent Message: Urgent care centers are not required to deliver the “best possible care” but rather an “acceptable” level of care, which is legally defined as the “standard of care.”

Alan A. Ayers, MBA, MAcc

Citation: Ayers A. What Does ‘Standard of Care’ Mean from a Legal Compliance Perspective? *J Urgent Care Med.* 2025; 20(2):39-41

Key Words: Standard of Care, Medical Malpractice, Medical Negligence, Legal Compliance, Disciplinary Action

Medical malpractice occurs when a physician’s actions, or failure to act, during patient care don’t meet accepted medical standards and cause harm to the patient. To be successful in a medical malpractice action, a patient must prove 4 elements:

1. The doctor had a duty to care for the patient
2. The doctor was negligent
3. The negligence caused harm
4. The patient suffered damage because of it

A medical malpractice victim must show that the healthcare professional deviated from or failed to meet the accepted standard of care and that the departure was a proximate cause of the victim’s injuries.¹

Examples of deviations include:

- Misdiagnosing or failing to diagnose a patient
- Prescribing a drug that has a known dangerous interaction
- Prescribing the wrong dosage
- Prescribing medications for off-label treatment

What Does the Concept of ‘Standard of Care’ Mean?

The benchmark for determining whether the defen-



dant’s conduct was a “gross deviation” must derive from the conduct of a “reasonable person” in that factual context.² Generally, the applicable standard of care in a negligence action is whether the defendant acted reasonably as measured against a hypothetical, “reasonable” similar actor in similar circumstances.³

The conduct of a member of a profession who has special training and expertise is thus measured against the standard of a hypothetical, reasonable person with similar training and expertise. Such a professional owes a special duty of care to a client or patient that is beyond

Author affiliations: Alan A. Ayers, MBA, MAcc, is President of Urgent Care Consultants and is Senior Editor of *The Journal of Urgent Care Medicine*.

Staying Current

“Standard of care” may evolve over time as medical professionals are expected to keep up with technological advancements, new medical research findings, and changes to evidence-based guidelines. Factors that determine “standard of care” include:

- Evidence-based guidelines by medical professionals and organizations based on scientific research
- Professional organization (eg, American Academy of Pediatrics, American Academy of Family Physicians) policies and guidelines
- Medical literature, journal articles, and research (eg, *JUCM*).
- Accreditation standards set by accrediting bodies, including the Urgent Care Association
- Facility policies, procedures, and internal guidelines within hospitals or clinics
- Expert testimony in legal cases and expert witnesses (other healthcare professionals) who opine as to the applicable standard of care given the circumstances

the duty that would be owed by a general member of the public and that is commensurate with the professional’s training and expertise.⁴

How Is the Applicable Standard of Care Determined?

Generally, “the standard of care for a physician is one established by the profession itself.”⁵

Determining whether there was a breach of duty in a professional malpractice action entails 2 steps: a determination of the relevant standard of care; and a determination of whether the defendant’s conduct met that standard.⁶ To establish the causation element in a professional malpractice action, “the plaintiff must show that the defendant’s failure to exercise the proper standard of care caused the plaintiff’s injury.”⁷

To prove deviation from the standard of care, a plaintiff usually must present expert witness testimony. Typically, this expert is a healthcare professional in the same specialty who will opine on the accepted medical standard and what should have been done under the circumstances. Expert testimony is required in a medical malpractice action to establish the 4 elements of negligence and the proper standard of care.⁸ However, a medical opinion need only demonstrate, with a reasonable degree of medical certainty, that a defendant’s conduct increased the risk of the harm actually sustained, and the jury then must decide whether that conduct was a substantial factor in bringing about the harm.⁹

In addition, recommendations made in clinical prac-

tice guidelines issued by professional organizations do not by themselves determine the standard of care.¹⁰ Nevertheless, an expert witness may rely on those guidelines in evaluating a doctor’s conduct. Consequently, clinical practice guidelines—though not determinative—may “assist in establishing the relevant standard of care.”¹¹

Can There Be Variations of the Standard of Care?

Specifically, there can be *different* standards of care based on location. Most important is to understand the local community standards of care. This means that the standard of care for a well-connected urgent care physician in the affluent suburbs will likely be different than the standard of care for a doctor working in a small, rural clinic with limited support resources.

For example, courts in Idaho have held that in medical malpractice cases in the state, the geographical scope of the relevant community is a factual issue, defined by Idaho Code § 6-1012 as “that geographical area ordinarily served by the licensed general hospital at or nearest to which such care was or allegedly should have been provided.”¹² The “community” isn’t defined by physical distance from the healthcare provider but by “the locations from which its patient base is derived.”¹³

An expert testifying as to the standard of care in medical malpractice actions must show that he or she is familiar with the standard of care for the particular healthcare professional for the relevant community and time.¹⁴ When deciding whether an expert is familiar with local community standards of care, “courts must look to the standard of care at issue, the proposed expert’s grounds for claiming knowledge of that standard, and determine—employing a measure of common sense—whether those grounds would likely give rise to knowledge of that standard.”¹⁵

How Is the Standard of Care Applied?

There are a number of consequences that can result from a physician’s violation of their standard of care, including the following.

Disciplinary Action

The mission of the state medical board in Minnesota, for example, is “to protect the public’s health and safety by assuring that the people who practice medicine or as an allied health professional are competent, ethical practitioners with the necessary knowledge and skills appropriate to their title and role.”¹⁶

A state’s medical licensing board has the authority to

investigate complaints against physicians. If the standard of care is found to be violated, the board can impose sanctions, such as fines, mandatory retraining, supervision of practice (chaperone), suspension, restrictions on practice, or revocation of the physician's medical license.

Employment

Physicians can be terminated for malpractice; however, with 1 in 3 doctors facing a malpractice lawsuit at least once in their careers, the likelihood of being fired is low. Termination for malpractice usually occurs only when there's an ongoing trend of negligence or if a specific incident was extremely dangerous, negligent, or egregious. If a doctor is fired, it can be hard for them to find new employment in medicine.

Insurance

Physicians who are found liable for malpractice may see higher malpractice insurance premiums; and in extreme cases, a carrier may decline to renew the doctor's malpractice insurance policy.

Professional Restrictions

Another consequence is the loss of hospital privileges, which can dramatically affect a physician's ability to practice, especially in hospitals.

Legal Action

Patients or their families may initiate a lawsuit alleging medical malpractice against a doctor. If the physician is found liable, the physician may be required to pay compensatory damages for medical expenses, lost wages, and pain and suffering in some instances where the conduct was particularly egregious.¹⁷

Damage to Reputation and Financial Losses

A recent study found that among the general public, around 84% of people trust the opinions and recommendations of healthcare providers.¹⁸ Research also shows that patients who have long-standing relationships with their doctors tend to have better outcomes and are more satisfied with their care.¹⁹

But a medical malpractice lawsuit and/or disciplinary action are frequently public record—which can be damaging to the physician's reputation. This can also mean fewer patients, which would affect the physician's practice and income.

Summary

The standard of care for an urgent care physician is based on the local community standards of care.

It is important to note that while physicians are frequently the defendants in medical malpractice cases, they aren't the only healthcare professionals who can be held accountable for medical negligence. Nurse practitioners, physician assistants, and other healthcare providers can also be sued for malpractice if they breach the standard of care and cause injury. In some cases, a healthcare facility can also be held liable for the actions of their employees. ■

References

1. *DiLorenzo v Zaso*, 148 AD3d 1111, 50 NYS3d 503 (NY App Div 2d Dept 2017).
2. *State v Lewis*, 352 Or 626, 290 P3d 288 (2012).
3. *Armacost v Davis*, 462 Md 504, 200 A3d 859 (2019), citing *Meda v Brown*, 318 Md 418, 569 A2d 202 (1990); *State for the Use of Chenoweth v Baltimore Contracting Co.*, 177 Md 1, 6 A2d 625 (1939); *MA Long Co v State Accident Fund*, 156 Md 639, 144 A 775 (1929).
4. *Armacost v Davis*, supra, citing *Jacques v First Natl Bank*, 307 Md 527, 515 A2d 756 (1986).
5. *Matter of Won Yi v NY State Bd of Prof'l Med Conduct*, 2025 NY Slip Op 03103 (NY App 2025), quoting *Spensieri v Lasky*, 94 NY2d 231, 723 NE2d 544, 701 NYS2d 689 (1999).
6. *Mazzie v Lehigh Valley Hosp—Muhlenberg*, 257 A3d 80 (Pa Super 2021), citing *Toogood v Rogal*, 573 Pa 245, 824 A2d 1140 (2003).
7. *Mazzie v Lehigh Valley Hosp—Muhlenberg*, 257 A3d at 87, quoting *Freed v Geisinger Med Ctr*, 910 A2d 68 (Pa Super 2006).
8. *Freed v Geisinger Med Ctr*, 910 A2d 68, 72-73 (Pa Super 2006).
9. *Munoz v Children's Hosp of Phila*, No. 1388 EDA 2024, 2025 Pa Super Unpub LEXIS 1395 (May 27, 2025). See also *Armacost v Davis*, 462 Md 504, 200 A3d 859 (2019), citing Lewin JL. The genesis and evolution of legal uncertainty about "reasonable medical certainty." *Md Law Rev.* 1998;57:380-406; *Kearney v Berger*, 416 Md 628, 7 A3d 593 (2010).
10. *Diaz v New York Downtown Hosp*, 99 NY2d 542, 784 NE2d 68, 754 NYS2d 195 (2002).
11. *Leberman on Behalf of Miller v Glick*, 207 AD3d 1203, 171 NYS3d 677 (NY App Div 4th Dept 2022).
12. *Phillips v E Idaho Health Servs, Inc*, 166 Idaho 731, 463 P3d 365 (2020).
13. *Phillips v E Idaho Health Servs, Inc*, 166 Idaho 731, 463 P3d 365 (2020), citing *Bybee v Gorman*, 157 Idaho 169, 335 P3d 14 (2014); *Rich v Hepworth Holzer LLP*, 172 Idaho 696, 535 P3d 1069 (2023); *Armacost v Davis*, 462 Md 504, 200 A3d 859 (2019).
14. *Morrison v St Luke's Reg'l Med Ctr, Ltd*, 160 Idaho 599, 377 P3d 1062 (2016), quoting *Dulaney v St Alphonsus Reg'l Med Ctr*, 137 Idaho 160, 45 P3d 816 (2002); see also *Bybee v Gorman*, 157 Idaho 169, 335 P3d 14 (2014).
15. *Fisk v McDonald*, 167 Idaho 870, 477 P3d 924 (2020); see also *Phillips v E Idaho Health Servs, Inc*, 166 Idaho 731, 463 P3d 365 (2020), quoting *Hall v Rocky Mountain Emergency Physicians*, 155 Idaho 322, 312 P3d 313 (2013); *Samples v Hanson*, 161 Idaho 179, 384 P3d 943 (2016); *Armacost v Davis*, 462 Md 504, 200 A3d 859 (2019).
16. Minnesota Board of Medical Practice. <https://mn.gov/boards/medical-practice/>. Accessed September 17, 2025.
17. *Woehrle v Buono*, 232 AD3d 820, 221 NYS3d 215 (NY App Div 2d Dept 2024).
18. ABIM Foundation; NORC. *Surveys of Trust in the US Health Care System*. May 21, 2021. <https://abimfoundation.org/what-we-do/surveys-of-trust-in-health-care>. Accessed September 17, 2025.
19. Schwab SD. The value of specific knowledge: evidence from disruptions to the patient-physician relationship. *Manage Sci.* 2025;Sabety A. The value of relationships in healthcare. *J Public Econ.* 2023; Johnson E, Rehavi MM, Chan DC, Carusi D. A doctor will see you now: physician-patient relationships and clinical decisions. NBER Working Paper No. w22666. Cambridge, MA: National Bureau of Economic Research; 2016.



ABSTRACTS IN URGENT CARE

Validation of Clinical Predictive Rules in Pediatric Testicular Torsion

Take Home Point: In this study, the Testicular Emergency Score for Torsion (TEST) identifies a larger group of patients at low risk for testicular torsion suitable for safe management without Doppler ultrasound compared to the other clinical validation scores.

Citation: Valdivieso-Castro M, Vázquez-Gómez L, Olabarri M, et. al. Clinical Prediction Rules for Identifying Children With Testicular Torsion: A Multicenter Prospective Study. *Pediatr Emerg Care.* 2025 Aug 1;41(8):620-627

Relevance: Acute nontraumatic unilateral testicular pain is a common presentation to urgent care centers and/or emergency departments with most having benign causes. However, it is crucial to rule out acute testicular torsion (TT). This study reviews the TEST and other scoring systems in the identification of patients who do not need Doppler ultrasound.

Study Summary: This was a multicenter prospective study in 21 Spanish pediatric emergency departments (EDs) to evaluate the performance of various clinical scoring systems in assessing children presenting to the ED with non-traumatic unilateral testicular pain. The clinical scoring systems assessed were the Testicular Workup for Ischemia and Suspected Torsion (TWIST), testicular torsion (TT) score, Artificial Intelligence-based Score (AIS), and Boettcher Alert Score (BALS). Additionally, their performance was compared with the TEST scoring system. Electronic questionnaires were completed for all children included in the study. Patients received a follow-up by phone 2 weeks after their initial ED visit to identify any misdiagnosis.

The authors identified 903 patients for the study with 884 contacted for follow-up. Of these, 93 patients had confirmed TT with 88 undergoing surgical exploration. Ultrasound showed a sensitivity of 99% (95% confidence interval [CI]: 97-100), a specificity of 99% (95% CI: 98-99),

a positive predictive value of 90% (95% CI: 84-96), and a negative predictive value of 100% (95% CI: 99-100). In comparison of the scoring systems, which focused on sensitivity and negative predictive value, the TWIST, TT, AIS, and BALS scores demonstrated strong performance in identifying children at low risk for testicular torsion (37.9%, 52.7%, 28%, and 30.3%, respectively). Additionally, the TEST score outperformed the others in identifying a greater number of children at low risk for TT (63.3%) who could be safely managed without Doppler ultrasound.

Editor's Comments: There continues to be a lack of gold standard scoring and validation of all the TT tools reviewed, and ultrasound remains the best modality for investigating atraumatic testicular pain. While novel and useful for UC clinicians where access to ultrasound may be difficult, these clinical decision tools are still only aids for diagnosis and should not be fully relied on for final decision making. It is also important to note the setting of the study was in Spanish pediatric EDs, thus limiting its generalizability to other settings. ■

PERC-35 Rule for Pulmonary Embolism Risk Stratification

Take Home Point: In this study, the pulmonary embolism rule-out criteria 35 (PERC-35), had a low failure rate and shows promise in reducing imaging exposure in young adult patients with low pretest probability for pulmonary embolism (PE).

Citation: Josse T, Mazzolai L, Lorenzo Hernández A, et. al. Failure rate of the pulmonary embolism rule-out criteria rule for adults 35 years or younger: Findings from the RIETE Registry. *Acad Emerg Med.* 2025 Apr;32(4):414-425. doi: 10.1111/acem.15046

Relevance: PE is a possible diagnosis for urgent care (UC) patients presenting with a variety of chest and respiratory symptoms. The ability to identify those patients in the younger adult cohort who do not warrant further investigation will help UC clinicians reduce ED transfers and as an extension, patient care and satisfaction.

Study Summary: This is a retrospective cohort study based on data obtained from the Registro Informatizado de la Enfermedad TromboEmbolica Venosa (RIETE) Registry (in-



Ivan Koay, MBChB, MRCS, FCUCM, FRNZCUC, MD, is an urgent care physician and the Medical Lead for Kings College Hospital Urgent Treatment Centre, London, England, and Watford General Hospital Urgent Treatment Centre, Watford, United Kingdom. He is also the Convener for Ireland and UK Faculty for the Royal New Zealand College of Urgent Care, as well as the London Representative of Faculty of Pre-Hospital Care for the Royal College of Surgeons, Edinburgh, Scotland.

ternational) from 2001 to 2023. It aimed to evaluate the performance of the PERC-35 rule, developed specifically to identify patients aged 18-35 years at potential risk of having PE. The modification from the original PERC includes the substitution of temperature for heart rate, as fever is a significant predictor of PE in the younger adult age group. The authors attempted to review all patients with negative PERC-35 scores (PERC-35N) and compared these patients' characteristics with those with positive PERC-35 scores (PERC-35P), while assessing the failure rate of those with PERC-35N in the RIETE registry.

The authors identified 2,935 18-35-year-old patients with PE, of which 2,731 were PERC-35P and 204 were PERC-35N. There was a miss rate of 7.0% (95% CI: 6.0–7.9). They found the missed PE rate of PERC-35 was higher (7.0%) compared to the original PERC rule (5.5%), although this difference was not statistically significant. The authors noted that in the PERC-35N group, one-third had a pulse of ≥ 100 beats/min, and 16% of had a temperature of $>38^{\circ}\text{C}$. Therefore, adding the item “pulse ≥ 100 ” to the PERC-35 rule would lower its failure rate to 5.9% in the 18-35-year-old group.

Editor's Comments: This study is one of the few studies examining this adjusted clinical decision tool. As such, UC clinicians need to be cautious in using this tool. Future research is required with focus on larger, multicenter prospective studies to validate the adjusted tool and assess its impact on clinical outcomes, including transfer rates from UC to hospital. ■

Streamlining Single-Use Plastic Items in Healthcare

Take Home Point: The Pragmatic Approach to Streamlining Single-Use Plastics (PASS-UP) addresses the misperception of conflicts between the central healthcare values of safety, effectiveness, and affordability with environmental sustainability efforts.

Citation: Greene J, Merritt M, Paina L, et. al. A Pragmatic Approach to Streamlining Single-Use Plastics in Health Care. *Ann Intern Med.* 2025 Aug;178(8):1192-1194. doi: 10.7326/ANNALS-25-01264.

Relevance: Plastic pollution particularly from single-use plastic (SUP) devices and equipment—upon which healthcare is heavily reliant—has a significant environmental cost. The ability of healthcare organizations to identify ways to reduce waste is crucial to helping address this important concern.

Study Summary: This was an opinion piece authored by the PASS-UP working group looking at ways to reduce the reliance on SUP equipment/devices within the healthcare sector. At present, the authors comment that disposability is not just tolerated within healthcare but in some cases perceived as inherently good. However, there is a significant negative environmental impact due to this practice. Therefore, the authors suggest the use of the PASS-UP approach to assess SUP healthcare items based on the degree of conflict posed to clinical safety, effectiveness, and affordability.

The authors identified ideas including reusing blood pressure cuffs, revisiting medication expiration dates, use of single-wrapping sterile surgical instruments, reusable “blue wrap,” reduction of plastic packaging, and reusable scrub caps as no conflict for the above 3 measures. They state that avoiding unnecessary use of latex gloves, switching IV antibiotics to oral form, and reusing isolation gowns are possible in certain contexts. They also state that the above measures in certain circumstances align with the fundamentals of infection control with minimal tradeoffs. These measures are meant to be suggestive rather than exhaustive, with other additional measures that could be considered.

Editor's Comments: This piece raises important points to be considered by UCs in general, particularly for those who have deep concerns about the environmental impact of healthcare sector work. Certain suggestions including reusing of blood pressure cuffs, consideration of oral antibiotic use, and unnecessary use of latex gloves could easily be implemented in UCs. Please join the College of Urgent Care Medicine's Waste Reduction Program at <https://urgentcareassociation.org/college-of-urgent-care-medicine/waste-reduction-program/>. ■

Improved Benign Paroxysmal Positional Vertigo Diagnosis and Management

Take Home Point: Using an educational intervention demonstrated enhanced benign paroxysmal positional vertigo (BPPV) screening, improved evidence-based diagnosis, and more efficient treatment.

Citation: Gerlier C, Mehenni L, Chatellier G, et. al. Improving benign paroxysmal positional vertigo management in the emergency department: A longitudinal study post-GRACE-3. *Acad Emerg Med.* 2025 Jul;32(7):739-747. doi: 10.1111/acem.15115

Relevance: It has been estimated that 30% of patients presenting to EDs with dizziness suffer from BPPV. The Guidelines for Reasonable and Appropriate Care of Acute Vertigo in the ED (GRACE-3) suggest that these should be managed based solely on clinical findings, unless atypical clinical features are present.

“The key point for UC clinicians to consider is the importance of adequate initial irrigation and washout of the wound—something that is critical to improving wound outcomes.”

Study Summary: This was a longitudinal study to evaluate the impact of a 2-tiered educational intervention on the timely diagnosis and management of BPPV in a single French ED utilizing GRACE-3. Patients with triggered episodic vestibular syndrome were enrolled by ED physicians and BPPV management was compared between 2 consecutive 6-month periods: an observational phase during which patients received standard care (control cohort), and an interventional phase during which a 2-tiered educational intervention was implemented (intervention cohort). The interventional phase included a standardized 2-hour training session where a practical approach for managing patients with suspected BPPV was conducted, including hands-on demonstrations.

The authors identified 166 patients in the control cohort and 216 in the intervention cohort. They found that compared to the control group, the intervention cohort had significantly higher rates of clinical diagnostic testing for BPPV (82.9% vs. 33.7%) and prescriptions for vestibular rehabilitation (25.0% vs. 8.4%), as well as lower rates of patients requiring hospitalization (61.1% vs. 76.5%) and reduced prescriptions for antivertigo medication (28.7% vs. 66.3%). There was also a reduced median length of stay in the ED for the intervention cohort compared to the control cohort (137 minutes vs. 246 minutes).

Editor’s Comments: This study was performed at a single French ED, which limits the generalizability to other settings. Additionally, the included clinicians were not blinded and had significant prior experiences in treating BPPV, which may have influenced both the control and interventional cohort’s results. There was also a lack of longer-term follow-up to review the lasting impact of the provided education. Nevertheless, the findings of this study point to a potential UC application in which short bursts of edu-

cation to the clinicians may have large benefits in the care delivered for BPPV. ■

Penetrating Nail Gun Injuries – What To Do Next

Take Home Point: This study concludes that routine surgical debridement or prolonged antibiotics after an uncomplicated nail gun injury may not be necessary, while appropriate first aid including wound irrigation is vital.

Citation: Slater S, Vasudeva M, Mitra B, et. al. Penetrating nail gun injuries: Role of antibiotics and surgical management. *Trauma*. 2025;27(3):232-237. doi:10.1177/14604086251320524

Relevance: Nail gun injuries are a common cause of injury from use of power tools with complications, including infection, causing morbidity and resulting in time off work.

Study Summary: This was a retrospective cohort study of patients presenting to a major Australian ED, an adult tertiary trauma referral center, with penetrating nail gun injuries. Patients were identified by an electronic medical record search with data extracted to identify the patients’ injury, demographics, surgical management, prophylactic antibiotic use, and outcomes. The primary measure was infection, defined as any soft tissue infection, bony infection, or tendon flexor sheath infection, within 30 days of the injury.

The authors identified 157 patients for review, 43 (27.4%) patients underwent surgical debridement either on the day of injury or during the subsequent hospital admission. They found that 117 (74.5%) patients received at least one dose of antibiotics. Fifty-five (35.1%) were treated with a combination of intravenous (IV) and oral antibiotics, 51 (32.5%) were treated with only oral antibiotics, and 11 (7.0%) were treated with only a single dose of IV antibiotics. Of those treated without surgery, 17 (14.9%) patients were managed with both IV and oral antibiotics, 6 (5.3%) were managed with a single dose of IV antibiotics alone, and 51 (44.7%) were managed with only oral antibiotics. There were 3 (1.9%) documented cases of infection within 30 days of injury. They were all in the non-surgical group and 2 had not been managed with any antibiotics (OR 0.25 95% CI: 0.21-2.81).

Editor’s Comments: There are several limitations to this study, the first being it was performed at a single center which limits its generalizability. There was no distinction

between patients who were seen directly in the ED as a self-presentation compared to those who were referred by another healthcare facility. Additionally, there was no comment on prior antibiotic administration at the previous healthcare facility. The study did not distinguish between the degree of penetrative injury—ie, superficial vs. deep and consideration of the site (volar vs. dorsum). As such, these omissions may affect the overall conclusions drawn by the authors. The key point for UC clinicians to consider is the importance of adequate initial irrigation and washout of the wound—something that is critical to improving wound outcomes. ■

Artificial Intelligence Augmented Human Instruction and Surgical Simulation Performance

Take Home Point: Personalized human instruction resulted in enhanced surgical performance and skill transfer compared with intelligent tutor instruction alone, highlighting the value of human input in artificial intelligence (AI)-based training.

Citation: Giglio B, Albeloushi A, Alhaj AK, et. al. Artificial Intelligence-Augmented Human Instruction and Surgical Simulation Performance: A Randomized Clinical Trial. *JAMA Surg.* 2025;160(9):993-1003. doi: 10.1001/jamasurg.2025.2564

Relevance: Giving human educators artificial intelligence performance data to tailor feedback can improve learning outcomes in surgical simulation training.

Study Summary: This was a parallel-designed, single-blinded, 3-arm randomized clinical trial to investigate the effect of AI-augmented human instruction on learners' technical skill acquisition during simulation surgical training. Participants were recruited for a single 90-minute surgical simulation session in Canada. They were block randomized to 1 of 3 intervention arms with an allocation ratio of 1:1:1. All tasks were performed on the NeuroVR, a surgical simulator that simulates a subpial brain tumor resection procedure in a 3-dimensional virtual reality environment. Following a baseline practice task, participants then completed 4 repetitions (trials 2-5) of the task with feedback. The control group (group 1) received real-time verbal feedback delivered by the Intelligent Continuous

Expertise Monitoring System (ICEMS). The first intervention group (group 2) received in-person, real-time verbal feedback in identical words as the ICEMS and the second intervention group (group 3) received verbal AI-informed, personalized expert feedback.

“This suggests that while AI-human augmentation can enhance performance, it may also introduce emotional challenges for learners.”

The authors recruited 87 participants, 30 to group 1, 29 to group 2 and 28 to group 3. They found that Group 3 significantly outperformed group 1 during trial 5 (mean difference, 0.26; 95% CI, 0.09-0.43; $P=0.01$) and the realistic task (mean difference, 0.20; 95%CI, 0.06-0.34; $P=0.02$). Although group 3 generally achieved higher mean scores than group 2 across practice trials, these differences were not statistically significant.

Editor's Comments: The findings from this study should be interpreted with caution due to several important limitations. The study is focused on one specific neurosurgical procedure limiting its generalizability. Additionally, the study did not address the potential influence of human factors, such as non-verbal cues, which may play a significant role in surgical training and performance. It was noted that participants in group 3 experienced ongoing negative activating emotions (i.e. frustration) compared with those in group 1. This suggests that while AI-human augmentation can enhance performance, it may also introduce emotional challenges for learners. From the perspective of UC, this study indicates there is potential for clinicians to acquire procedural skills from various instructional methods, including those incorporating artificial intelligence. However, full applicability in UC is unknown due to access to these learning resources. ■

Expand human impact at every urgent care touchpoint



TELERRADIOLOGY



Fast, Quality Overreads You Can Trust

The teleradiology interpretation service you choose is an extension of your practice. To expand the human impact of everyone on your team, Experity provides AI-assisted radiology overreads as reliable as the care you offer.

- Industry-leading rapid read time
- Superior accuracy with quality you can trust
- Year-round coverage in 50 states



11.83
MINUTES
AVERAGE STAT READ



26.27
MINUTES
AVERAGE ROUTINE READ



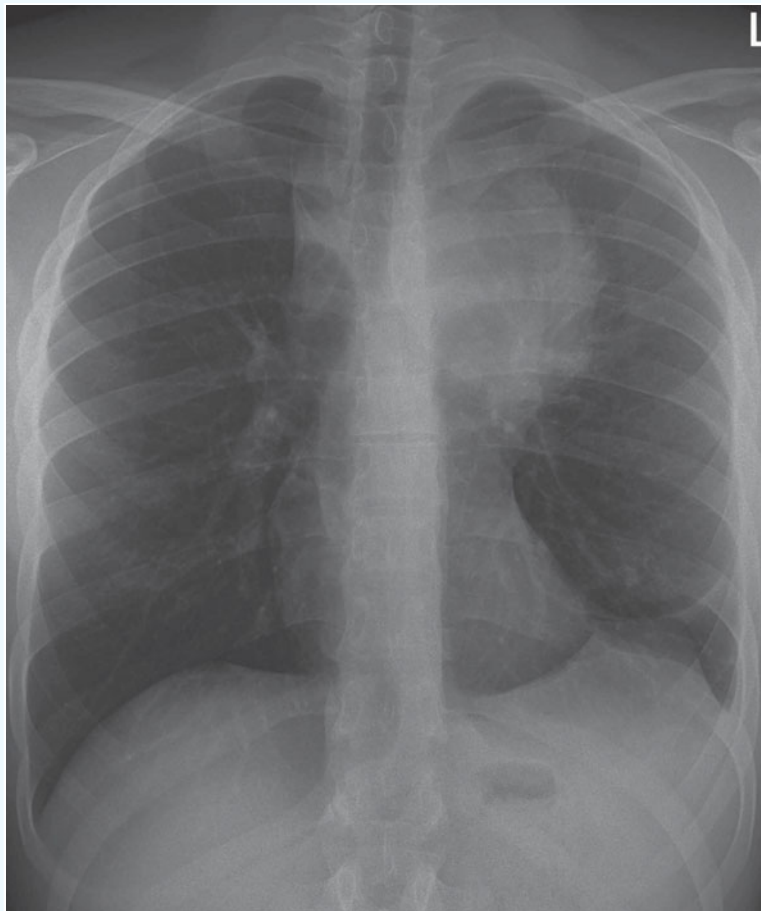


CLINICAL IMAGE CHALLENGE

X-RAY

Editor's Note: While the images presented here are authentic, the patient cases are hypothetical.

21-Year-Old Male With Cough and Night Sweats



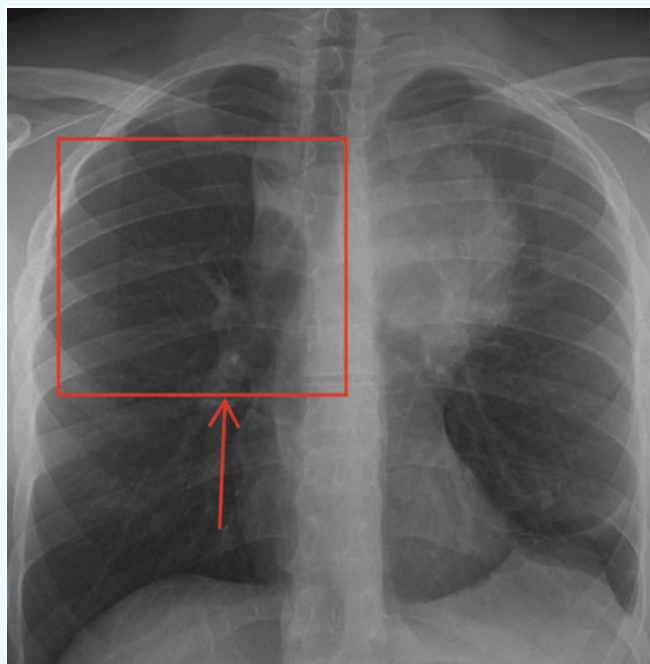
A 21-year-old male with no significant past medical history presents to urgent care with a 3-week history of progressive cough, night sweats, dyspnea, and chest discomfort. He denies sore throat, rhinorrhea, sinus congestion, hemoptysis, weight loss, wheezing, tobacco use, or illicit drug use.

On examination, vital signs are within normal limits. The patient appears well and not in acute distress. Lung aus-

cultation was clear bilaterally, and the remainder of the initial physical exam is unremarkable. A chest radiograph (anteroposterior and lateral views) is obtained.

Review the anteroposterior chest x-ray image and consider what your diagnosis and next steps would be. Resolution of the case is described on the following page.

Acknowledgment: Images and case provided by Experity Teleradiology (www.experityhealth.com/teleradiology).



Differential Diagnosis

- Thoracic aortic aneurysm
- Pericardial cyst
- Anterior mediastinal mass
- Metastatic disease
- Lipoma or liposarcoma

Diagnosis

The anteroposterior chest x-ray reveals a large, ovoid mass located just left of the midline, appearing inseparable from the mediastinum. The pulmonary hila and aortic contour remain visible, and the lateral view (not shown) confirmed a clear posterior chest, suggesting the mass is confined to the anterior mediastinum. The anterior mediastinum is located anterior to the pericardium and inferior to the clavicles.

The differential for such a mass is classically remembered by the “4 Ts”:

- **Thymoma**
- **Teratoma/Germ Cell Tumor**
- **Thyroid mass**
- **“Terrible” Lymphoma**

A contrast-enhanced chest computed tomography (CT) is the recommended next diagnostic step. CT imaging provides superior anatomical detail, delineating the size, location, and involvement of adjacent structures—critical for determining etiology and guiding further management. Evaluation should also include assessment for possible extra-thoracic involvement, such as testicular masses in suspected germ cell tumors.

What to Look For

- Widened mediastinum or opacity in the retrosternal clear space on chest x-ray should prompt further imaging.
- History should include systemic symptoms, lymphadenopathy, and a thorough review of systems.
- Physical examination should be comprehensive, including head, neck, supraclavicular and axillary nodes, chest, abdomen, and scrotum in male patients.

Pearls for Urgent Care Management

- Emergent referral to the ED is indicated if there are signs of airway compression or superior vena cava (SVC) syndrome (eg, facial swelling, venous distension).
- Patients with suspected airway compromise should avoid lying supine, as this may exacerbate symptoms.
- Advanced imaging (CT chest) should be arranged promptly.
- Avoid sedation, which may worsen airway obstruction in the setting of tracheal compression.
- Do not perform biopsy in the urgent care setting due to potential complications, including bleeding or airway compromise—refer to emergency or specialty care.



CLINICAL IMAGE CHALLENGE

DERMATOLOGY

A 16-Year-Old Male With Rash to Legs, Altered Mental Status and Fever



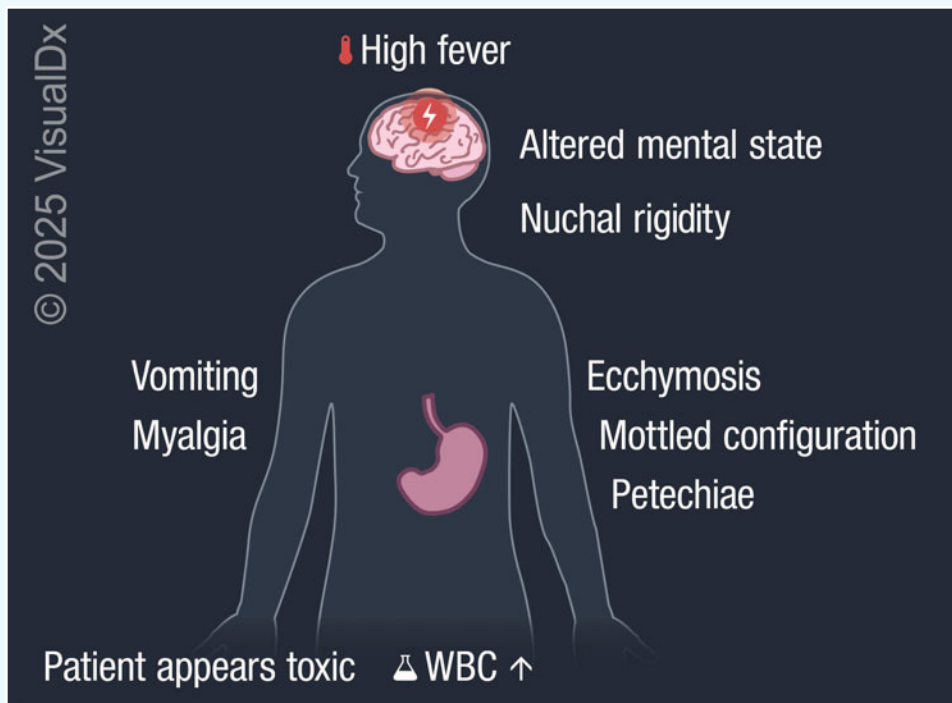
A 16-year-old male presents to urgent care accompanied by his father due to acute onset of fever, abdominal pain, fatigue, altered mental status, and a lower-extremity rash. Symptoms began earlier the same day. The patient denies recent upper respiratory symptoms, medication use, travel, or trauma.

On physical examination, he appears acutely ill and fe-

brile to 103.1°F (39.5°C). Neurologic assessment reveals altered mental status. Dermatologic exam shows retiform, violaceous purpuric plaques with maroon borders on both legs as shown in image provided.

View the image taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the following page.

Acknowledgment: Image and case presented by VisualDx (www.VisualDx.com/jucm).



Differential Diagnosis

- Viral exanthem
- Acute meningococemia
- Immunoglobulin A (IgA) vasculitis
- Infectious Mononucleosis
- Multisystem inflammatory syndrome (MIS-C)

Diagnosis

The correct diagnosis is acute meningococemia, a fulminant bloodstream infection caused by *Neisseria meningitidis*. This condition carries a high mortality rate—estimated at 13%—even with prompt treatment. *N. meningitidis* is a leading cause of bacterial meningitis and sepsis in children and young adults and can present as meningitis, septicemia, or both.

Transmission occurs through close contact with respiratory droplets. The clinical course often begins with non-specific viral-like symptoms and may progress rapidly to sepsis, neurologic deterioration, and multiorgan failure within 24 hours.

What to Look For

- Toxic appearance: high fever, tachycardia, hypotension
- Systemic symptoms: headache, vomiting, myalgias, nuchal rigidity, altered mental status
- Characteristic rash:
 - Over 50% of patients present with petechiae, often on the trunk and lower extremities; mucosal and conjunctival involvement is also possible.
 - Retiform purpura or palpable purpura suggests more advanced disease.
 - Petechial lesions correlate with thrombocytopenia and may indicate evolving disseminated intravascular coagulation (DIC).
 - In early disease, a maculopapular eruption mimicking viral exanthem may occur—non-pruritic and transient, sometimes resolving within hours.

Pearls for Urgent Care Management

- Invasive meningococcal disease is a medical emergency.
- Initiate prompt stabilization and immediate transfer to an emergency department.
- Administer IV fluid resuscitation and collect blood cultures if resources allow.
- If transport to definitive care is delayed beyond 1 hour, administer a single dose of ceftriaxone.



CLINICAL IMAGE CHALLENGE

ECG

60-Year-Old With Palpitations

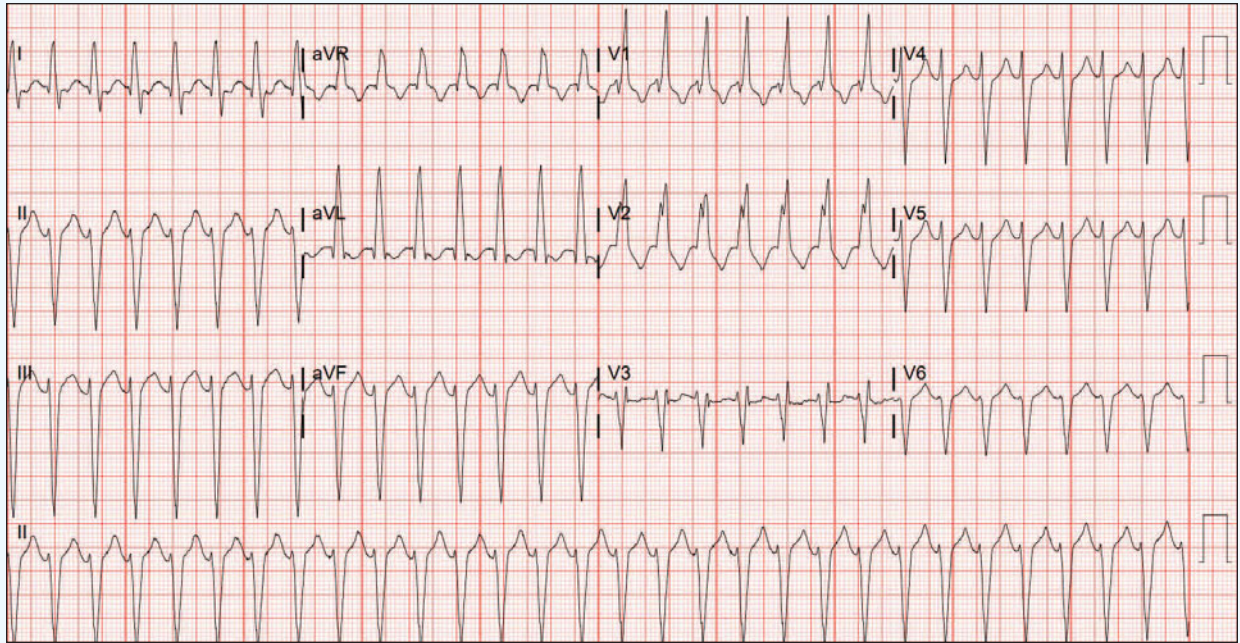


Figure 1: Initial ECG

A 60-year-old female presents to urgent care with palpitations that started abruptly 1 hour prior to arrival. She denies recent illness or cardiac history. An ECG is ordered.

View the ECG and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

Case presented by Catherine Reynolds, MD, McGovern Medical School at UTHealth Houston.

Case courtesy of ECG Stampede (www.ecgstampede.com).

ECG  STAMPEDE

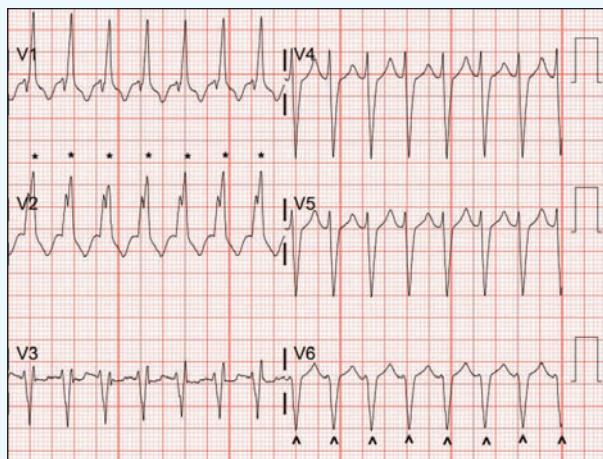


Figure 2: RSR' in V2 indicated here (*) as well as the deep S-wave in V6 (^)

Differential Diagnosis

- Ventricular tachycardia
- Supraventricular tachycardia (SVT) with aberrancy
- Atrioventricular reentrant tachycardia
- Atrial flutter
- Atrial tachycardia

Diagnosis

The diagnosis in this case is supraventricular tachycardia (SVT) with aberrancy. The ECG shows tachycardia with a regular rhythm and a rate of 180 beats per minute. There is leftward axis deviation and a widened QRS complex

(>120ms). There are no overt signs of acute ischemia.

Discussion

The ECG in this case is a regular wide-complex tachycardia. Of the possible etiologies for this pattern, the most likely and most dangerous is ventricular tachycardia (VT). If there is any uncertainty about the definitive diagnosis, the rhythm should be treated as VT to avoid the risk of inappropriate management and potential clinical deterioration.¹⁻³ If the patient is stable, it is safe to evaluate the ECG to determine the underlying rhythm. Note the appearance of an rSR' pattern in the anterior precordial leads (V1, V2) and a deep S-wave in the lateral leads (I, V6) consistent with a right bundle branch block (RBBB) pattern (**Figure 2**). The patient also has a leftward axis deviation. Causes of left axis deviation include: left bundle branch block (or paced rhythm); prior inferior myocardial infarction (ie, due to large inferior Q waves); left ventricular hypertrophy; ventricular preexcitation; and left anterior fascicular block.

Although there is high voltage in aVL, which suggests left ventricular hypertrophy (LVH), the degree of left axis deviation is more extreme than typically seen with LVH alone. In this case, the leftward axis deviation is caused by another disruption to the conduction pathway—left anterior fascicular block.⁴

If there is evidence of a preexisting bundle branch block pattern with similar morphology on a prior ECG, the cause of the wide complex tachycardia is likely to be SVT with aberrancy. Similarly, if the patient has prior evidence of

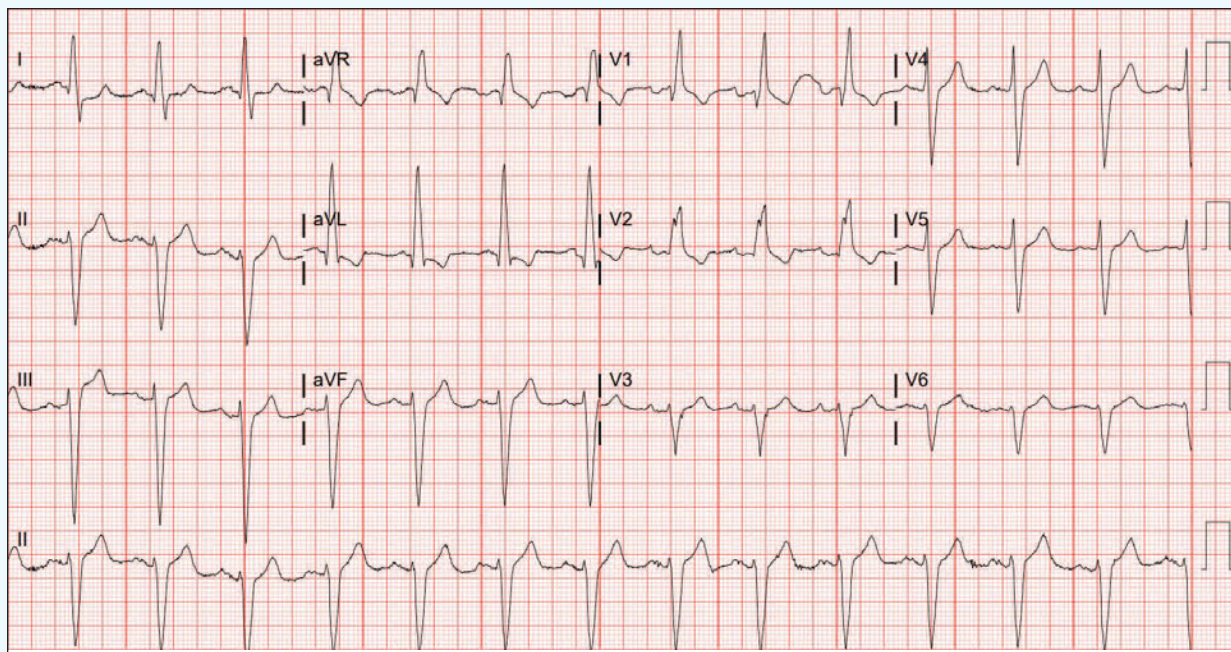


Figure 3: Patient's repeat ECG

pre-excitation (ie, short PR, delta wave, slightly widened QRS), the cause is likely atrioventricular reentrant tachycardia (conducted via an accessory pathway).

The Brugada algorithm is one of several tools used to distinguish between VT and SVT with aberrancy.⁵ More recently, the Basel algorithm is simple and touts good test characteristics.⁶

In our case, the patient was transferred to an emergency department where she was treated with adenosine, resolving the arrhythmia. The ECG performed after adenosine (**Figure 3**) shows the underlying bifascicular block (ie, right bundle branch block and left anterior fascicular block) with a sinus rhythm.

What To Look For

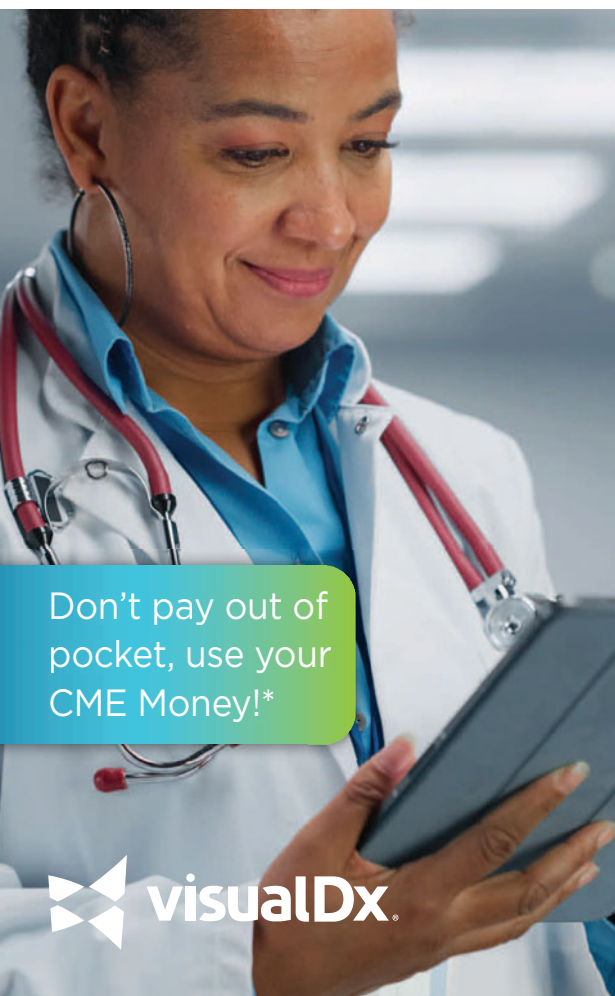
- When evaluating arrhythmias, first determine wide (ie, >120 ms) vs narrow (ie, <120 ms), and regular or irregular.
- Always assume a regular wide complex tachycardia to be VT until proven otherwise.
- Prior ECGs can be helpful to make a distinction between VT and SVT with aberrancy.

Pearls For Initial Management, Considerations For Transfer

- All patients with wide complex tachycardia should be transferred to an emergency department.
- If able, synchronized cardioversion can be attempted in patients with hemodynamic instability.

References

1. Vereckei A. Current Algorithms for the Diagnosis of wide QRS Complex Tachycardias. *Curr Cardiol Rev.* 2014;10(3):262-276. doi:10.2174/1573403x10666140514103309
2. Baxi RP, Hart KW, Vereckei A, et al. Vereckei criteria as a diagnostic tool amongst emergency medicine residents to distinguish between ventricular tachycardia and supra-ventricular tachycardia with aberrancy. *J Cardiol.* 2012;59(3):307-312. doi:10.1016/j.jjcc.2011.11.007
3. Szelényi Z, Duray G, Katona G, et al. Comparison of the “real-life” diagnostic value of two recently published electrocardiogram methods for the differential diagnosis of wide QRS complex tachycardias. *Academic Emergency Medicine.* 2013;20(11):1121-1130. doi:10.1111/acem.12247
4. Surawicz B, Childers R, Deal BJ, Gettes LS. AHA/ACCF/HRS Recommendations for the Standardization and Interpretation of the Electrocardiogram. Part III: Intraventricular Conduction Disturbances A Scientific Statement From the American Heart Association Electrocardiography and Arrhythmias Committee, Council on Clinical Cardiology; the American College of Cardiology Foundation; and the Heart Rhythm Society. *J Am Coll Cardiol.* Published online 2009. doi:10.1016/j.jacc.2008.12.013
5. Brugada P, Brugada J, Mont L, Smeets J, Andries EW. A New Approach to the Differential Diagnosis of a Regular Tachycardia With a Wide QRS Complex. *Circulation.* 1991;83:1649-1659.
6. Moccetti F, Yadava M, Latifi Y, et al. Simplified Integrated Clinical and Electrocardiographic Algorithm for Differentiation of Wide QRS Complex Tachycardia: The Basel Algorithm. *JACC Clin Electrophysiol.* 2022;8(7):831-839. doi:10.1016/j.JACEP.2022.03.017



Don't pay out of pocket, use your CME Money!*



Solve Challenging Cases Quickly

How VisualDx Can Help:

- ✓ Save time
- ✓ Improve operational efficiency
- ✓ Reduce unnecessary referrals

JUCM Readers Get
\$50 OFF
visualdx.com/jucm

*We accept CME reimbursement, as long as your employer allows it. Check with them to confirm. Learn more: visualdx.com/earn-cme

Expand human impact at every urgent care touchpoint



RCM/BILLING

Smarter, Faster, Transparent RCM



Identify Roadblocks. Find Solutions.

Improve cash flow, efficiency, and compliance with industry-leading Experity RCM. Using real-time dashboards and automated alerts, we surface performance issues by payer, group, provider, procedure codes, and more. With cleaner claims, you speed up collections to control your bottom line.



“Using Experity for reimbursement has allowed our front desk staff and office managers to concentrate on building relationships with the patients. They aren’t seen as the money people, hounding them to pay their bills. It allows for a more relaxed encounter with patients.”

LAURIE DUNCAN

VP of Revenue – RedMed Urgent Care





Mastering Revenue Cycle Management

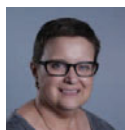
■ Phyllis Dobberstein, CPC, CPMA, CPCO, CEMC, CCC

Revenue cycle management (RCM) may not be the most glamorous part of urgent care, but it is one of the most critical. A clinic can provide excellent patient care, yet still struggle to keep its doors open if its billing processes falter. Too often, urgent care leaders rely on assumptions, outdated practices, or incomplete data that lead to financial surprises and lost revenue.

Running an effective RCM program is like taking a photograph. When a camera is set to automatic mode, it can produce decent images—but often misses the chance for the best shot. Perhaps the lighting may look right, but the subject ends up blurry. True mastery comes when the photographer understands the options within digital photography and how they interact. Similarly, urgent care operators must understand each RCM “setting:” days to bill; days sales outstanding (DSO); accounts receivable (AR) aging; and more.

But too many clinics fall into these other modes.

- **“Dog paddling:”** Operators are struggling just to keep their heads above water by sending out claims and posting payments. In this reactive state, there is little energy left for strategic AR follow-up or detailed analysis.
- **“Apple picking:”** Operators are collecting the easy low-hanging fruit while ignoring the rest of the orchard. The most successful teams climb ladders, use telescoping pickers, and roll up their sleeves to reach the apples at the top of the tree. In RCM, this means employing every available tool, including electronic claim inquiries, patient portals, text reminders, and diligent AR follow-up. Each day a claim grows older, its net realizable value declines. By actively working accounts—especially those over 120 days—clinics maximize their harvest.



Phyllis Dobberstein, CPC, CPMA, CPCO, CEMC, CCC, is Revenue Integrity Manager at Experity.

Myth of Control

One of the most persistent myths in urgent care is that keeping billing in-house ensures greater control. Leaders often feel reassured seeing their billing staff in the office, but the reality is far different. True control requires far more than proximity. It means consistently monitoring key metrics such as DSO, percentage of AR over 120 days, and average revenue per visit. It means reconciling daily claims submissions with clearinghouses, analyzing unpaid claims every 30–45 days, and reviewing rejections for root causes. Relying on a single staff member’s expertise creates fragility. If that person quits, gets sick, or simply makes mistakes, the entire billing process can grind to a halt. Few urgent care clinics have formal RCM policies, standardized procedures, or documented best practices.

By contrast, outsourcing to a specialized RCM partner often enhances control. Vendors train staff using tested programs, enforce compliance standards, and deploy best practices across clients. Dedicated account managers monitor metrics and reconcile billing with bank accounts. Outsourcing also provides scalability. When patient volume plummeted during COVID-19, clinics with contingency-fee RCM avoided the painful layoffs and fixed costs of in-house teams. Conversely, during flu surges, outsourced partners can ramp up quickly with trained personnel. In short, real control comes not from physical proximity but from structured processes, accountability, and scalability.

The Scorecard Approach

Metrics are the language of RCM. They translate daily actions into measurable outcomes, providing visibility into performance. Yet metrics alone cannot improve results; they must be tied to best practices. A useful way to bridge this gap is through a self-evaluation scorecard.

Five key questions reveal how well a clinic is positioned to optimize billing:

- How often are credit cards on file used to resolve patient balances?
- How confident is staff when asking for payment?
- How frequently is DSO reviewed?
- What percentage of aged AR receives follow-up?

REVENUE CYCLE MANAGEMENT

- How often are payer enrollments and denials analyzed?

The scorecard emphasizes that RCM success is not accidental. It requires intentionality, regular reporting, staff training, automation, and technology adoption. For example, text reminders for balances, electronic registration, and real-time eligibility checks are all practical steps that boost efficiency and collections. As the old adage goes: If you can't measure it, you can't manage it.

Avoiding Common Pitfalls

Even the best systems are vulnerable to errors. Studies suggest nearly 30% of medical bills contain mistakes, leading to lost revenue. Identifying and addressing common pitfalls is essential to preserving profitability.

- **Eligibility errors:** One-third of denials stem from eligibility issues, often due to inadequate registration or missed details in real-time eligibility (RTE) responses. A patient may appear covered by state Medicaid, for example, but in reality, they belong to a managed Medicaid plan. Training front-desk staff to catch these nuances prevents costly denials.
- **Patient responsibility:** In 2021, patient balances accounted for 30% of urgent care receivables, yet nearly all were bad debt. Clinics must collect copays upfront,

review balances, and use credit card-on-file (COF) systems to minimize risk.

- **Coding errors:** Incorrect coding, such as unspecified diagnoses or missing modifiers, reduces clean claims and increases rework. Proper documentation supports accurate evaluation and management (E/M) coding and ensures higher net reimbursement per visit.
- **Contract oversights:** Payer contracts require careful review. Carveouts, credentialing rules, and supervisor billing limitations must be followed precisely. Failure to comply can lead to recoupments, lost contracts, or even multimillion-dollar settlements with regulators.

By addressing these pitfalls proactively, urgent care operators not only safeguard revenue but also improve patient satisfaction through smoother billing interactions.

Revenue cycle management is not simply about sending bills and posting payments—it is about mastering a complex system where every detail matters. Clinics must learn to see the whole picture, avoid dog paddling, and climb higher in the apple orchard to capture every dollar. They must recognize that control is not about keeping billing staff on-site but about having structured processes, scalable solutions, and measurable results.

The difference between financial health and financial struggle often lies in the discipline of RCM. ■

HIRING? JOB HUNTING?



URGENT CARE COMPASS

FIND YOUR PEOPLE



SIGN UP TO GET A DEMO



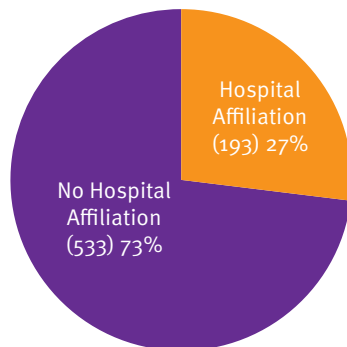


The Scale of Orthopedic Urgent Care

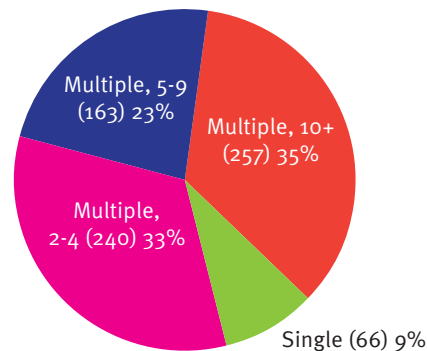
■ Alan A. Ayers, MBA, MAcc

ORTHOPEDIC URGENT CARE MARKET

By Hospital Affiliation



By Operator Locations



As of August 12, 2025, there are 726 orthopedic urgent care (OUC) rooftops in the United States, according to National Urgent Care Realty and Urgent Care Consultants. Based on centers added since January 1, 2025, the estimated annual rooftop growth for 2025 is 10.9%.

The charts highlight the market's structure: Most sites operate without hospital affiliation, and OUC is largely a scaled, multisite business rather than single-location clinics. Only 9% of OUC rooftops are single locations. Hospital-affiliated brands are more likely to have 10 or more locations, whereas independent operators cluster in the 2-9 range—evidence that playbooks are being replicated beyond health systems.

What differentiates OUC? It delivers same-day, walk-in care focused solely on musculoskeletal injuries—fractures, sprains/strains, sports injuries—with on-site x-ray, splinting/casting, and rapid access to orthopedic specialists.

In this way, OUCs operate like conventional urgent care (extended hours, walk-in convenience) but differ in scope and staffing, concentrating expertise and imaging around bones, joints, and soft tissue. Studies show OUCs can shorten waits, speed access to an orthopedic specialist, and offer a lower-cost alternative to the emergency department for appropriate injuries.^{1,3} Due to its specialty focus, OUC and other specialty UCs are often excluded from industry statistics, although the Urgent Care Association does offer a distinct, OUC-specific certification.

The footprint and growth rate suggest OUCs are becoming a standard front door for acute musculoskeletal care. For operators, scale and affiliation strategy—and the ability to deliver quick imaging and definitive orthopedic follow-up—are emerging competitive differentiators. ■



Alan A. Ayers, MBA, MAcc is President of Urgent Care Consultants and Senior Editor of *The Journal of Urgent Care Medicine*.

References

1. Dlott CC, O'Marr JM, Jain S, et al. National trends in musculoskeletal urgent care centers: Improved Medicaid access from 2019 to 2023. *Medicine* (Baltimore). 2024;103(31):e38936. doi:10.1097/MD.00000000000038936.
2. Dlott CC, Metcalfe T, Khunte A, et al. Evaluating musculoskeletal urgent care center triage and transfer of emergency conditions for emergency surgical assessment and intervention. *Medicine* (Baltimore). 2022;101(51):e32519. doi:10.1097/MD.00000000000032519.
3. Anderson TJ, Althausen PL. The role of dedicated musculoskeletal urgent care centers in reducing cost and improving access to orthopaedic care. *J Orthop Trauma*. 2016;30(Suppl):S3–S6. doi:10.1097/BOT.0000000000000712.

Improve the Patient Experience With an AI-Driven, Partner- Ready Ecosystem

By delivering top solutions, infusing AI, and opening doors to more profit centers, Experity expands human impact at every urgent care touchpoint. Providers are empowered to attract and keep patients, operate smoothly, drive revenue, and scale their business.

EMR/PM | RCM/BILLING | PATIENT ENGAGEMENT | TELERADIOLOGY | CONSULTING | BUSINESS INTELLIGENCE

