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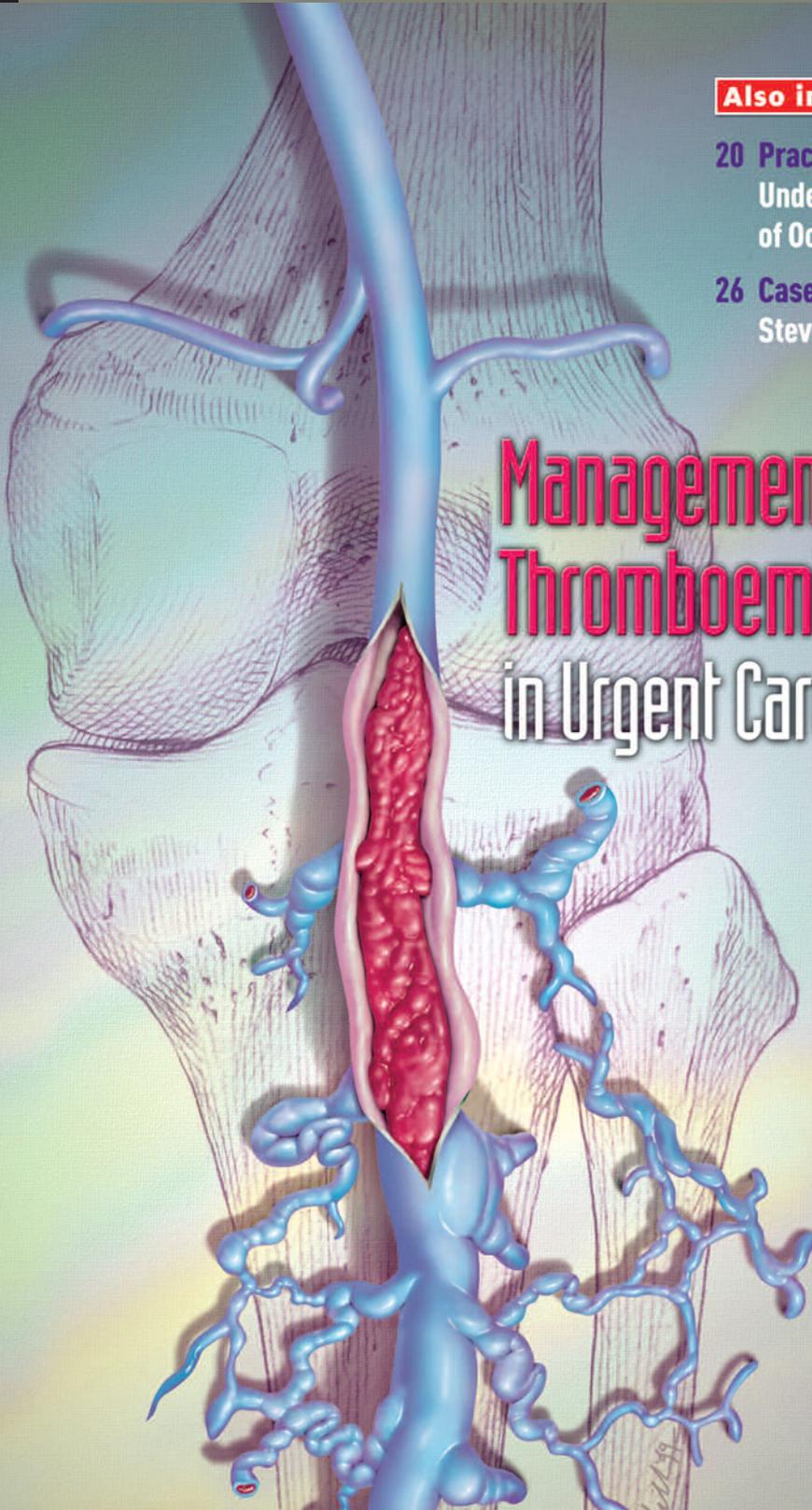
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Electronic Patient Portals: Access or Anarchy?



The “path of least resistance” is a physical property that represents an object’s tendency to choose a direction of flow that least impedes its forward momentum. No other healthcare entity has better captured this principle than urgent care. In traditional health systems, patient flow is infamously disrupted by obstacles—some regulated, some self-imposed, some unavoidable. These “flow disrupters” are the very reason urgent care exists.

Consider this: Nothing we offer in urgent care is unique to our setting. Everything we do is already available elsewhere within more established healthcare settings. The emergency department, the primary care office, and the occupational medicine clinic collectively offer all of the services we do in urgent care. The only reason we survive is our ability to offer a path of least resistance. Every avoidable barrier to entry has been thrown aside in an effort to drive superior access, greater convenience, and an exceptional user experience. In an increasingly competitive environment, our failure to find creative and innovative “access enhancers” will spell our demise. Not only is the urgent care landscape more crowded, but the more traditional health systems are finally recognizing the critical role access and convenience plays in consumer decision-making. The well-honed principles of retail business now have a permanent place in the strategic planning of every healthcare entity intent on surviving the decade intact.

To succeed in the future, urgent care operators must continue to innovate in access, convenience and user experience. The electronic age creates the most obvious opportunity, but it is fraught with landmines. How can we expand access while limiting risk?

Option 1 is Patient Portals. Drs. Christopher Notte and Neil Skolnik (*Family Practice News*; [http://www.familypracticenews.com/index.php?id=2633&chash=071010&tx_ttnews\[tt_news\]=137687](http://www.familypracticenews.com/index.php?id=2633&chash=071010&tx_ttnews[tt_news]=137687)) recently examined this very question, as summarized here.

Goals: Open the electronic chart so patients can view their records and address the inherent consumer hunger for information and control.

Risks: Anxiety over management of sensitive information without the benefit of context and counseling and fear of medical liability. For example, mental health issues and substance abuse concerns could be interpreted negatively. Nuance is often required to effectively manage this type of communication and often missing

from the written word. Another risk involves fear of medical liability. Access to the record theoretically exposes error and missed or delayed diagnoses, exposing the physician to a perceived Pandora’s Box.

Strategy:

1. Decide what to make accessible through the portal. While a patient always has the right to request his/her complete medical record, the portal can keep some components behind the curtain.
2. Be aware of how the record may be viewed, which should drive appropriate sensitivities without compromising care.
3. Document effectively to manage liability. A physician should already be documenting as if his or her note is later going to be read by a plaintiff’s attorney. The known transparency that a patient portal represents holds a physician accountable for good documentation on every visit.
4. Enable open access to lab and x-ray results, which may actually lower liability because patients are now empowered to ask questions about abnormal findings.
5. Make medical records viewable to patients. Studies have shown high satisfaction rates and higher perceived quality when this occurs.

The decision to open a patient portal should not be taken lightly and the issue of security and protecting privacy were not discussed here. But in an era of increasingly stiff competition and consumer demand for control over individual healthcare, urgent care operators can ill afford to be stagnant. Innovation around access, convenience, and user experience is our defining contribution to healthcare and we must continue to identify with our patients in these ways to succeed in a rapidly changing landscape. In future columns, I will explore other innovative options that support this strategic position. ■

Lee A. Resnick, MD
Editor-in-Chief

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Clinical evaluation that includes pretest probability tools and judicious use of diagnostic tests is a requirement for patients who present in the urgent care setting with symptoms suggestive of VTE.

Melvin Lee, MD, CCFP, RMC

PRACTICE MANAGEMENT



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Expanding into occupational medicine requires a long-term commitment and willingness to respond to employer and employee needs.

Alan A. Ayers, MBA, MAcc

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Early diagnosis is crucial in patients with this rare—but potentially fatal—condition.

Rachel Cetta, BSBE, MSBE, and John Shufeldt, MD, FACEP



IN THE NEXT ISSUE OF JUCM

How many times has a child come into your urgent care center and said, “My tummy hurts”? It’s a common complaint but a diagnostic challenge, given the many possible etiologies. Self-limiting conditions often are the cause of acute abdominal pain in infants and young children, yet this symptom also may herald a serious medical or surgical emergency, such as appendicitis. Next month’s cover story discusses the differential diagnosis for acute abdominal pain in children and offers guidance for initial evaluation and management of pediatric patients presenting with the complaint. Excellent history-taking skills accompanied by a careful, thorough physical exam are the keys to making the diagnosis or at least making a reasonable conclusion about a patient’s care.

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Mission Statement

JUCM The Journal of Urgent Care Medicine 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 health-care marketplace. As the Official Publication of the Urgent Care Association of America and the Urgent Care College of Physicians, *JUCM* seeks to provide a forum for the exchange of ideas and to expand on the core competencies of urgent care medicine as they apply to physicians, physician assistants, and nurse practitioners.

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Venous thromboembolism (VTE) is a major healthcare problem in the United States, particularly in the elderly. The prevalence of the condition increased by 33.1% between 2002 and 2006 and the trend is likely to continue, given the aging of the population. This month's cover story, by Melvin Lee, MD, CCFP, RMC, reviews management of VTE in the urgent care setting, with a focus on clinical evaluation that incorporates pretest probability tools and judicious use of diagnostic tests. Included are a review of risk factors for and pathophysiology of VTE and recommendations on the Wells prediction rule for probability of deep venous thrombosis and for D-Dimer testing. Also provided are recommendations for inpatient and outpatient treatment, anticoagulation therapy, and long-term management of VTE.



Dr. Lee is Chief Medical Officer at FastMed North Carolina in Clayton, NC, and sits on the Editorial Board of *JUCM*.



This month's case report, by Rachel Cetta, BSBE, MSBE, and John Shufeldt, MD, JD, MBA, FACEP, illustrates key steps in evaluation and management of a condition that is rare in urgent care yet can be deadly if not treated in a timely manner. Stevens-Johnson Syndrome (SJS) often is associated with an adverse drug reaction and typically involves blistering and sloughing of necrosed skin that leaves patients with a burn-like appearance. The case presented here involved a 41-year-old woman with less obvious findings. The message here is to think of SJS when a patient presents with diffuse rash.

Rachel Cetta is a second-year medical student at Midwestern University. John Shufeldt, MD, JD, MBA, FACEP, is principal of Shufeldt Consulting and sits on the Editorial Board of *JUCM*.

The prospect of branching out into occupational medicine—which encompasses workers' compensation and employer services focused on compliance or prevention—can be daunting for urgent care providers who have never offered such services. Yet more centers are expanding their business models to include care of patients who have work-related injuries or want employee physicals and screenings. Strategies for success in occupational medicine are the subject of this month's practice management article, by Alan A. Ayers, MBA, MAcc. In it, the author explains what services fall under the occupational medicine "umbrella," how employers and payors direct workers' compensation care, and the process for treating and billing for workplace injuries.



Mr. Ayers is Associate Editor, Practice Management, *JUCM*, Content Advisor, Urgent Care Association of America, and Vice President, Concentra Urgent Care.

Also in this issue:

John Shufeldt, MD, JD, MBA, FACEP, discusses the concept of "unprofessional conduct" in the practice of medicine, which includes more than simply not having sex with patients. The key message here is to read your state's statute and understand the law so as to avoid common medical-legal pitfalls.

Nahum Kovalski, BSc, MDCM, reviews new abstracts on literature germane to the urgent care clinician, including a marker of disease in infants and hemorrhage during warfarin therapy.

In Coding Q&A, **David Stern, MD, CPC**, discusses coding for inhalation treatments, OSHA required respiratory questionnaires, and preventive care services.

Our Developing Data end piece this month looks the top 15 ICD-9 codes for diagnosis and treatment. ■

To Submit an Article to *JUCM*

JUCM, *The Journal of Urgent Care Medicine* encourages you to submit articles in support of our goal to provide practical, up-to-date clinical and practice management information to our readers—the nation's urgent care clinicians. Articles submitted for publication in *JUCM* should provide practical advice, dealing with clinical and practice management problems commonly encountered in day-to-day practice.

Manuscripts on clinical or practice management topics should be 2,600–3,200 words in length, plus tables, figures, pictures, and references. Articles that are longer than this will, in most cases, need to be cut during editing.

We prefer submissions by e-mail, sent as Word file attachments (with tables created in Word, in multicolumn format) to editor@jucm.com. The first page should include the title of the article, author names in the order they are to appear, and the name, address, and contact information (mailing address, phone, fax, e-mail) for each author.

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UCAOA and the Power of Benchmarking

■ P. JOANNE RAY

The study is complete... and now the real work begins! Thank you to the Benchmarking Committee including J. Dale Key, Committee Chair, Alan Ayers, MBA, MAcc, Robert Cranfield, MD, Jimmy Hoppers, MD, Lou Ellen Horwitz, MA, Cindi Lang, RN, MS, and David Pick, MD for your leadership, insights and assistance in completing and analyzing the 2012 Urgent Care Industry Benchmarking Study. Now we must embrace the results and engage in active dialogue on a national basis to determine what these results teach us and how we might implement them into a larger continuous quality improvement program for the industry and for our centers. And, each member and urgent care center should leverage this information to gauge their own growth and status. If you've not already done so, please give serious consideration to purchasing the benchmarking study results.

The experts agree that benchmarking by itself does not create change unless it is part of a larger continuous quality improvement program; that benchmarking works best when industry leadership supports it enthusiastically, and when key stakeholders are involved. The investment that UCAOA has made in establishing these benchmarking data should be seen as a benefit to each of you as well as to our entire industry and a starting point for continued comparison and established standards of excellence. A review of business functions, activities, patient base, physician coverage, or pricing will give you a good sense of how you compare.

As one component of total quality management, benchmarking should be a *part* of the continuous process by which you measure and compare your business with that of similar urgent care centers. From such comparisons, you can identify areas where you might make improvements or adapt best practices to increase or enhance some aspect of your center's performance.



P. Joanne Ray is chief executive officer of the Urgent Care Association of America. She may be contacted at jray@ucaoa.org.

What pearls of wisdom and comparison factors will you find within the 2012 benchmarking results?

- Trends in visits to urgent care centers reporting
- The top ICD-9, CPT, and E&M Codes used
- Average annual revenue, expense, marketing budgets and more
- Clinical staffing strategies
- Provider productivity data
- Average charge vs. average reimbursement
- Percentage of patients using urgent care as medical home
- Utilization of national quality measures
- Average population per center
- Changes in patients per hour and average wait times

Today's urgent care centers and their medical and administrative leaders face an array of daunting challenges. Community awareness, competition, reimbursement, demands for improving efficiency and patient satisfaction all contribute to the successful outcomes of our practice environment. Your first focus is on your patients. And with a hectic daily schedule, your resources are precious. To help you meet these and other challenges, UCAOA offers these benchmarking outcomes along with continuing education and tools to address the business aspect of your practice as well as the unique clinical aspects of urgent care medicine.

Your national leaders will continue discussing and evaluating the benchmarking results and assessing how these data might drive future educational and practice-improvement tools. It's up to you to get as many of your practice personnel as possible to take advantage of what UCAOA has to offer and to embrace the benchmarking results and critically evaluate how your practice measures up.

Go to www.ucaoa.org/benchmarking to purchase the 2012 Benchmarking Study. In the coming months, we will encourage online dialogue to give you an opportunity to share your thoughts and insights with others facing similar challenges. ■



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Management of Venous Thromboembolism in Urgent Care

Urgent message: Clinical evaluation that includes pretest probability tools and judicious use of diagnostic tests is a requirement for patients who present in the urgent care setting with symptoms suggestive of VTE.

MELVIN LEE, MD, CCFP, RMC

Introduction

Early diagnosis of venous thromboembolism (VTE) is important to prevent the morbidity and mortality associated with it.

VTE is subdivided into pulmonary embolism and deep vein thrombosis (DVT). DVT is most common in lower extremities. Those involving deep veins proximal to the knee are associated with an increased risk of pulmonary embolism (PE), whereas if only the calf veins are involved, PE is less likely but risk of development of postthrombotic syndrome is higher. Postthrombotic (postphlebotic) syndrome refers to the development of chronic venous symptoms and/or signs secondary to DVT and can include pain, venous dilation, edema, pigmentation, skin changes, and venous ulcers. Upper extremity DVT is uncommon and will not be discussed in this article.

The annual incidence of VTE in the United States is 600,000 cases and is increasing with the aging of the population.¹ Even with prompt diagnosis and treatment, 10% of VTEs are rapidly fatal and another 5% of patients die soon thereafter. Twenty-six percent of undiagnosed and untreated patients with PE will have a subsequent fatal embolic event, whereas another 26% will have a nonfatal recurrent embolic event that can eventually be fatal.²⁻⁴ Therefore early diagnosis to prevent mortality and morbidity associated with VTE is paramount.

Melvin Lee is Chief Medical Officer at FastMed North Carolina in Clayton, NC.



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DVT is the presence of coagulated blood in one of the deep veins that return blood to the heart. Symptoms such as pain and swelling are often nonspecific or absent. If left untreated, a clot may become fragmented or dislodge and migrate to obstruct the pulmonary artery, causing potentially life-threatening PE.

Lower-extremity DVT is the most common venous thrombosis, with a prevalence of over 1 case per 1,000 population. In addition, proximal DVT is the underlying source of 90% of acute PEs, which cause 25,000 deaths per year in the United States.³⁻⁶

INTRODUCING SKLICE LOTION

NEW FOR THE TOPICAL TREATMENT OF HEAD LICE^{1,2}

INDICATED FOR CHILDREN 6 MONTHS OF AGE AND OLDER²

- No Contraindications²
- Sklice Lotion should be used in the context of an overall lice management program

IMPORTANT SAFETY INFORMATION FOR SKLICE LOTION

- The most common adverse reactions (incidence <1%) were conjunctivitis, ocular hyperemia, eye irritation, dandruff, dry skin, and skin burning sensation

PROVEN EFFECTIVE IN TWO CLINICAL TRIALS^{2,a}

- One tube. One time.
 - Patients received a **single 10-minute treatment** and were instructed not to nit comb²
 - 14 days after treatment, no live lice were observed in 76.1% (54/71) and 71.4% (50/70) of patients²

SIMPLE PRODUCT APPLICATION

- 10-minute process²
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INDICATION

Sklice Lotion is a pediculicide indicated for the topical treatment of head lice infestations in patients 6 months of age and older.

ADJUNCTIVE MEASURES

Sklice Lotion should be used in the context of an overall lice management program:

- Wash (in hot water) or dry-clean all recently worn clothing, hats, used bedding and towels
- Wash personal care items such as combs, brushes and hair clips in hot water

A fine-tooth comb or special nit comb may be used to remove dead lice and nits.

IMPORTANT SAFETY INFORMATION FOR SKLICE LOTION

In order to prevent accidental ingestion, Sklice Lotion should only be administered to pediatric patients under the direct supervision of an adult.

The most common adverse reactions (incidence <1%) were conjunctivitis, ocular hyperemia, eye irritation, dandruff, dry skin, and skin burning sensation.

Please see brief summary of full Prescribing Information on following page.

For more information, please visit www.Sklice.com/HCP.

^a Two randomized, double-blind, vehicle-controlled trials in patients 6 months of age and older with head lice infestations. The primary endpoint was assessed as the proportion of patients who were free of live lice at day 2 and through day 8 to the final evaluation 14 (+2) days following a single application.²

Sklice Lotion is manufactured by DPT Laboratories Ltd and distributed by Sanofi Pasteur Inc.

References: 1. US Food and Drug Administration. Sklice Lotion approval letter, February 7, 2012. http://www.accessdata.fda.gov/drugsatfda_docs/appletter/2012/202736s000ltr.pdf. Accessed September 12, 2012. 2. Sklice Lotion [Prescribing Information]. Swiftwater, PA: Sanofi Pasteur Inc.; 2012.

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Brief Summary of Prescribing Information

1 INDICATIONS AND USAGE

1.1 Indication

SKLICE® Lotion is indicated for the topical treatment of head lice infestations in patients 6 months of age and older.

1.2 Adjunctive Measures

SKLICE Lotion should be used in the context of an overall lice management program:

- Wash (in hot water) or dry-clean all recently worn clothing, hats, used bedding and towels.
- Wash personal care items such as combs, brushes and hair clips in hot water.
- A fine-tooth comb or special nit comb may be used to remove dead lice and nits.

2 DOSAGE AND ADMINISTRATION

For topical use only. SKLICE Lotion is not for oral, ophthalmic, or intravaginal use.

Apply SKLICE Lotion to dry hair in an amount sufficient (up to 1 tube) to thoroughly coat the hair and scalp. Leave SKLICE Lotion on the hair and scalp for 10 minutes, and then rinse off with water.

The tube is intended for single use; discard any unused portion.

Avoid contact with eyes.

4 CONTRAINDICATIONS

None.

5 WARNINGS AND PRECAUTIONS

5.1 Ingestion in Pediatric Patients

In order to prevent ingestion, SKLICE Lotion should only be administered to pediatric patients under the direct supervision of an adult.

6 ADVERSE REACTIONS

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice.

The data described below reflect exposure to a single 10 minute treatment of SKLICE Lotion in 379 patients, ages 6 months and older, in placebo-controlled trials. Of these subjects, 47 subjects were age 6 months to 4 years, 179 subjects were age 4 to 12 years, 56 subjects were age 12 to 16 years and 97 subjects were age 16 or older. Adverse reactions, reported in less than 1% of subjects treated with SKLICE Lotion, include conjunctivitis, ocular hyperemia, eye irritation, dandruff, dry skin, and skin burning sensation.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Pregnancy Category C

There are no adequate and well-controlled studies with SKLICE Lotion in pregnant women. SKLICE Lotion should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

No comparisons of animal exposure with human exposure are provided due to the low systemic exposure noted in the clinical pharmacokinetic study [see *Clinical Pharmacology (12.3) in the full prescribing information*].

Human Data

There are published reports of oral ivermectin use during human pregnancy. In an open label study, 397 women in their second trimester of pregnancy were treated with ivermectin tablets and albendazole at the labeled dose rate for soil-transmitted helminths and compared with a pregnant, non-treated population. No differences in pregnancy outcomes were observed between treated and untreated populations.

Animal Data

Systemic embryofetal development studies were conducted in mice, rats and rabbits. Oral doses of 0.1, 0.2, 0.4, 0.8, and 1.6 mg/kg/day ivermectin

were administered during the period of organogenesis (gestational days 6–15) to pregnant female mice. Maternal death occurred at 0.4 mg/kg/day and above. Cleft palate occurred in the fetuses from the 0.4, 0.8, and 1.6 mg/kg/day groups. Exencephaly was seen in the fetuses from the 0.8 mg/kg group. Oral doses of 2.5, 5, and 10 mg/kg/day ivermectin were administered during the period of organogenesis (gestational days 6–17) to pregnant female rats. Maternal death and pre-implantation loss occurred at 10 mg/kg/day. Cleft palate and wavy ribs were seen in fetuses from the 10 mg/kg/day group. Oral doses of 1.5, 3, and 6 mg/kg/day ivermectin were administered during the period of organogenesis (gestational days 6–18) to pregnant female rabbits. Maternal toxicity and abortion occurred at 6 mg/kg/day. Cleft palate and clubbed forepaws occurred in the fetuses from the 3 and 6 mg/kg groups. These teratogenic effects were found only at or near doses that were maternally toxic to the pregnant female. Therefore, ivermectin does not appear to be selectively fetotoxic to the developing fetus.

8.3 Nursing Mothers

Following oral administration, ivermectin is excreted in human milk in low concentrations. This has not been evaluated following topical administration. Caution should be exercised when SKLICE Lotion is administered to a nursing woman.

8.4 Pediatric Use

The safety and effectiveness of SKLICE Lotion have been established for pediatric patients 6 months of age and older [see *Clinical Pharmacology (12.3) in the full prescribing information and Clinical Studies (14) in the full prescribing information*].

The safety of SKLICE Lotion has not been established in pediatric patients below the age of 6 months. SKLICE Lotion is not recommended in pediatric patients under 6 months of age because of the potential increased systemic absorption due to a high ratio of skin surface area to body mass and the potential for an immature skin barrier and risk of ivermectin toxicity.

8.5 Geriatric Use

Clinical studies of SKLICE Lotion did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients.

10 OVERDOSAGE

In accidental or significant exposure to unknown quantities of veterinary formulations of ivermectin in humans, either by ingestion, inhalation, injection, or exposure to body surfaces, the following adverse effects have been reported most frequently: rash, edema, headache, dizziness, asthenia, nausea, vomiting, and diarrhea. Other adverse effects that have been reported include: seizure, ataxia, dyspnea, abdominal pain, paresthesia, urticaria, and contact dermatitis.

In case of accidental poisoning, supportive therapy, if indicated, should include parenteral fluids and electrolytes, respiratory support (oxygen and mechanical ventilation if necessary) and pressor agents if clinically significant hypotension is present. Induction of emesis and/or gastric lavage as soon as possible, followed by purgatives and other routine anti-poison measures, may be indicated if needed to prevent absorption of ingested material.

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Table 1. Risk Factors for VTE

Table 1. Risk Factors for VTE		
Hereditary		
• Factor V Leiden mutation	• Protein S deficiency	• Antithrombin (AT) deficiency
• Prothrombin gene mutation	• Protein C deficiency	• Dysfibrinogenemia
Acquired		
• Smoking	• Hormone replacement therapy	• Myeloproliferative disorders
• Malignancy	• Tamoxifen	• Polycythemia vera
• Presence of a central venous catheter	• Thalidomide	• Essential thrombocythemia
• Surgery, especially orthopedic	• Lenalidomide	• Paroxysmal nocturnal hemoglobinuria
• Trauma	• Immobilization	• Inflammatory bowel disease
• Pregnancy	• Congestive heart failure	• Nephrotic syndrome
• Oral contraceptives	• Antiphospholipid antibody syndrome	

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The United States-wide prevalence of venous thromboembolism (VTE) increased by 33.1% from 2002 to 2006. During the same period, the annual incidence increased with age as well.⁷ These data confirm that VTE remains a major healthcare burden in the United States, particularly among the elderly, and highlight a continuing increase in incidence of the disease.

Risk Factors for Venous Thromboembolism

Risk factors for venous thromboembolic disease include increasing age, immobilization, surgery, trauma, malignancy, pregnancy, estrogenic medications (such as oral contraceptive pills, hormone therapy, tamoxifen), congestive heart failure, hyperhomocystinemia, diseases that alter blood viscosity (such as polycythemia, sickle cell disease, and multiple myeloma), and inherited thrombophilia.

About 75% of patients with venous thromboembolic disease have at least one established risk factor, and half of all cases of DVT occur in hospitalized patients or nursing home residents.⁸ Inherited thrombophilias can be identified in 24% to 37% of patients with DVT and in the majority of patients with familial thrombosis.^{9,10}

Risk factors for VTE can be divided into two groups—hereditary and acquired—as shown in **Table 1**.^{11,12}

Approximately 20% to 25% of all new cases are associated with the presence of an active malignancy, 20% are associated with trauma, 20% are associated with a concurrent or recent medical hospitalization, and 25% are idiopathic, with no obvious provoking risk factor.⁶

DVT of the lower limb normally starts in the calf veins. About 10% to 20% of thromboses extend proxi-

mally, and another 1% to 5% of patients go on to develop fatal PE.

Pathophysiology

The formation of a pulmonary embolus from a clot migrating from the venous circulation was first described in 1856 by Dr. Rudolph Virchow and was later called Virchow's Triad.¹³ The triad has 3 factors:

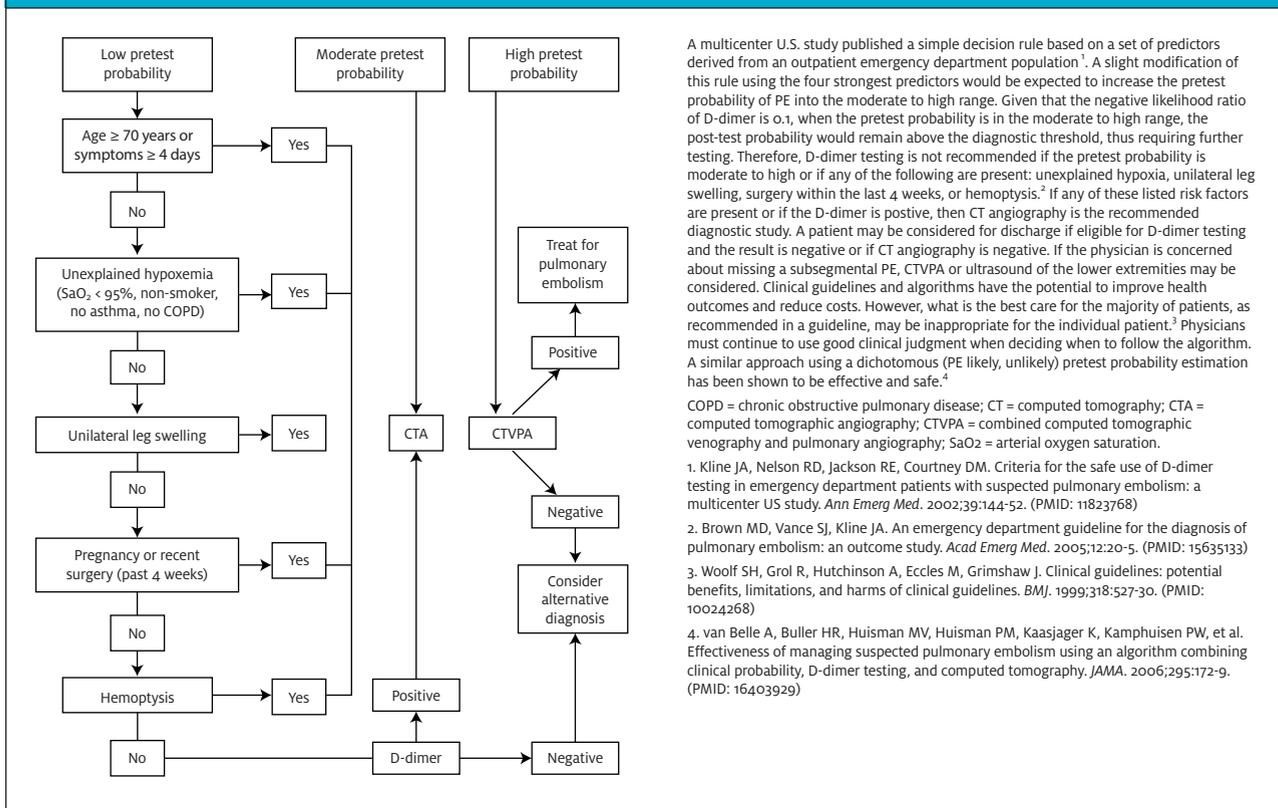
1. Stasis
2. Vessel damage
3. Hypercoagulability¹⁴

The triad is used to determine etiology and risk of venous thrombosis, especially DVT. At least 2 of the 3 factors have to be present to increase a patient's risk of DVT.

Blood clots tend to form in connection with venous valves in the veins. A clot can propagate and grow proximally across the lumen. Most clots start in the calf veins and propagate proximally. Blood clots associated with pregnancy or hip arthroplasty can start in the pelvic veins. Most blood clots that develop in the deep venous system of the calf begin to form just above and behind a venous valve.^{15,16}

As soon as a clot begins to form, the fibrinolytic system begins to dissolve fibrin blood clots. The D-dimer antigen is a unique marker of fibrin degradation that is formed by the sequential action of 3 enzymes: thrombin, factor XIIIa, and plasmin. Once the plasmin degrades the crosslinked fibrin, the D-dimer antigen is exposed and can be measured in the laboratory. A normal level of D-dimer provides strong evidence against acute thrombosis.

Figure 1. Algorithm for Diagnosis of Pulmonary Embolism with CT Angiography



A multicenter U.S. study published a simple decision rule based on a set of predictors derived from an outpatient emergency department population¹. A slight modification of this rule using the four strongest predictors would be expected to increase the pretest probability of PE into the moderate to high range. Given that the negative likelihood ratio of D-dimer is 0.1, when the pretest probability is in the moderate to high range, the post-test probability would remain above the diagnostic threshold, thus requiring further testing. Therefore, D-dimer testing is not recommended if the pretest probability is moderate to high or if any of the following are present: unexplained hypoxia, unilateral leg swelling, surgery within the last 4 weeks, or hemoptysis.² If any of these listed risk factors are present or if the D-dimer is positive, then CT angiography is the recommended diagnostic study. A patient may be considered for discharge if eligible for D-dimer testing and the result is negative or if CT angiography is negative. If the physician is concerned about missing a subsegmental PE, CTVPA or ultrasound of the lower extremities may be considered. Clinical guidelines and algorithms have the potential to improve health outcomes and reduce costs. However, what is the best care for the majority of patients, as recommended in a guideline, may be inappropriate for the individual patient.³ Physicians must continue to use good clinical judgment when deciding when to follow the algorithm. A similar approach using a dichotomous (PE likely, unlikely) pretest probability estimation has been shown to be effective and safe.⁴

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Clinical Presentation and Diagnosis

Deep Vein Thrombosis

Patients with DVT may present with pain, erythema, tenderness, and edema of one limb. In lower-limb DVT, the calf is usually swollen. Other causes of leg swelling, erythema, and tenderness include a ruptured Baker's cyst and infective cellulitis. Ruptured Baker's cysts are commonly associated with a history of osteoarthritis and rheumatoid arthritis. Patients who have cellulitis usually have signs of redness, warmth and swelling of the skin. A portal of entry may be determined.

On objective exam, any unilateral leg and thigh swelling can be assessed by measuring the circumference of the leg 10 cm below the tibial tuberosity and 10 cm to 15 cm above the upper edge of the patella. There may be pitting edema present, worse on the affected side, and new dilated collateral superficial veins. There may be localized tenderness along the path of the deep veins. When massive, the swelling can obstruct not only venous outflow but arterial inflow of the affected leg,

leading to phlegmasia cerulea dolens (literally means swollen, blue and painful) due to ischemia.

In many cases, the diagnosis of cellulitis or a musculoskeletal injury is straightforward, but the provider may have to rule out a DVT if the diagnosis is uncertain.

Pulmonary Embolism

The history and physical are not usually sufficient to confirm or rule out PE. Chest pain and dyspnea are the most common presenting complaints. Patients may also present with cough and hemoptysis. DVT may not be suspected clinically, but its presence, along with thrombotic risk factors, will make the diagnosis of PE more likely. A similar clinical probability model to that for DVT has been developed for PE.

Physical examination is often unremarkable. The most common signs are tachypnea, rales, and tachycardia.

Respiratory examination is usually normal. Crackles or decreased breath sounds may be heard. Decreased oxygen saturation may occur. The cardiac examination



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Table 2. Wells Prediction Rule for Diagnosing DVT	
Clinical characteristic	Score
Active cancer (treatment within last 6 months or palliative)	1
Calf swelling where affected calf circumference measures >3 cm more than the other calf (measured 10 cm below tibial tuberosity)	1
Collateral superficial veins (nonvaricose)	1
Pitting edema (confined to symptomatic leg)	1
Swelling of entire leg: 1 point	
Localized pain along distribution of deep venous system	1
Paralysis, paresis, or recent cast immobilization of lower extremities	1
Recently bedridden for >3 days or major surgery requiring regional or general anesthetic in past 4 weeks	1
Previous history of DVT or PE: 1 point	
Alternative diagnosis at least as probable	-2
Risk score interpretation (probability of DVT): 3 points: high risk (75%); 1 to 2 points: moderate risk (17%); <1 point: low risk (3%).	
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Table 3. Wells Prediction Rule for Diagnosing Pulmonary Embolism	
Clinical feature	Score
Clinical features of deep venous thrombosis	3
Recent prolonged immobility or surgery	1.5
Active cancer	1
History of deep vein thrombosis or pulmonary embolism	1.5
Hemoptysis	1
Resting heart rate >100 beats/min	1.5
No alternative explanation for acute breathlessness or pleuritic chest pain	3
>6=high probability (60%); 2-6=moderate probability (20%); 0-1=low probability (3-4%)	
<small>Reprinted with permission from <i>The Lancet</i>. Vol 350 No. 9094. Wells PS, Anderson DR, Bromanis J, et al. Value of assessment of pretest probability of deep-vein thrombosis in clinical management. Pages 1795-1798. Copyright 1997, with permission from Elsevier.</small>	

may reveal right heart failure is present with elevated jugular venous pressure, sternal heave, and an accentuated pulmonic component to the second heart sound. Hypotension and hypoxemia may indicate a massive PE. Unilateral swelling of the calf or thigh may be evident if DVT is present.^{17,18}

Initial tests such as chest x-ray, ECG, and ABG cannot definitively establish or eliminate PE as a diagnosis.

ECG findings suggestive of PE include tachycardia (37%), new right axis deviation (5%), new right bundle branch block (11%), and S wave in lead I, Q wave with

T wave inversion in lead III (12%) (findings only suggestive of PE not diagnostic). Those associated with poor prognosis include atrial arrhythmias, right Bundle Branch Block, inferior Q waves, and precordial T wave inversion and ST segment changes.^{19,20}

Chest x-ray abnormalities are only suggestive and not diagnostic. They include Fleischner sign: prominent central pulmonary artery (20%); Westermark sign: oligemia in the PE's area of distribution (11%); Hampton Hump: pleural-based areas of increased opacity in the distribution of the PE (27%); and band atelectasis and elevation of the hemi diaphragm.²¹

Clinical probability using the modified Wells scoring system should be calculated. If the patient is at a low risk of PE, a D-dimer should be measured by rapid quantitative ELISA. If this test is not elevated, PE is effectively ruled out without further testing. An algorithm illustrating use of D-dimer testing and ultrasound in patients with suspected DVT is available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1609160/figure/f2-21/>. **Figure 1** illustrates diagnosis of PE with CT angiography.

Prediction Score

Current evidence supports using a clinical prediction rule to establish the pretest probability of VTE. Providers should use the Wells prediction rule to determine the probability of DVT (**Table 2**) and PE (**Table 3**) before performing and interpreting other diagnostic tests. One caveat is that the Wells

prediction rule is more accurate in younger patients without comorbidities or a history of VTE.²²⁻²⁴

Patients with a low pretest probability and a negative D-dimer have a very low likelihood of VTE and that reduces the need for further imaging.²⁵

D-Dimer Testing

In patients with a low pretest probability of DVT or PE as defined by the Wells prediction criteria, the provider can obtain a high-sensitivity D-dimer as a reasonable option, and if negative, this indicates a low likelihood

of VTE. A negative highly sensitive D-dimer test largely excludes the diagnosis of DVT and PE in younger patients whose symptoms are of short duration and whose pretest probability score is low. The negative predictive value of the D-dimer is lower in older patients, those with recent surgery, trauma, cancer and those who are postpartum.

It is important to note that the sensitivity of the D-dimer is dependent on the assay method (quantitative enzyme-linked immunoassay methods are more sensitive than semiquantitative latex agglutination methods) and the assay cutoff level. At present, ELISA and advanced turbidimetric D-dimer tests are highly sensitive assays (sensitivity 96% and 100%) that are practical to use. The sensitivity of D-dimer assays varies, so providers need to be informed of the type of D-dimer assay being used.²⁶⁻²⁹

The rapid D Dimer tests that are used in urgent care are qualitative or quantitative tests and are CLIA waived. Some studies are reporting that a qualitative D Dimer assay at the point of care has a similar diagnostic accuracy to the lab based quantitative D-dimer test.

An elderly patient receiving a positive D-dimer test result faces stress and delays that could have been avoided if the physician instead had ordered more definitive radiologic imaging as the frontline test. For cases in which the radiologic evaluation confirms VTE, the patient faced delays before receiving treatment for this potentially life-threatening condition. In recognition of this problem, joint guidelines from the American Academy of Family Physicians and American College of Physicians note that D-dimer testing alone may be insufficient to rule out VTE in older patients.^{26,27} In addition, the authors of several research studies have urged clinicians to consider noninvasive radiologic examinations (such as venous ultrasonography) as a first-line test for diagnosing VTE in older patients.²⁷⁻³⁰

Ultrasonography

Compression ultrasonography is the non-invasive investigation of choice for the diagnosis of clinically suspected DVT and a moderate or high clinical pretest probability according to the Wells criteria. It is highly sensitive and specific in detecting proximal DVT although less accurate for isolated calf DVT, so negative ultrasonography cannot



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rule out DVT in these patients.³¹⁻³⁵

In patients with suspected calf vein thrombosis and a negative compression ultrasound result, ultrasonography or venography should be repeated, as well as in patients with suspected proximal DVT but whose ultrasonography results are inadequate. Contrast venography is still considered the definitive test to rule out DVT.

Venography

Ultrasound is not as accurate at detecting clots as the diagnostic standard test, ascending venography, which should be used if the probability of DVT is high and ultrasound is normal.

If venography cannot be performed, a repeat ultrasound of the proximal deep venous system is recommended 1 week after the initial ultrasound.³⁶

Helical Computed Tomography

Recent evidence suggests that helical computed tomography (CT) may have a higher specificity and sensitivity compared with conventional pulmonary arteriography for the diagnosis of pulmonary embolism. However, in patients who have a high pretest probability of PE and a negative CT scan, further imaging studies (such as ventilation-perfusion scan, multidetector helical CAT) are needed. For those patients, evidence suggests that CT alone may not be sensitive enough to exclude PE. A single or sequential ultrasonography assessment of the lower extremities or pulmonary angiography may be warranted.³⁷⁻⁴⁰

VTE Treatment

Proximal DVT is considered to be of more importance clinically, because it is more commonly associated with PE. One study showed that in up to 56% of cases of proximal DVT, silent PE has already occurred by the time that the patient was seen.⁴¹

Distal calf vein thrombosis is felt to be of lesser clinical importance than proximal vein thrombosis and its optimal diagnosis and treatment have yet to be defined.

If anticoagulation is not administered for isolated asymptomatic distal venous thrombosis, serial noninvasive studies of the lower extremity may be performed over the next 10 to 14 days to assess for proximal extension of the thrombus, which has a higher incidence of PE.

Contrast venography is still considered the definitive test to rule out DVT.

After having initially evaluated the patient, anticoagulation is the mainstay of therapy. The reasons patients are treated with anticoagulants are to:

- Prevent sudden death from massive PE;
- Stop the progression/growth of the thrombus in

the deep veins in the legs;

- Minimize the risk of acute recurrent DVT or PE; and
- Minimize the likelihood of developing postthrombotic syndrome.

Criteria for referral for consideration of ED referral include:

- Suspected PE
- Positive ultrasound
- Pretest probability intermediate or higher

Inpatient Treatment

Low-molecular-weight heparin (LMWH) is superior to unfractionated heparin for initial treatment of DVT because it reduces mortality rates and the risk of major bleeding during initial therapy.⁴²⁻⁴⁵ Therefore, the American College of Physicians (ACP) and the American Academy of Family Physicians (AAFP) recommend that LMWH be used for initial inpatient treatment of DVT. Unfractionated heparin or LMWH is appropriate for initial treatment of patients with PE.⁴⁶

Outpatient Treatment

In stable patients with symptoms only of a DVT for whom the required support services are in place, outpatient treatment of VTE with LMWH is as safe as inpatient treatment and is cost-effective. It is recommended that heparin be started at the same time as warfarin. The initial dose of warfarin should not exceed 5 mg. The heparin should be given for a minimum of 5 days and continued until the INR is 2.0 for two consecutive days. The therapeutic range for INR is 2.0 to 3.0.

Anticoagulation Therapy

The ACP and AAFP recommend that anticoagulation therapy be maintained for 3 to 6 months in patients with VTE secondary to reversible risk factors. For patients with recurrent VTE, anticoagulation therapy should be continued for more than 12 months. The exact duration of anticoagulation therapy is not fully understood in patients with idiopathic or recurrent

VTE, but extended-duration therapy can provide substantial benefit to these patients. Physicians should weigh the harms, benefits, and patient preferences when deciding the duration of anticoagulation therapy.

Long-Term Management of VTE

Most patients are treated with Coumadin long-term but LMWH is comparable to oral anticoagulation therapy in select patients with VTE, and it may be useful in treating patients whose International Normalized Ratio is difficult to control. Therefore, the ACP and the AAFP recommend the use of LMWH as a safe and effective therapy for the long-term treatment of VTE. In addition, LMWH may be more effective than oral anticoagulation therapy in patients with cancer. ■

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Practice Management

Understanding the Landscape of Occupational Medicine

Urgent message: Expanding into occupational medicine requires a long-term commitment and willingness to respond to employer and employee needs.

ALAN A. AYERS, MBA, MAcc

Urgent care providers have conventionally defined their offering as “treatment of acutely rising episodic medical conditions.” However, widespread acceptance of the urgent care business model—retail-facing locations, extended hours, and walk-in service—has led many urgent care centers to expand into longitudinal primary care as well as occupational medicine. Specifically, when people don’t know where to go for a work-related injury, they’ll go to the same urgent care center that treats their family. In addition, as businesses move from decaying urban centers to freeway-accessible business parks, employers seek convenient providers for employee physicals and screenings.

Urgent care centers that have never held themselves out as providing occupational medicine are seeing these patients and employers just show up. And for an urgent care provider who has not offered occupational medicine in the past, the prospect of serving these new constituents can be daunting. The purpose of this article is to describe the landscape for occupational medicine, including the services constituting “occ med,” how workers’ compensation care is directed by employers and payors, and the process for treating and billing for workplace injuries.

Alan Ayers is Content Advisor, Urgent Care Association of America, Associate Editor—Practice Management, *Journal of Urgent Care Medicine*, and Vice President, Concentra Urgent Care.



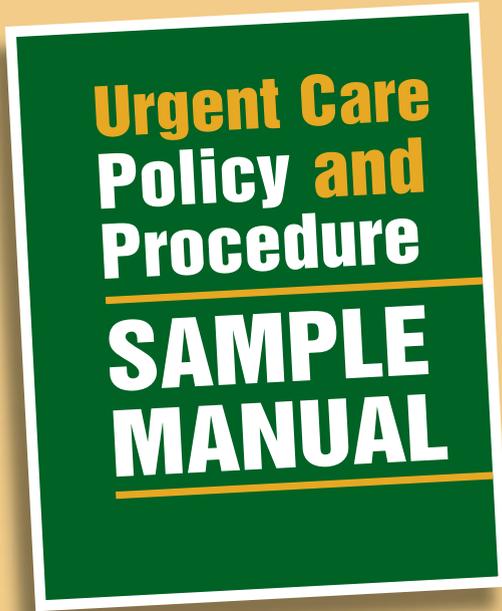
Occupational Medicine Services

To begin, occupational medicine encompasses a wide range of services that at their most basic level can be delineated as “comp” (meaning workers’ compensation injury care) and “non-comp” (meaning employer serv-



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Table 1. Examples of Occupational Medicine Services	
<p>Workers' Compensation Injury Care</p> <ul style="list-style-type: none"> ✓ Walk-in initial injury treatment ✓ Work restrictions and activity status ✓ Ongoing primary injury care and medical case management ✓ Specialist referrals, scheduling, and authorizations ✓ Physical and occupational therapy <ul style="list-style-type: none"> • Functional capacity evaluation • Functional restoration • Work conditioning; work hardening • Adjustment counseling ✓ Communication with employers, managed care organizations and/or third party administrators 	<p>Preventive and Compliance Services</p> <ul style="list-style-type: none"> ✓ Employee Physical Examinations <ul style="list-style-type: none"> • Department of Transportation • School bus drivers • Firefighters and law enforcement • Hazardous materials handling • Respirator clearance • Federal Aviation Administration • Medical statements • Physical capability and lift assessments ✓ Drug and Alcohol Testing <ul style="list-style-type: none"> • Pre-employment • Random selection • Post-accident screening • Medical Review Officer (MRO) Services • Immunization Programs ✓ OSHA Safety Training and Education ✓ Physician Advisory and Medical Directorship ✓ Security and Background Checks ✓ Employee File Maintenance and Reporting

Table 2. Industries with High and Low Propensity to Utilize Occupational Medicine Services	
<p>High Propensity</p> <ul style="list-style-type: none"> ✓ Food Processing, Preparation and Service ✓ Durable and Non-Durable Goods Manufacturing ✓ Petroleum, Chemical, Iron/Steel and Coal ✓ Trucking, Distribution and Warehousing ✓ Air, Bus, Rail and Water Transportation ✓ Electric, Gas, and Water Utilities ✓ Municipal Police, Fire, Parks/Recreation and Sanitation ✓ Hospitals, Outpatient and Long-term Care Facilities ✓ General Merchandise Stores 	<p>Low Propensity:</p> <ul style="list-style-type: none"> ✓ Apparel and Accessory Stores ✓ Social Services ✓ Insurance, Legal and Real Estate ✓ Financial Institutions ✓ Information Technology ✓ Home-based Services

ices focused on compliance or prevention—primarily physicals and drug screens). Examples of each are listed in **Table 1**. Typically workplace injuries drive the bulk of revenues and profits for occ med providers, whereas commodity physicals and drug screenings are offered to solidify employer relationships, with the expectation they'll direct injuries as they occur. A third component—health and wellness—is emerging as occ med

shifts from a focus on “workplace injury prevention and treatment” to “total employee wellbeing,” which encompasses early detection through biometric screenings, medical intervention for high-risk factors (i.e. tobacco use), and also exercise and nutrition programs.

Categories of Employers

Whereas urgent care is marketed *to the general public*—patients who self-pay or use government or private health insurance—occupational medicine is sold *to employers* who carry workers' compensation insurance and pay directly for preventive and compliance services. Moreover, whereas urgent care patients typically *self-triage*, choosing urgent care because of its *convenience or accessibility*, employees who need occ med services are *directed by their employers* to the providers who offer the greatest value, outcomes, or communication *to the employer*.

Employers can be segmented by their propensity to utilize occ med as well as their size and decision-making structure. Clearly some businesses have a greater need for occ med than others because they operate in industries that incur a greater risk of injury. For example, statistics show oil rig “roughnecks” get hurt more often and incur higher-acuity injuries than bank tellers. Likewise, some industries have greater compliance needs—a sanitation worker, for instance, may be required to have a commercial driver's license, liability insurance that requires regular substance abuse testing, vaccinations such as for Hepatitis A and B, and also be able to lift over 70 lb using proper techniques. These are all job requirements that entail occ med services. **Table 2** lists industries that have a high and low propensity to utilize occ med.

Within industries whose job requirements lead to increased utilization of occupational medicine, employers may be in the public or private sector, large or small, centralized or decentralized in their decision-making. In addition, participation in the workers' compensation system may vary if employees fit certain profiles—for instance, civilian military contractors working overseas and those who work with nuclear energy systems have their own distinct workers' compensation systems. To be successful in

growing a base of occ med clients, an urgent care operator must first understand how services get directed to particular providers. **Table 3** illustrates how the choice of an occ med provider may be influenced by any number of individuals in any number of locations.

Workers’ Compensation Payors

Workers’ compensation is defined as a “no-fault system of wage replacement, medical and life insurance benefits paid to employees who suffer work-related injuries or diseases. The system was founded for the dual purpose of providing income security for workers and their families while also eliminating the risk of employers being sued in tort for workplace injuries.

Employers are required by law to purchase workers’ compensation insurance or demonstrate their qualifications to self-insure. As with an employee’s personal health insurance, workers’ compensation medical providers are paid by third parties—private indemnity carriers, state funds, or self-insured employer claims administrators. **Table 4** lists the different categories of workers’ compensation payors. In order to be paid for providing workers’ compensation services, a medical provider must become contracted and credentialed with major workers’ compensation carriers following a process that’s similar to contacting and credentialing with a private health plan.

Direction of Care

In the realm of individual health insurance, patients with indemnity policies can choose their providers freely while those with PPOs or HMOs often have their choices limited to providers contracted with the insurance plan. Depending on state law and the structure of the employer’s workers’ compensation coverage, the same concepts apply to direction of care for workplace injuries.

- Workers Choice – Employee may freely choose any provider authorized to treat workers’ compensation injuries.
- Preferred Provider Panel – Employee may choose from a network of authorized providers, which may include the employer’s or payor’s preferred provider.
- Payor/Employer Directed—Employer or payor requires the employee to utilize its preferred provider.

Understanding the direction of care is a critical determinant of how a workers’ compensation provider mar-

Table 3. Segmentation of Employers by Size, Number of Locations, and Ownership

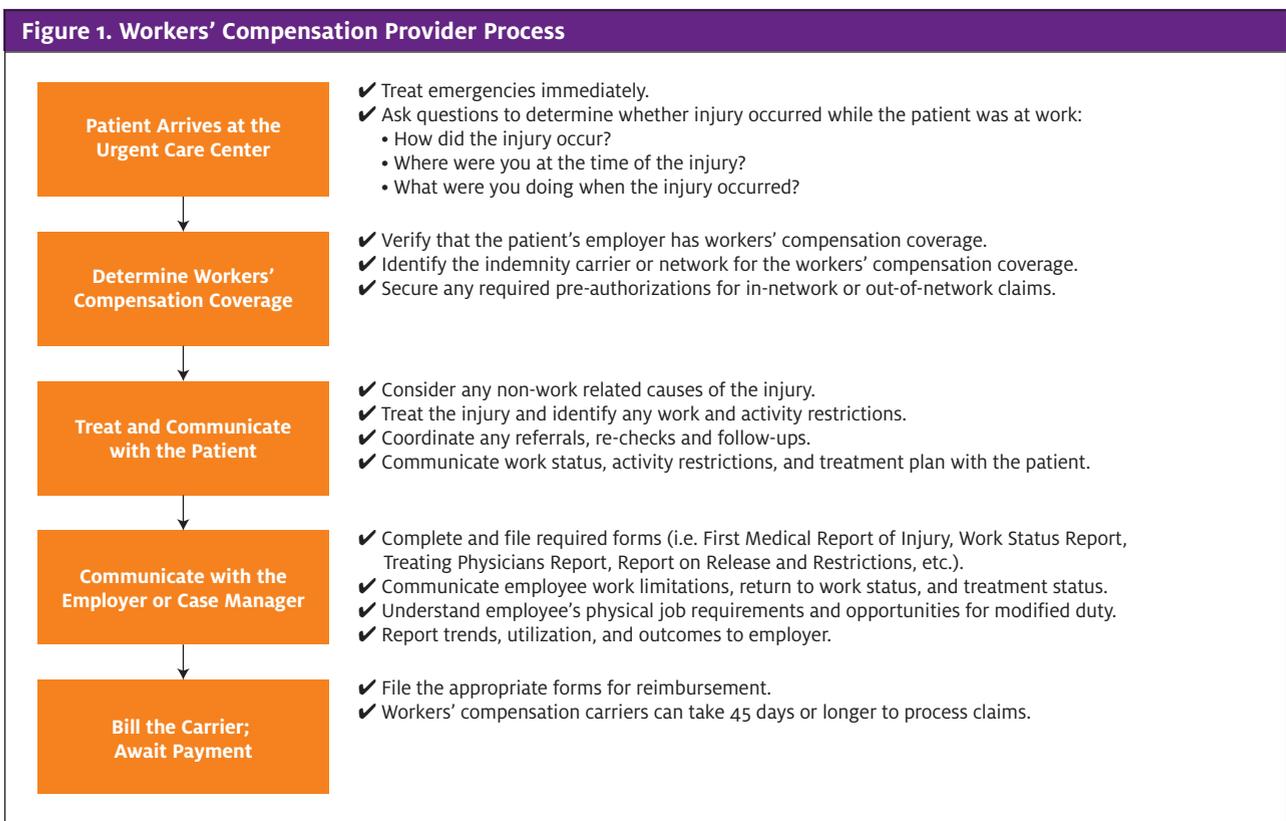
- ✓ Private Employers
 - Size and Complexity of Organization Structure
 - Small and Mid-Sized Enterprises (SMEs)
 - Large Companies
 - Multi-Site Operations
 - Scope of Operations
 - Local—Single Geographic Market
 - Multiple Geographic Markets
 - Decision-Making Authority
 - Centralized for Multiple Operating Sites
 - Each Individual Operating Site
- ✓ State and Municipal Governmental Entities
- ✓ Federal Entities, Maritime and Military (Longshore & Harbor), Coal Mines, and Nuclear Weapons

Table 4. Workers’ Compensation Payors

- ✓ Private Indemnity Insurance
 - For-profit (Chartis, Liberty Mutual)
 - Mutuals/Non-profits (Texas Mutual, Retailers Mutual, Brotherhood)
- ✓ State Insurance Funds
 - Monopolistic/Single-Payor (Ohio, North Dakota, Wyoming, Washington)
 - Competitive w/Private Payors (Arizona, California, Colorado, New York, Utah and others)
- ✓ Self-Insured Employers
 - Self-Administered
 - Third Party Administrator
- ✓ Federal Workers’ Compensation Systems
- ✓ Uninsured/Non-Compliant Employers

kets its services. In states where workers have free choice, some providers advertise “workplace injury services” directly to the general public. But in states that allow for panels or directed care, urgent care centers develop sales relationships with employers, third party administrators, and provider networks. Similar to the rise of Health Maintenance Organizations to control costs related to personal medical care, managed care is emerging in workers’ compensation with case managers employed by third parties increasingly directing medical care to in-network providers.

An employer’s size typically determines its complexity and delineation of specific roles and responsibilities related to occ med. For example, single-site small businesses often have one individual responsible for ensuring that new hires are drug tested and existing employees are compliant with federally prescribed physicals, and assimilating injured workers back into their jobs. Such



“generalists” are usually the contact for “all things occ med.” By contrast, large organizations may have distinct capabilities in risk management, safety, compliance, benefits, and other disciplines—in addition to general human resources and operations management. So dealing with large organizations may entail unique contacts for each individual service—with workers’ compensation referrals coming from a different source than pre-employment physicals and random drug screenings. In addition, large organizations with multiple sites may make decisions at the corporate office on where to direct care for all locations, or they may leave decision-making to local managers. Occ med providers with a national footprint, such as Concentra, USHealthworks and Kaiser Permanente, have an advantage over local independents in their ability to serve third party administrators and national accounts like retail chains, airlines, and trucking companies at multiple sites throughout the country.

Workers' Compensation Provider Process

Figure 1 illustrates the process that workers’ compensation providers typically follow, from the time a patient arrives at the center through receipt of payment from the insurance carrier. While the general process is the

same in all states, the authorizations required, forms to complete and file, evaluation of causation, and payment timelines do vary so it’s critical that a provider understand the laws in his/her community.

Because workers’ compensation is generally employer-directed care, building a strong reputation as a workers’ compensation provider entails:

- Controlling the number of reportable incidents (these affect employer’s workers’ compensation premiums);
- Evaluating and documenting causation including ruling out non-work-related causes;
- Reducing time away from work by understanding and utilizing modified duty when appropriate;
- Getting employees back to full recovery (and full job activity) quickly; and
- Communicating with the employer.

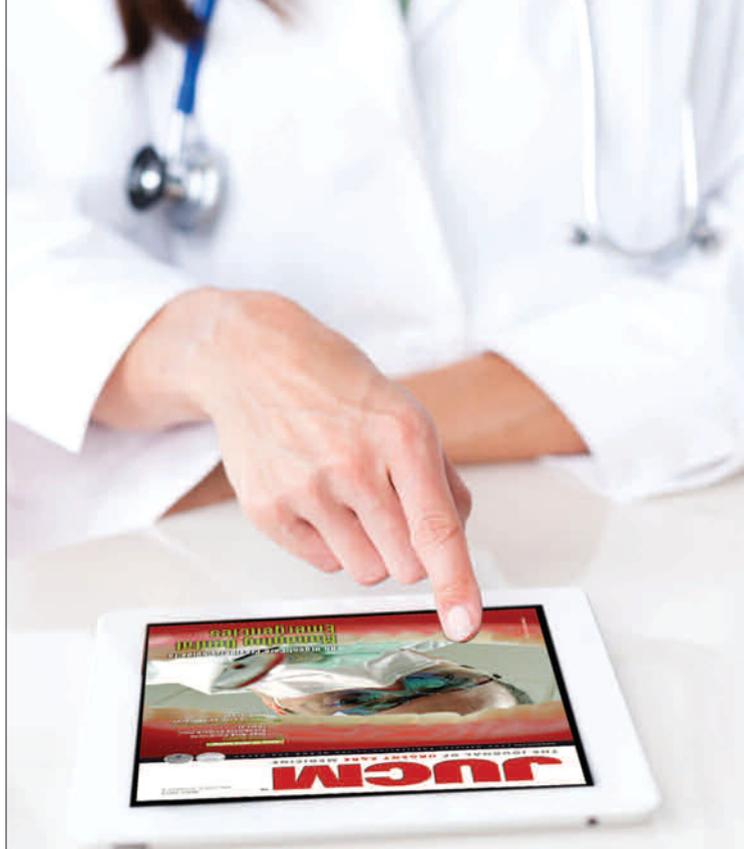
Delivering an excellent patient experience with short wait times is also important—an employer may be hesitant to refer employees, no matter how fine the medical outcomes, if they perceive their employees will be treated poorly. That’s why, even if the employer picks up the bill, the patient must be treated as the client. Treating patients well in occupational medicine pays

Whereas urgent care patients typically self-triage, choosing urgent care because of its convenience or accessibility, employees who need occ med services are directed by their employers to the providers who offer the greatest value, outcomes, or communication to the employer.

dividends for the urgent care operator as satisfied patients will often return (with their families) for their personal medical needs.

Conclusion

The term “occupational medicine” generally refers to “workers’ compensation injury care,” “preventive and compliance services,” and “health and wellness” in which the client is an employer. Success in selling occ med starts with identifying local employers in industries with a propensity for injuries or with compliance requirements for physicals and drug screenings, understanding the employers’ organization structure and identifying key decision-makers, contracting with the appropriate workers’ compensation insurance carriers and provider networks, understanding the required paperwork, establishing processes to treat patients with a focus on minimizing downtime, and last, communicating with the employers. Expanding into occ med requires a long-term commitment to develop the business, a willingness to understand and respond to employer and employee needs, and also a significant investment in sales and operations resources while the business ramps up. ■



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Case Report

Stevens-Johnson Syndrome

Urgent message: Early diagnosis is crucial in patients with this rare—but potentially fatal—condition.

RACHEL CETTA, BSBE, MSBE, and JOHN SHUFELDT, MD, FACEP

Overview

Stevens-Johnson Syndrome (SJS) is a rare and potentially life-threatening condition. While the exact etiology is unclear, SJS often is associated with an adverse drug reaction to an assortment of drugs ranging from non-steroidal anti-inflammatory drugs (NSAIDs) to anticonvulsants.¹ SJS involves blistering and sloughing off of necrosed skin, leaving a burn-like appearance.

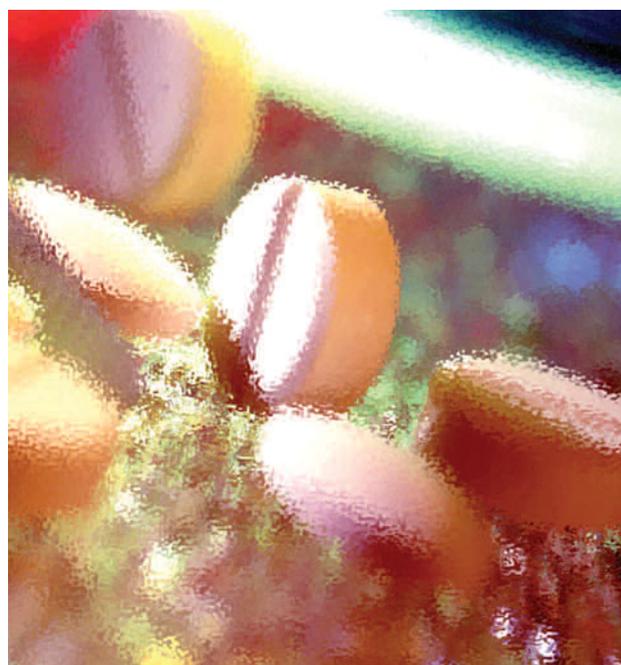
Mucous membranes are also widely affected. SJS typically affects about 10% or less of the skin surface. The main characteristics include delayed hypersensitivity and immunologic processes.² SJS can occur at any age but it is more common in patients ages 25 to 47 and generally seen in the spring and winter.³ Depending on the extent of skin involvement, it may be necessary to treat an SJS patient as you would someone with a burn.⁴

Case Presentation

A 41-year-old woman with a history of systemic lupus erythematosus (SLE) being treated for a urinary tract infection with Bactrim (sulfamethoxazole and trimethoprim) presents with a diffuse, erythematous rash, pruritis and chills.

Nine days earlier, she presented with dysuria, low-grade fever and mild flank pain. She was not vomiting. Urinalysis showed 50 to 100 white blood cells (WBCs) and was nitrite-positive. The patient was discharged on pyridium and Bactrim and told to follow up with her primary care physician in 2 days or to return immediately if her symptoms worsened.

The patient now states that 4 days ago, she began to



notice a slight rash and some clear vesicles on the inside of her lower lip. Other than SLE, she has no past medical history. She does not smoke or drink and has no known exposure to atopy.

Physical Exam

Vitals

P: 110

RR: 18

T: 38.1°C

BP: 108/60

General: Ill- appearing and in mild distress.

HEENT

Rachel Cetta is a second-year medical student at Midwestern University. **John Shufeldt** is principal of Shufeldt Consulting and sits on the Editorial Board of *JUCM*.

PERRL, EOMI, conjunctiva is erythematous. Clear vesicles in the mouth on mucosal surfaces (**Figure 1**). Airway is patent.

Neck: Supple, midline trachea, no overt lymphadenopathy, no meningeal signs.

Lungs: Clear.

Heart: Tachycardic, regular rhythm.

GU: No tissue sloughing.

Skin: Erythematous macules with darker, purpuric centers on the chest, back, hands and upper arms (**Figure 2**). Scattered clear bullae are also noted along with a positive Nikolsky sign.

Labs/Imaging

CBC: WBC 14,500 with 20% bands, H/H 13/39, Plts 120,000

UA: Normal save for specific gravity of 1.035

Chem 7: Normal save for Cr. 1.3

Diagnosis

When a patient presents with diffuse rash in the urgent care setting, it is important for providers to look for the signs and symptoms of SJS.

Important physical exam findings are:

- Fever;
- Flu-like symptoms;
- Blisters of the mouth, nose, or genitalia;
- Conjunctivitis; and
- History of recently beginning a prescription or over-the-counter medication.¹

Some characteristic signs of SJS include:

- Erythroderma;
- Skin necrosis;
- Blistering and epidermal detachment; and
- Palpable purpura.⁵

Differential Diagnosis

SJS can be easily misdiagnosed if a patient presents early in the disease course. It also can be mistaken for these other disease processes:

Toxic epidermal necrolysis (TEN): There is discussion about whether TEN and SJS are the same disorder. Some consider SJS and TEN to be the same but of varying severity. Others consider them to be in different categories. By definition, TEN covers over 30% of the body, whereas SJS involves only 10%. If the affected area falls

Figure 1.



Clear vesicles are evident on mucosal surfaces of the patient's mouth.

Source: http://missinglink.ucsf.edu/Im/DermatologyGlossary/Im_about.html. Reprinted with permission of Timothy Berger, MD, and the UCSF Regents.

Figure 2.



Erythematous macules are evident on the patient's chest and hand.

Source: http://missinglink.ucsf.edu/Im/DermatologyGlossary/Im_about.html. Reprinted with permission of Timothy Berger, MD, and the UCSF Regents.

between these two percentages, the classification becomes SJS/TEN overlap syndrome. TEN patients generally present with a higher fever than patients with SJS. TEN is more likely to affect adults in their late 40s or older.³

Erythema multiforme (EM): SJS is sometimes referred to as EM major. However, EM major is considered a separate process because of "targetoid lesions" and

Table 1: SCORTEN risk factors

Age	>40
Epidermal detachment	>30%
Heart rate	>120 bpm
Serum glucose	>252 mg/dL
Serum BUN	>28 mg/dL
Serum bicarbonate	<20 mEq/L
Coexisting illness	Malignancy present
Source: Inamadur AC, Palit A. ⁶ Reprinted with permission from <i>Indian Journal of Dermatology, Venereology and Leprology</i> .	

lack of mucosal involvement. The herpes virus has a strong connection to EM, while SJS is more likely drug reaction-related.³

Erythematous drug eruption: SJS can resemble erythematous drug reactions early in the course. Erythematous drug eruption differs from SJS because it does not have a mucosal component.³

Toxic shock syndrome (TSS): Patients with TSS have some desquamation about a week after onset on the palms of the hands and soles of the feet. As with SJS, there is mucosal involvement of oropharyngeal mucosa and conjunctiva. TSS is most often caused by *Staphylococcus aureus* and likely to involve more organ systems than SJS.³

Paraneoplastic pemphigus (PNP): Patients with PNP have oral and ocular mucosal blisters and skin lesions similar to EM. PNP can be seen in patients with malignancy or in adults with non-Hodgkin's lymphoma.³

Course and Treatment

First and foremost, immediately stop administration of the drug suspected of causing SJS. In our patient's case, Bactrim was stopped. Some of the more common drugs that lead to SJS are anti-gout medication (allopurinol), antipsychotics and anticonvulsants (carbamazepine, lamotrigine, phenobarbital), antibiotics (sulfonamides and penicillins),³ TNF- α antagonists (infliximab and adalimumab), and oxicam NSAIDs (piroxicam and tenoxicam).⁴

Patients with SJS are considered to "burn from the inside out," and require copious intravenous fluids and high-calorie nutrition. Pain medication is used to make them more comfortable.¹ Mouthwashes can help with oral mucosal damage. Skin wounds are treated similarly to burns, and saline compresses are recommended.⁴ Silver nitrate can be used as a topical antibiotic. Silver

sulfadiazine is not used because SJS is thought to have a connection to sulfonamides.⁵

When handling SJS patients, sterile technique is necessary because they are at high risk of infection. If a patient's condition is severe, admission to a burn unit for expert wound care may be necessary.²

Antibiotics can help prevent sepsis and a high dose may be needed.¹ As in burn patients, drug pharmacokinetics may be decreased in patients with SJS.⁴ Conversely, prophylactic antibiotics are not useful and may lead to super-infections. Instead, antimicrobials should be initiated as soon as an infection is documented. Glucocorticoids are suggested for adults if diagnosed within the first 48 hours. Beyond that, glucocorticoids are not advised because of the increased risk of immunocompromise and sepsis. For children, glucocorticoids are not recommended because of the range of side effects.⁵ Immunosuppressive drugs have not been shown to increase recovery and are not advocated.²

A multitude of sequelae are associated with SJS, including permanent blindness, scarring of mucous membranes, and chronic obstructive pulmonary disease.¹ Gastroenterologic and genitourinary complications such as esophageal strictures and renal tubular necrosis, respectively, also can result. Cosmetic deformity is another complication.⁴ These conditions must be identified so they can be treated as well.

The mortality rate for SJS ranges from 1% to 3%, versus 25% to 35% for TEN.⁵ The widely used TEN scoring system or SCORTEN also can be used to determine mortality in patients with severe SJS based on the risk factors in **Table 1**.⁶ Trent et al. found the mortality rate to be 3.2% in patients with 0 to 1 risk factor, 12.2% with 2 risk factors, 35.5% with 3 risk factors, 58.3% with 4 risk factors and 90% in patients with 5 or more risk factors.⁷

Discussion

A diagnosis of SJS should be considered in patients who present with erythematous skin lesions and mucous membrane involvement and have recently started taking a new medication. The potentially inciting drug needs to be stopped immediately. An adverse drug reaction is the main cause of SJS, but in rare cases, the cause can be vaccination, chemical exposure, or food. In pediatric cases, infections such as the herpes simplex or Epstein-Barr viruses have been known to cause SJS.^{3,4} HIV-infected patients or those who have certain genetic predispositions are at increased risk of SJS. Many cases are idiopathic.⁴

Currently there is no specific therapy for SJS. General

An adverse drug reaction is the main cause of SJS, but in rare cases, the cause can be vaccination, chemical exposure, or food.

supportive care is basic procedure. For patients who have rapidly lost epidermis, the re-epithelization process will begin a few days after the sloughing process ceases. The re-epithelization process can be completed within a few weeks.⁴

Patients with SJS should be educated about the type of drug that caused them to develop the condition. It is important for them to avoid drugs that are similar in structure to the culprit drug and critical that they understand that re-exposure could be fatal.⁵

SJS is rare, but deadly if not treated in a timely manner. If recognized early enough, though, a patient should survive without significant complications. Unfortunately, there is always a chance for secondary infections that may require long-term antibiotic therapy. ■

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It's Not Just Drugs and Rock and Roll

■ JOHN SHUFELDT, MD, JD, MBA, FACEP

Over the years I have attempted to cover it all. Drugs, rock and roll, BFRF (big F-ing red flag), airplane crashes, you name it. The one thing I have left out has been... well...sex. Sex has always been a challenging and awkward subject or me. In fact, I cried the first time I had sex—thank God I was alone.

Anyway, speaking of God, my challenges with this subject started at a young age. When I was 4, my very Catholic mother told our family doctor that “John keeps touching himself down there.” Without hesitation, he looked very sternly at me and said, “If you touch it again, I’ll cut it off.” I haven’t touched it since.

Fast forward 8 years to the seventh grade at Our Lady of the Wayside. My next God-inspired sex-related misadventure was at the hand of a nun. No, it wasn’t like that—get your minds out of the gutter. Sister Goebbels, who was Nazi-esque in her delivery and mannerisms, taught Marriage and the Family class which we always had immediately after attending Mass. It was Wednesday morning at 9:37 am when she told our class, “Sex is a very beautiful thing only to be shared between a husband and wife.” I raised my hand and when called upon, asked, “How would you know?”

When I awoke in the Principal’s office, my ears were ringing, my head was pounding, my watch had apparently stopped at the moment of impact, and I had no recollection of the event. To this day, I am still cognitively impaired. To this day, I am still cognitively impaired. Oh, wait, what are we talking about? Oh yeah—Sex.

A few years ago I applied for my New Mexico Medical License. As part of the final application process, I had to travel to Albuquerque to the headquarters of the New Mexico Board of Medical Examiners where I was interviewed by a very kind and genteel cardiologist who welcomed me to the practice of medicine



John Shufeldt is principal of Shufeldt Consulting and sits on the Editorial Board of *JUCM*. He may be contacted at jshufeldt@shufeldtconsulting.com.

The issue of sex with patients dates back to Hippocrates: “With purity and with holiness I will pass my life and practice my Art...Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further from the seduction of females or males, of freemen and slaves.”

in New Mexico. The final part of the process was joining the other 200 or so physicians who were also applying for licenses in a large gymnasium where we all heard a lecture about—wait for it—Not Having Sex with Patients. Up until that very moment, I had never actually considered the possibility—maybe because of where I practiced—but that’s beside the point.

After the introductory remarks and charge of, “YOU CAN’T HAVE SEX WITH YOUR PATIENTS” I got up ready to leave; what else was there to say? Then, for the next hour my fellow compatriots asked all sorts of questions on the subject. “But what if you were dating them before they became your patient?” “What if you were engaged?” “What if you had only kissed them?” “What if they kissed you and you just laid there?” “Tongue, no tongue?” I kid you not. I walked out of there after an hour of listening to soft-porn reenactments of what-if scenarios thoroughly disturbed—ok, even more disturbed.

The issue of sex with patients dates back to Hippocrates: “With purity and with holiness I will pass my life and practice my Art...Into whatever houses I enter, I will go into them for the benefit of

the sick, and will abstain from every voluntary act of mischief and corruption; and, further from the seduction of females or males, of freemen and slaves.”

If only it were as clear as it was 2500 years ago.

So I started thinking more about it. Then I started getting requests to represent providers in front of their respective medical boards on this very subject. I know at this juncture you are saying “EWWWWWW are you kidding me?” Because you are thinking the same way I *used* to think about this. You are doing a urethral or vaginal swab for *gonorrhea* or *chlamydia* and you look up at the head of the bed, and say, “Hey, what are you doing later on? But it’s not like that, I mean at least wait for the culture results for God sake!

Clearly, the scenario above is well out of bounds. There are other instances, however, that are much murkier.

The Arizona Statute on unprofessional conduct while engaged in the practice of medicine includes the following:

Engaging in sexual conduct with a current patient or with a former patient within 6 months after the last medical consultation unless the patient was the licensee’s spouse at the time of the contact or, immediately preceding the physician-patient relationship, was in a dating or engagement relationship with the licensee.

The New Mexico Statute on the same subject includes the following:

Sexual misconduct, including sexual contact with patient surrogates, such as parents and legal guardians, that occurs concurrently with the physician-patient relationship.

Clear as day –right? Not so much. Arizona has relaxed their standards a bit over the years but here is what I have seen happen to some very well meaning providers. They are in a dating relationship and their significant other has a minor medical condition - bronchitis. The provider calls in a prescription and the significant other gets better. A few months go by, they have a bad end to the relationship and the jilted person reports the provider to the medical board. The provider has no record of the medical encounter (strike one “*Failing or refusing to maintain adequate medical records*”), they were in a dating relationship as well as a physician-patient relationship (strike two in some states) and, oh yeah, “we once smoked some pot together” (strike three in all states)!

I know this sounds a bit over the top, yet it happens all the time. The take-home point on this subject is to please read your state’s Statutes as they relate to unprofessional conduct while engaged in the practice of medicine. Some of the statutes are written a bit nebulously so take the time to dive into them and really understand the law surrounding some of the common medical-legal pitfalls.

Maybe Sister Goebbels was right... ■

Call for Articles

JUCM, the Official Publication of the Urgent Care Association of America, is looking for a few good authors.

Physicians, physician assistants, and nurse practitioners, whether practicing in an urgent care, primary care, hospital, or office environment, are invited to submit a review article or original research for publication in a forthcoming issue.

Submissions on clinical or practice management topics, ranging in length from 2,500 to 3,500 words are welcome. The key requirement is that the article address a topic relevant to the real-world practice of medicine in the urgent care setting.

Please e-mail your idea to
JUCM Editor-in-Chief
Lee Resnick, MD at
editor@jucm.com.

He will be happy to discuss it with you.





Marker of Disease in Infants and Hemorrhage During Warfarin Therapy

■ NAHUM KOVALSKI, BSc, MDCM

Each month, Dr. Nahum Kovalski reviews a handful of abstracts from, or relevant to, urgent care practices and practitioners. For the full reports, go to the source cited under each title.

A Useful Marker of Invasive Disease in Well-Appearing Febrile Infants

Key point: Procalcitonin is better than C-reactive protein and white blood cell count for predicting bacterial infection in well-appearing infants aged <3 months.

Citation: Gomez B, Mintegi S, Da Dalt L, Blazquez D, et al. Diagnostic value of procalcitonin in well-appearing young febrile infants. *Pediatrics*. 2012;130(5):815-822.

Differentiating between serious bacterial infection and minor viral illness in febrile infants is often difficult. To date, no single laboratory test or combination of tests has proven sensitive and specific enough for identifying young infants with infections that require admission and antibiotic treatment. Investigators retrospectively evaluated the diagnostic value of procalcitonin (PCT) levels in 1112 well-appearing infants (age, <3 months) who presented with fever without a source to emergency departments at seven Spanish and Italian hospitals during a 3-year period.

The infants underwent urine dipstick testing, blood and urine culture, measurement of white blood cell count, C-reactive protein, and procalcitonin levels. If indicated, lumbar puncture and stool culture were also obtained. Overall, 289 infants (26%) were diagnosed with serious bacterial infections: 264 had urinary tract infection (UTI) only, 2 had bacterial gas-

troenteritis, and 23 had invasive bacterial infections (IBIs; 22 had bacteremia with or without UTI and 1 had meningitis). In multivariate analysis, only PCT 0.5 ng/mL was significantly associated with IBI (odds ratio, 21.7). A PCT level <0.5 ng/mL reduced the probability of invasive infection to 0.5%, and a PCT level >2 ng/mL increased the probability of IBI to 19.3%.

Published in *J Watch Ped Adolesc Med*. November 28, 2012 — Peggy Sue Weintrub, MD. ■

Rates of hemorrhage during warfarin therapy for atrial fibrillation

Key point: 'Real-World' Rates of Hemorrhage Higher Than Expected for Warfarin.

Citation: Gomes T, Mamdani MM, Holbrook AM, Paterson JM, Helliings C, Juurlink DN. *CMAJ*. November 26, 2012 cmaj.121218.

Rates of major hemorrhage during warfarin therapy for atrial fibrillation are about 4% per person-year, which is higher than those observed in randomized trials, according to an observational study published in *The Canadian Medical Association Journal*.

Researchers studied the medical records of 125,000 people in who started warfarin therapy after a diagnosis of atrial fibrillation. Over a 13-year period, they found that an overall hemorrhage rate of 3.8% per person-year. The risk was highest in the first 30 days of treatment, at 11.8%. In patients with a CHADS₂ score of 4 or greater, the 30-day rate was even higher, at 16.7%.

The authors attribute the higher "real-world" rates to the strict inclusion criteria and close monitoring that are characteristic of clinical trials. ■



Nahum Kovalski is an urgent care practitioner and Assistant Medical Director/CIO at Terem Emergency Medical Centers in Jerusalem, Israel. He also sits on the *JUCM* Editorial Board.



In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of dermatologic conditions that real urgent care patients have presented with.

If you would like to submit a case for consideration, please email the relevant materials and presenting information to editor@jucm.com.

FIGURE 1



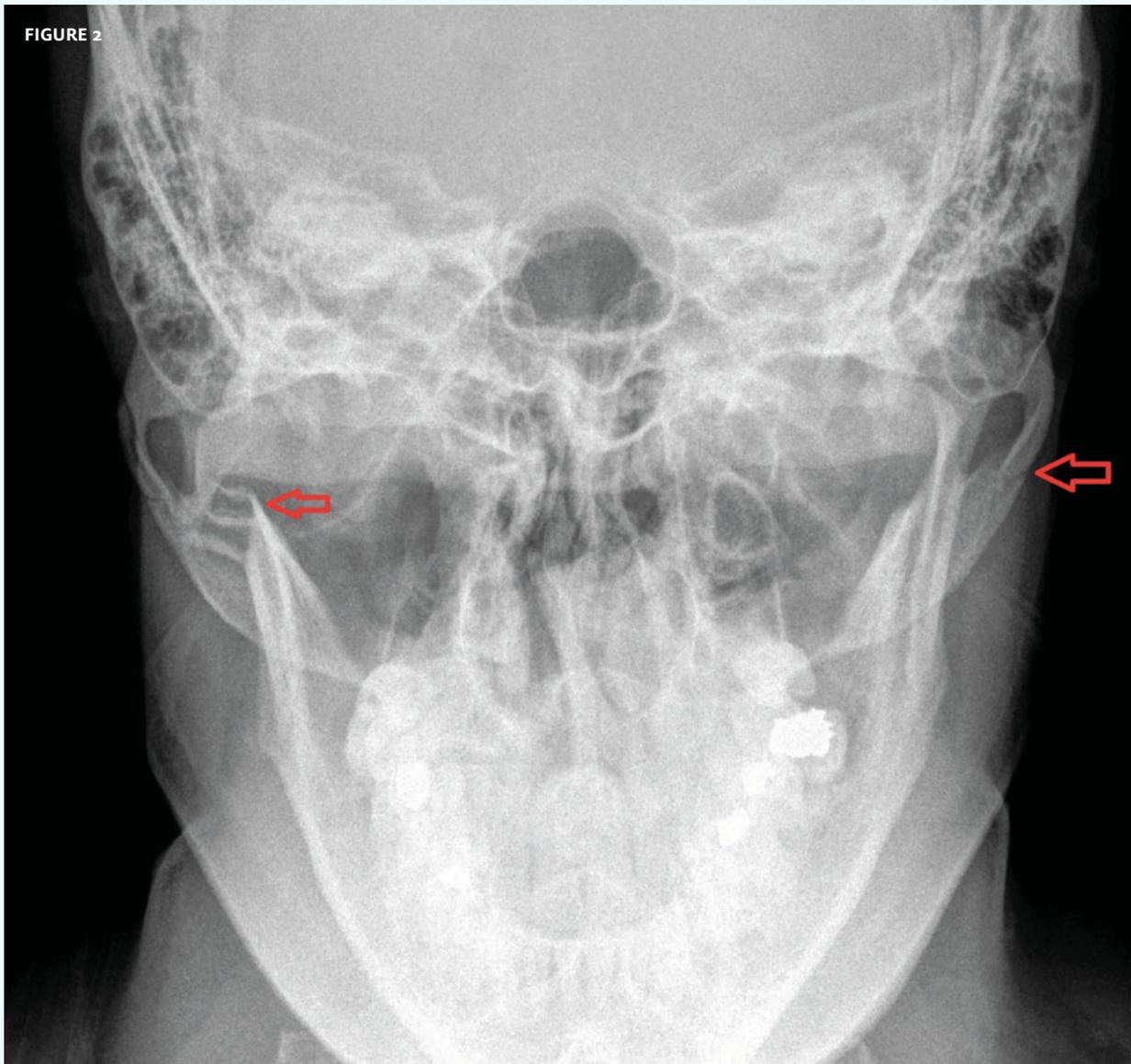
The patient, a 35-year-old male, presented after a blow to the face.

View the image taken (**Figure 1**) and consider what your diagnosis would be.

Resolution of the case is described on the next page.

THE RESOLUTION

FIGURE 2



Diagnosis: The x-ray reveals fractures of the mandible and zygoma (arrows). Referral to a hospital is appropriate for this patient.

Because of the complexity of facial anatomy and the risk of soft-tissue injury, computed tomography has largely replaced plain films for evaluating facial trauma.

Acknowledgement: Case presented by Nahum Kovalski, BSc, MDCM, Terem Emergency Medical Centers, Jerusalem, Israel.



Inhalation Treatments, OSHA Required Respiratory Questionnaires, Preventive Care Services

■ DAVID STERN, MD, CPC

Q. Can nebulizer treatments and instructions for use of the nebulizer inhaler be billed together? Who can perform these services in an urgent care center?

A. There are two codes associated with nebulizer treatment and instruction:

- 94640, "Pressurized or non-pressurized inhalation treatment for acute airway obstruction or for sputum induction for diagnostic purposes (e.g., with an aerosol generator, nebulizer, metered dose inhaler or intermittent positive pressure breathing [IPPB] device"; and
- 94664, "Demonstration and/or evaluation of patient utilization of an aerosol generator, nebulizer, metered dose inhaler or IPPB device."

If the instruction is given in conjunction with the nebulizer treatment as described in 94640, you only bill the 94664 because it is a comprehensive procedure code that incorporates both services.

Medicare will not pay for both services if performed on the same day, but there is no CPT rule that prohibits coding both when billing other payors. According to CPT Assistant, code 94664 "has several facets and may be reported to describe:

- demonstration of a metered-dose inhaler or a nebulizer
- bronchodilator administration for the purpose of long-

An urgent care center that decides to perform preventive services must understand any limitations in its managed care contracts.

term management of bronchospasm

- bronchodilator administration to mobilize sputum for therapeutic purposes (i.e., movement of thick secretions)
- bronchodilator administration to mobilize sputum for sputum induction for diagnostic studies (e.g., culture, gram stain)"

You would want to check with the payor to see whether the payor has a specific rule regarding the billing of both services for the same day of service.

If applicable, you would submit the appropriate E/M code with a -25 modifier to indicate that it was a significant, separately identifiable service from the other services described.

These services can be performed and documented in any urgent care setting by any staff member who is trained to perform such services under the supervision of a physician. ■

Q. What are the CPT codes required for compliant coding of the OSHA respiratory questionnaire assessment review and the respiratory fit test?

A. As specified in 29 CFR 1910.134(c)(4): "The employer shall provide respirators, training, and medical evalua-



David E. Stern is a certified professional coder. He is a partner in Physicians Immediate Care, operating 18 clinics in Illinois, Oklahoma, and Nebraska. Dr. Stern was a Director on the founding Board of UCAOA and has received the Lifetime Membership Award of UCAOA. He serves as CEO of Practice Velocity (www.practicevelocity.com), providing software solutions to over 750 urgent care centers in 48 states. He welcomes your questions about urgent care in general and about coding issues in particular.



Now Online in *JUCM* Social Media Primer for Urgent Care Providers

Use of social media is fast becoming one of the most vital tools in patient decision-making about providers. Urgent care providers without a social media presence may potentially be losing patients, but how do you launch an effective social media marketing campaign? This month's *JUCM* web-exclusive article—based on a popular session at the recent UCAOA conference—explores the evolving social media landscape and gives urgent care providers the information and tools they need to start their own effective social media campaigns. Learn the rules of the Internet road for blogs, Facebook, Twitter, and other social media outlets by visiting <http://jucm.com/read/casereport.php?casereport=31>, online only.

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CODING Q & A

tions at no cost to the employee.” These services—including review and reporting of a completed medical evaluation questionnaire—would be conducted and billed as an employer-paid service (EPS) and cannot be billed to the employee’s insurance provider. Billing, coding, and payment for these services are generally performed at pricing that is mutually agreed upon (regardless of codes billed.) Thus, normal coding compliance rules would not apply. In fact, very few employers will even note what codes (if any) are used. ■

Q. Is it typical for a payor to deny reimbursement when an urgent care center bills preventive medicine CPT code 99381-99397?

A. Preventive services are typically performed in a primary care setting. An urgent care center that decides to perform preventive services must understand any limitations in its managed care contracts. Patients also have a responsibility to be informed about when and where preventive services are covered. As with any denial, contacting the carrier for a detailed explanation of why the claim was denied is important. It is beneficial to have a good relationship with your insurance account representatives to help answer these types of questions.

Further, if an urgent care center decides to perform primary care services, it is important for both provider and patient to be clear about their obligations for follow-up, on-call services, and hospital admissions. Providers should seek legal advice about their obligations under payor contracts and government regulations.

For Medicaid preventive services, states operate under the federal Medicaid Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program. Under that program, specific (and/or unique) codes for billing may be required by each state.

For non-Medicaid commercial insurers, the CPT codes for preventive medicine services are coded for the basic service (history, physical examination, and counseling/anticipatory guidance). Report separately all applicable CPT codes for additional screening (hearing, vision, and development), laboratory services, and immunization administration(s). ■

Note: CPT codes, descriptions, and other data only are copyright 2011, American Medical Association. All Rights Reserved (or such other date of publication of CPT). CPT is a trademark of the American Medical Association (AMA).

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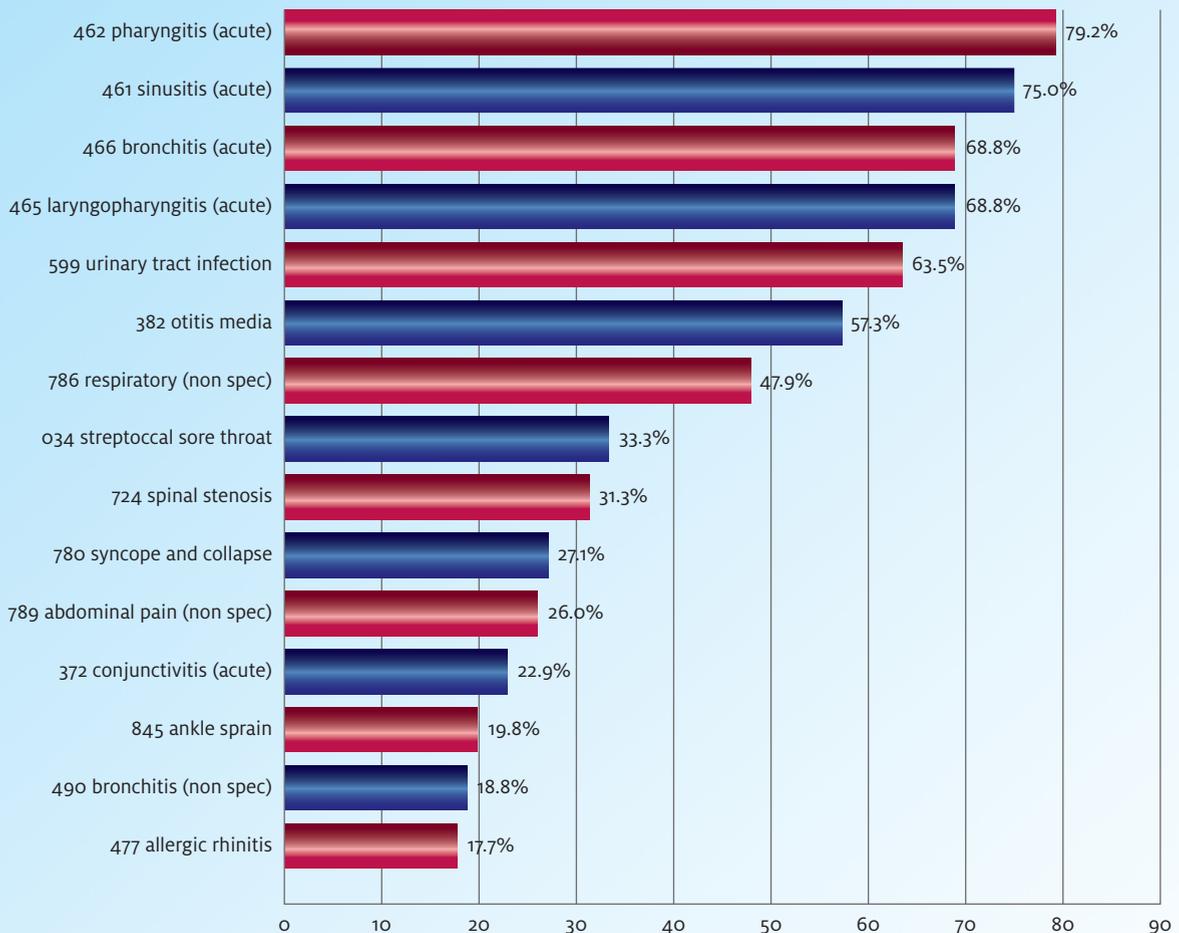
DEVELOPING DATA

These data from the 2012 Urgent Care Industry Benchmarking Study are based on a sample of 1,732 urgent care centers; 95.2% of the respondents were UCAOA members. Among other criteria, the study was limited to centers that have a licensed provider onsite at all times; have two or more exam rooms; typically are open 7 days/week, 4 hours/day, at least 3,000 hours/year; and treat patients of all ages (unless specifically a pediatric urgent care).

In this issue: Visiting Coding: Diagnosis & Treatment

TOP 15 ICD-9 CODES

The International Classification of Diseases (ICD) is published by the World Health Organization and used to classify health conditions. ICD-9 is the version currently used in the United States. Urgent care centers can treat a wide variety of conditions, but the majority of the visits fall into categories such as upper respiratory conditions, urinary tract infections, earaches, backaches, and stomach pain.



Acknowledgement: The 2012 Urgent Care Industry Benchmarking Study was funded by the Urgent Care Association of America and administered by Anderson, Niebuhr and Associates, Inc. The full report can be purchased at www.ucaoa.org/benchmarking.



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