C. Lowry Barnes, MD
One Physician’s Work to Advance Orthopaedic Care in Arkansas
2015 ARKANSAS MEDICAID EDUCATIONAL CONFERENCE

SAVE THE DATE!

TUESDAY, DEC. 8
EMBASSY SUITES LITTLE ROCK

SPACE IS LIMITED!

NEW TOPICS INCLUDE:
- Alcohol Screening Project
- Autism Waiver Program
- Medicaid Beneficiary Education
- Privacy and Security, Health IT
- And more!

FOR MORE INFORMATION OR TO REGISTER:
501-212-8686
events.afmc.org

ARKANSAS DEPARTMENT OF HUMAN SERVICES

SAVE THE DATE!
ON THE COVER

C. Lowry Barnes, MD
One Physician’s Work to Advance Orthopaedic Care in Arkansas

WHAT HAVE WE DONE FOR YOU LATELY?
ROBERT WRIGHT, J.D., M.P.A. AND DAVID IVERS, J.D.

COMMENTS
SANDRA JOHNSON, MD

A Closer Look
at Quality
108

Winner of the ASAE Excellence in Communications Award

THE JOURNAL
OF THE ARKANSAS MEDICAL SOCIETY
Volume 112 • Number 7 • November 2015

Volume 112 • Number 7 • November 2015

Established 1890. Owned and edited by the Arkansas Medical Society and published under the direction of the Board of Trustees.

Advertising Information: Penny Henderson, (501) 224-8967 or penny@arkmed.org. #10 Corporate Hill Drive, Suite 300, Little Rock, AR 72205.

Postmaster: Send address changes to: The Journal of the Arkansas Medical Society, P.O. Box 55088, Little Rock, AR 72215-5088.

Subscription rate: $30.00 annually for domestic; $40.00, foreign. Single issue $3.00.

The Journal of the Arkansas Medical Society is published monthly, except twice in the month of August by the Arkansas Medical Society, #10 Corporate Hill Drive, Suite 300, Little Rock, AR 72205. (501) 224-8967.

Printed by The Ovid Bell Press Inc., Fulton, Missouri 65251. Periodicals postage is paid at Little Rock, AR, and at additional mailing offices.

Articles and advertisements published in The Journal are for the interest of its readers and do not represent the official position or endorsement of The Journal or the Arkansas Medical Society. The Journal reserves the right to make the final decision on all content and advertisements.

© Copyright 2015 by the Arkansas Medical Society.

www.ArkMed.org

100

101

102

106

110

114

117

SCIENTIFIC ARTICLE
Do Not Miss This Diagnosis:
Slipped Capital Femoral Epiphysis (SCFE)
Brien M. Rabenhorst, MD; James Aronson, MD

Particulate Exposure at two Arkansas Racinos;
Unsafe Environments?
J. R. Few; Thaddeus Bartter, MD; Matthew Steliga, MD; Katherine Donald; Gary Wheeler, MD, MPH; Teka Bartter, APRN, CNP; Julie Andersen, MEd

SAVE THE DATE!
ARKANSAS MEDICAID EDUCATIONAL CONFERENCE
TUESDAY, DEC. 8
EMBASSY SUITES LITTLE ROCK
SPACE IS LIMITED!
FOR MORE INFORMATION OR TO REGISTER:
501-212-8686
events.afmc.org

NEW TOPICS INCLUDE:
• Alcohol Screening Project
• Autism Waiver Program
• Medicaid Beneficiary Education
• Privacy and Security, Health IT
• And more!

Join us to stay updated on health care news in Arkansas.

facebook
facebook.com/ArkMedSoc

twitter
twitter.com/ArkMedSoc

ArkMed.org
We understand that for physicians, few things are more frustrating than prior authorizations. You will be happy to know that we have accomplished some far-reaching changes in the law with regard to this issue.

As we continue our discussion of bills passed by your Arkansas Medical Society during the 90th General Assembly, we want to highlight Act 1106 of 2015, the “Prior Authorization Transparency Act,” sponsored by State Senator Missy Irvin.

As you may recall, Senator Irvin and the Medical Society worked together to pass a prior authorization (PA) law in the 2011 session and another in the 2013 session. Here’s a quick refresher:

Notice of Adverse Decision
Any time an insurer denies a prior authorization request, the company is required to give the provider a notice that:
• identifies the healthcare provider who made the decision
• indicates board certification or eligibility if the provider who made decision is a physician
• identifies the clinical criteria or protocol that resulted in a denial
• tells the provider how to get the reviewer’s report upon which the denial was based
• explains the right to appeal
• provides access to a clear and convenient process to expediently request an override

Standardized PA Form for Prescription Drugs
Insurers must use a standardized PA request form that is no more than two pages and that can be transmitted electronically.

While these acts were a big improvement, we knew more progress was needed. Act 1106 of 2015 was a big leap forward. Two changes should get your attention immediately:

Arkansas License
If a physician makes a prior authorization decision, the physician MUST BE LICENSED IN ARKANSAS. We have heard from many of you how important this is. Now physicians making prior authorization decisions are accountable to the Arkansas State Medical Board.

“Offensive” Prior Authorizations
You now can request “offensive” prior authorizations. In some cases the insurer does not require a prior authorization, but will come back later and deny the service based on lack of medical necessity or some other reason. Now a physician can request a prior authorization for any service to ensure that the service will be covered and paid.

Other important changes:

Disclosures
• Changes or additions to PA criteria cannot be effective until contracted providers receive 60 days’ notice and the insurer’s website is updated to reflect changes.
• The insurer must publish approval and denial statistics on its website.

Medical Necessity Reviews for Non-urgent Services
For non-urgent services, a decision must be made within two business days.

Medical Necessity Reviews for Urgent Services
The insurer must make a decision within one business day.

Medical Necessity Reviews for Emergency Services
Special requirements now apply:
• No PA is required for pre-hospital transportation or any emergency service.
• Physician or patient has 24 hours to notify insurer of the provision of emergency services.
• Services necessary to evaluate or stabilize must be covered.
• If a provider certifies in writing within 72 hours of an emergency admission that the patient’s condition required emergency services, medical necessity is presumed, and the insurer may not later deny services unless it can overcome the presumption.
• The decision cannot be based on whether the provider was in-network or out-of-network.
• The insurer must make a decision for immediate post-evaluation or post-stabilization service within 1 hour, or the service is deemed approved.

Retrospective Denials
Once a PA request is approved, the insurer cannot revoke or restrict the PA for 45 business days after providing it.

Note also that ever since the 2011 session, if an insurer fails to comply with the act, a PA request is deemed approved.

We are grateful that legislators heard and understood your frustrations. Between now and the next regular session, it will be important for our members to let us know how the new PA law is working.
Good Afternoon, Dr. Johnson

This is Billy* with CosMedic, the top choice of medical professionals for aesthetics training.

Have you been looking for a cash-based revenue generator to add to your services? With as little as four hours a week, you can add $150,000+ to your annual revenue by offering three of the most high-demand aesthetic treatments in the industry.

Our two-day training on Botox, Dermal Fillers and Platelet-Rich Plasma (PRP) is nationally recognized to provide 16 credit hours of AMA PRA Category 1 Credit(s).™ The program includes comprehensive didactic and clinical hands-on training on live model patients by experts with more than 15 years of experience as both clinicians and aesthetic trainers.

With your reply, I am happy to e-mail you details about our upcoming courses (October 2-3, December 11-12 in Miami, FL).

Best Regards, Billy*

(*not the email author’s actual name)

I got the above email sent to me today. I was not sure how to feel about it. It did create a lot of emotions in me. I have been in love with the largest organ of the body since my second year of medical school in 1994. I am fortunate that I was able to increase my love and appreciation for the skin by studying dermatology at UAMS. I have been trained by some amazing medical, surgical and cosmetic physicians during residency and in continuing my education. I am honored to collaborate and share ideas with other skin-loving professionals in Arkansas and around the world. I love skin. I love treating diseased skin and I love enhancing healthy skin. Performing cosmetic procedures with great outcomes gives me high satisfaction. It truly combines the art and science of medicine beautifully.

I have no desire to replace someone’s knees, deliver a baby, fill someone’s cavities, inject botulinum toxin for migraines, etc. I realize what a blessing it is to go a job every day that I love and get paid to do that job. I also realize that some people are not as fortunate. I know of many people who have changed careers multiple times. I even know some physicians who have changed specialties.

What does bother me about this email is that this thought process demeans and disrespects the profession of cosmetic medical treatments. Where is the love for the skin? It is unlikely to achieve the highest patient outcomes when your primary motivation is money. I know this guy and his company are not the only people capitalizing on “aesthetic training.”

There is definitely a large demand for cosmetic procedures. The supply of trained cosmetic physicians is much smaller than that demand. We all know that when there is a supply and demand issue, the current economic climate will find a way to bring that supply/demand ratio into better balance. I understand this. What causes me internal conflict is how that demand is being filled. The approach in this email and what we are all witnessing is the turning of cosmetic procedures less into a medical procedure with known risks and benefits and more into a commodity like purchasing a handbag. When this happens, we start going down a slippery slope. In fact, this brings me to one of my dad’s favorite sayings “when the blind lead the blind, they both fall in the ditch.” I have no desire to fall into the ditch of substandard cosmetic procedures. There is a reason that there is a TV show called “botched.”

I don’t think this issue is limited to “medical professionals looking for a cash-based revenue generator.” But as you can see, I don’t have the answers to these issues. I would love if the Arkansas Medical Society would work together to make a position statement about this. I know the Arkansas State Medical Board has a position on this but I am not sure how well it is enforced since the ASMB does not oversees aestheticians, dentists or nurses. If you have an opinion, I would love to know it. Feel free to submit your opinion to the JAMS for publication or to me personally.

Thank you for your interest and stay skintastic.
C. Lowry Barnes, MD
One Physician’s Work to Advance Orthopaedic Care in Arkansas

As far as a specialty, there is none better than orthopaedics,” said Lowry Barnes, MD. “We get pretty immediate gratification from the patient outcomes we generate. Mobility means so much to patients, and that is what we provide.”

Dr. Barnes has spent the better part of his professional life providing that mobility for patients. A total-joint replacement surgeon for the past 23 years, he worked in private practice as a founding partner of Arkansas Specialty Orthopaedics. This past April, he left that post to chair UAMS’ department of orthopaedics.

A long-time member of the AMS, Dr. Barnes received his medical degree from UAMS in 1986 and completed his orthopaedic surgery residency there in 1991. He earned a certificate in business administration for Physicians in 1999 from Auburn University College of Business and completed the John N. Insall Traveling Fellowship, an Adult Reconstructive Surgery/Arthritis Surgery Fellowship at Brigham & Women’s Hospital/Harvard Medical School in Boston, Mass., and an AO/ASIF Adult Orthopaedic Fellowship at Inselspital in Bern, Switzerland.

Throughout his career, he has worked toward advancements in orthopaedics and, more broadly, in medicine as a whole – a pattern that continues now through in his work at UAMS.

Improving Stability & Accessibility

“Like many hip and knee surgeons, I have worked with companies and engineers on better implant designs,” Dr. Barnes reflected humbly on advances that have come from his work. One example is a knee implant that works more like, well, a knee. “Known as a medial pivot design, the replacement is more stable from the inside rather than just being hinged at the middle part of the knee like many replacements. As a result, when a patient bends the knee, it bends very much like the knee of a patient who has never had surgery.”

Stability is an area of continued study for Dr. Barnes. “We’re looking at prostheses that load at the top of the thigh bone,” he explained, of hip replacement designs that would put the bone under constant load and thereby result in less bone loss and quicker mobilization post treatment. “We want these devices to be enabling. We want patients to get back to their active lifestyles, and we’ve made improvements to that end, in materials and bearing surfaces.”

Dr. Barnes is also credited with the design of a more affordable knee replacement – but he points out that it’s not for everyone. “Called a division knee replacement, it works well for surgeons that do a lot of joint replacement and revision work,” he explained. “In their hands, it can decrease the cost of the implant by almost $10,000. That’s significant in our current health care economy. We need to be careful how much we spend on the implant, which is not nearly as important as how well it is placed in the body.”

Here to Help Physicians

As head of UAMS’ orthopaedic department, Dr. Barnes works side-by-side with two other fellowship-trained joint surgeons – Paul Edwards, MD, and Simon Mears, M.D., Ph.D. “That’s rare in a state this size, but the need is there,” explained Dr. Barnes. “Ours is an active society, with injuries and arthritis. We have areas of our bodies that break down from the wear that is required of them.”

To meet such growing need, UAMS’ Orthopaedic department is expanding its children’s services, trauma, and even hand surgery. “We have two excellent hand surgeons coming to us in one year,” said Dr. Barnes, excited at the prospect of caring for more traumatic hand injuries onsite. “Often we can’t care for patients with amputated fingers to re-implant those fingers. Only a few [physicians] do those surgeries, and they can’t be on call every night. Our goal is to have someone available every night of the week.”

UAMS orthopaedics can also help with the most complex total joint problems – infected total joints, recurrent dislocations, and unexplained pain after joint replacements. “We even provide care for patients with recalled implants,” adds Dr. Barnes. “In each area of orthopaedics, our subspecialists take care of the most complex problems, making the bread and butter orthopaedic cases seem even more straightforward to them.”

Conversely, UAMS benefits from helping the state’s practicing physicians. “It’s important for our residents here to see patients who have difficult problems,” explained Dr. Barnes. “We’ve made great strides in our resident education. We’re training people that we’re going to be very proud to have serving the communities of our state.

“I’d say we are getting better at getting docs to where patients need them. UAMS has a clinic on Shackleford that our patients like very much. We have a help line, 501-614-BONE, a direct link to scheduling for our patients and doctors who would like to send patients to us. Most doctors in the state know my cell phone number and may call me anytime for help. If they are told no from our department, there is a reason: either we don’t have a bed to put the patient in or we don’t have anybody in town that day to take care of that complex problem, but they know to call me and we’ll work on it.”

“All for Arkansas”

Dr. Barnes is a proud Pine Bluff native. “I’m homegrown,” he said, adding that he left the state only for brief periods while completing his education. “Everything else – medical school, practice, public service – it’s all been for Arkansas.”

Arkansas has given to Dr. Barnes, too. From a young age, he benefited from mentors and opportunities close to home that helped solidify his choice of medicine as a career and orthopaedics as a specialty. The first from either side of his family to attend college, Dr. Barnes felt fortunate to graduate and earn his medical degree with the support of parents and mentors who were eager to support his zeal for medicine.
As a high school student, Dr. Barnes worked at Jefferson Regional Medical Center, first in the pharmacy and later as an orderly in orthopaedics. “It was quite something,” he recalled of his earliest days on a hospital orthopaedic floor. “Where now, patients come in, have their surgery, and go home the next day,” recalled Dr. Barnes, “then, patients would arrive days before and go home 10-12 days later. We had to shave the patients to prep for surgery. The first leg I shaved, I nicked in several places. The nurse on duty said, ‘Boy, Dr. Blackwell’s going to kill you.’”

Rather than wait for a reprimand, young Barnes confronted the situation head on during what would be his first meeting with the surgeon on duty, Banks Blackwell, MD. “At 11 p.m., instead of going home, I waited for Dr. Blackwell. I introduced myself and told him what had happened,” said Dr. Barnes. “Banks said, “Thanks for telling me, son. I guess you just started the operation for me, so why don’t you come into the operating room with me?””

It was a defining moment for Dr. Barnes, who watched the surgery in fascination. “I went with him that day, and from there, fell in love with orthopaedics and with Banks Blackwell and his family,” said Dr. Barnes. “He was a mentor to many others and me. And although he wouldn’t let anybody know about it when he was alive, he sent many of us to medical school.”

Dr. Barnes later received the Banks Blackwell Scholarship for four years of medical school. After Dr. Blackwell’s death, Dr. Barnes did his best to return the favor to his mentor and friend. “I was fortunate to be president of the Southern Orthopaedic Association. Each year, the president names a distinguished southern orthopedist,” said Dr. Barnes. “When my turn came, I gave it to Banks to honor him posthumously.”

Operation Walk

He continues to follow Dr. Blackwell’s giving example through his involvement with charity orthopaedic efforts all over the world. Dr. Barnes has contributed his expertise to Operation Walk, an international organization started by Larry Dorr, MD, a nationally known orthopedic surgeon in Los Angeles. The group’s missions include teaching orthopaedics and providing mobility to patients who otherwise would not have it.

Dr. Barnes shared the story of one of his first trips with Operation Walk to Peru. “We had five surgeons and performed more than 50 joint replacements – hip and knee – over a three-day period,” he said. “That’s going in and taking everything with us – the equipment and supplies. We saw the patients the day before surgery to evaluate them for treatment and we provided the care the next day.”

Such a quick approach requires high-volume surgeons and adequate follow-up. “A small Operation Walk team goes back to check patients at six months and sometimes, at one year,” explained Dr. Barnes. “There are certain volume requirements to participate in these trips, so you have high-volume surgeons. Data shows that surgeons who do more have a lower complication rate, so we expand that thought across the world.”

Since that first trip, Dr. Barnes has been to the Dominican Republic, India and other countries. “It’s fulfilling work,” he said, sharing an occasion in which he and his team were able to help a woman whose hips – both of them – had fused on their own. “She had suffered for many years and could not even go to the bathroom on her own. We put hip replacements in both sides of her in one operation. She actually walked the next day and took Tylenol only for pain. It’s incredible what these patients can do when they’ve put up with pain for so long.”

Believing that charity should start at home, Dr. Barnes has also been involved in Operation Walk USA. As a member of the board at the national level, he has found it to be an interesting experience – particularly with the changes to health care. “Because of the mandatory coverage, there aren’t many patients who cannot get care now,” said Dr. Barnes. “Our biggest problem now is not the uninsured, it’s the underinsured. We’re looking at how to provide care to those who have insurance, but their deductible or copay is such that they can’t afford the care they need.”

An active leader in orthopaedic and medical specialty organizations in Arkansas, Dr. Barnes is a past president of the Arkansas Orthopaedic Society, past president of Southern Orthopaedic Association and serves in presidential line of the American Association of Hip and Knee Surgeons.

During his term as president of the AOS, the group was named State Society of the Year by the American Academy of Orthopaedic Surgeons. A friend and colleague, Jeff Angel, MD, pointing to Barnes’ work to increase AOS membership and his leadership in state health care reform efforts – specifically, negotiating language and terms in the episodes for total joints in the Arkansas Payment Improvement Initiative.

Dr. Angel knows Dr. Barnes to be passionate, cutting edge and, perhaps most important, available. Calling him a teacher, leader, and a patient-centered physician, Dr. Angel said, “In Little Rock, Lowry built a practice on the philosophy of taking care of patients and referring doctors over all else. Day or night, he has been willing to help a patient in need of his expertise. In fact, when my wife had special needs surrounding knee replacement, I turned to him without reservation.”

Dr. Angel also spoke of his colleague’s commitment to research – even while running a practice. “Lowry has always been on the cutting edge,” he elaborated, “in bundle care pathways, new multimodal pain techniques, and implant designs for total joint surgery. He is published and lectures in many venues on total joint replacement techniques and processes.

“He sets the bar high for himself, and will demand the same high standards for trainees in orthopaedic surgery. His willingness to serve patients, refer doctors, and commit to the advancement of academic orthopaedic surgery suits him well for his position at UAMS. The future of orthopaedic training and research in Arkansas is in good hands.”
Arkansas’ largest community health center has full-time positions available for primary care or internal medicine MD’s.

- Competitive Salary
- Health, life, dental insurance
- 401 K retirement plan
- Paid vacation
- Access to school loan repayment programs

A full-time position with ARcare consists of five clinic days per week. Interested applicants should contact Cynthia Whitehead, Chief Medical Officer of ARcare by calling 870-347-3304 or by emailing Cynthia.whitehead@arcare.net. For a complete list of openings, visit www.ARcare.net.
When families become stressed by behavioral issues, they need a caring environment. Pinnacle Pointe is the largest child & adolescent behavioral care hospital in Arkansas.

Programs and Services:
- Acute Inpatient
- Residential Inpatient
- Outpatient
- School-Based

Pinnacle Pointe is the only Tricare-certified residential program in the state. Contact us for a free, confidential assessment.
While acceptance of the federal Patient Protection and Affordable Care Act has been mixed, one thing is undeniable. It has focused needed attention on the significant challenges faced by patients, providers and payers navigating our nation’s healthcare system.

For decades Arkansas placed near the bottom of national health rankings—with one of the highest burdens of chronic disease, coupled with a high number of adults without health insurance and a large portion of the population living in medically underserved areas. With much to gain, Arkansas is leading the nationwide movement to achieve the triple aim to improve the health of the population, enhance the patient care experience, and curb the cost of health care.

The patient-centered medical home (PCMH) model of care is a key component of efforts to achieve the triple aim. Design and implementation of Arkansas’s statewide, multi-payer, PCMH initiative has been a true testament to the ability of Arkansans to work together to advance innovative solutions. The Arkansas Medical Society played a vital role in this effort, joining hospital executives, patients, families and advocates in working for nearly a year to create Arkansas’s PCMH model as part of a new value-based payment system.

The multi-payer approach creates sufficient “critical mass,” with aligned incentives substantial enough to support changes in provider infrastructure, clinical decision-making, and operational processes. Payer participation includes the state’s dominant insurance carriers, the largest public and private self-insured employers, Medicaid and Medicare.

Once enrolled in the PCMH program, practices are provided with upfront per-member-per-month (PMPM) payments to help them meet transformation milestones, including 24/7 patient access to care via phone or email, use of electronic health records, identification of at-risk patients and development of customized care plans for each patient. As team members are restructured, PCMH physicians are also benefitting financially through shared-savings payments achieved by enhancing quality of care and reducing inefficiencies.

For a look at the journey through PCMH transformation from a provider perspective, the Arkansas Center for Health Improvement (ACHI) conducted a series of case studies featuring early adopters of the PCMH model. These case studies show how individual practices have successfully met the challenges they faced in making the transformation.

The PCMH practices presented in the case studies are located in both rural and urban settings and range in size from a solo-practitioner with 1,000 patients to a two-site practice with 12 physicians and a patient panel of 31,000. Visit www.achi.net to read the following case studies or to find out more about the Arkansas Health Care Payment Improvement Initiative.

**Using Data to Improve Population Health**
Focus on Pharmacy Innovation
Focus on Information Technology
Improving Quality in a Fragmented System
Aligning Incentives and Rewarding Innovative Collaboration
Focus on Patient Mix
Focus on Team-Based Care

**Staff Allocation and Team-Based Care**
To meet transformation milestones, PCMH practices hired new staff or restructured with existing staff. These changes have allowed for extended hours, better care coordination and proactive chronic disease management. In every case, teamwork emerged as a common requirement for success, and staff are now working more closely as a team.

By involving the entire staff in care coordination activities, clinics have improved the quality of care they deliver. According to one practitioner: “Everybody contributes to care coordination, from the time the front office checks in the patient… We do a lot of things, but the nurses anticipate any lab tests, shots, or other things that need to be done. This helps us save time.”

In the case study Focus on Team-Based Care, the practice’s four physicians have each formed a team, or “pod,” that includes a combination of advanced practice nurses, licensed practical nurses and care coordinators. Each pod is assigned a color shown on signage and uniforms and patients identify with their team by that color. This strategy helps patients feel comfortable relying on their entire care team—not just their primary care provider. This has also increased the number of same-day visits the clinic offers and has improved staffing capacity.

Practices have created some new staffing strategies specifically for the management of chronic conditions. One clinic employs a dietitian and a behavioral health counselor part-time. According to the clinic manager: “We have a dietitian come in two days a month. We’ve set up different processes within the office to use our measures, so our nurses understand that if a patient has an unacceptable Hemoglobin A1C level, then that patient has a high diabetes risk and needs to meet with our dietitian. We also have a counselor come in one day a month because a lot of preventive care is associated with behavioral health issues.”

The largest practice interviewed for a case study has hired a full-time, in-house pharmacist. This hire was driven by the practice’s high medication costs across the patient panel. The practice also saw the hire of an on-staff pharmacist as a means of reaching a PCMH milestone requiring the development of care plans for high-risk patients. High-risk and multiple-medications patients are scheduled to see the pharmacist as part of their routine visits. The pharmacist...
also conducts joint visits with the practice’s dietitian for new and high-risk diabetics. Patients seen at the emergency department or discharged from the hospital are automatically contacted by care coordinators for follow-up including medication reconciliation with the pharmacist. The financial challenge created by these unbillable services was solved with PMPM investments by the multi-payer participants.

Electronic Medical Records and Information Technology

All of the practices in the case studies invested in electronic medical records (EMR) systems to assist with care coordination, track quality measures and improve communication. In many cases, EMR systems have been highly customized to meet the practices’ specific needs and workflow. Some include innovations that help provide patients with greater access to their medical records. For example, one of the clinics developed a customized application for mobile devices that allows patients secure access to their records from anywhere in the world. Staff used a hands-on approach to show all patients—including a large number of senior retirees—how easily the mobile application works. As a result, about 50 percent of the clinic’s patients are now web-enabled, meaning that they have set up their accounts in order to access their records.

Information technology is also helping clinics meet one of their greatest challenges, which is managing transitions of care for patients who visit hospitals or other providers. Some of the clinics are now participating in the state’s health information exchange—the State Health Alliance for Records Exchange (SHARE). This allows practices to securely export information to other providers. However, obtaining bi-directional communication from hospitals either using a different EMR platform or not connected to SHARE is still difficult.

One of the practitioners interviewed said: “It’s so hard to track inpatient admissions and [emergency room] discharges. My patients may go to three or four different hospitals. Right now, I’m dependent on discharge summaries, faxes or patient emails. Receiving results from the SHARE interface will fulfill so many of our transitions of care goals and milestones that we have to meet for the PCMH program.”

Preliminary Results

Among the most frequently noted results reported by the interviewed practices were reductions in hospital admissions and emergency room use, with one clinic reporting a 44 percent reduction in hospital admissions. Another clinic reported a 12 percent decrease in emergency room visits.

While most practices reported that staff were sometimes stressed through the transition and experienced change fatigue, the case studies reveal an overall increase in both patient and staff satisfaction. The practices are receiving positive feedback from patients who appreciate the proactive follow-up, expanded access, shared-decision making, and tools and guidance that help them to be more actively involved in managing their health.

One physician asserted: “Engaging with staff about how we talk to patients and giving [patients] a voice has been good. I’m a fan of the ‘quadruple aim’—provider satisfaction added—with the whole team operating at the top of their license.” He added, “The PCMH program is exciting for primary care providers who’ve typically been underpaid for the value they bring to the table. It’s an opportunity to demonstrate our worth.”

“I LOVE THAT WE’RE ALL A FAMILY AND IT FEELS LIKE HOME.”

THE NEW SCHOOL IS A SPECIAL PLACE where students are given the freedom and opportunities to grow together in a supportive environment of learning and discovery.

“I love that we’re all a family and it feels like home. Over the years you learn how to interact with each other more. I was really shy when I first came here, but ever since I got to elementary, I started opening up to everyone.”

Teachers here strive to instill this confidence and match it with dynamic teaching so our students are prepared to tackle anything.

NOW, POOJA LOVES A CHALLENGE. She’s a decorated figure skater, a talented violinist, loves algebra, can do 80 pushups and is ready to master piano.

See what The New School experience can mean for your child. Schedule a tour today by calling 479-521-7037 or visit thenewschool.org.
Screening for Lung Cancer in Arkansas

Lung cancer is the second most common cancer diagnosis in men and women and the most common cause of cancer death in Arkansas and the United States. Annually, an estimated 2,600 Arkansans are diagnosed with lung cancer; more than 2,100 will die. This far surpasses the combined deaths of prostate cancer (360), breast cancer (410) and colorectal cancer (580). Smoking rates, late presentation of disease and previous lack of effective screening all contribute to the lung cancer epidemic.

More than 85 percent of lung cancer occurs in current or former smokers. Multiple scientific reports have linked tobacco and lung cancer. However, it was the U.S. Surgeon General’s 1964 report “Smoking and Health” that marked a turning point. Smoking rates have steadily dropped since 1964. Currently, 18 percent of U.S. adults are smokers. In Arkansas, the rate exceeds 22 percent and the state ranks seventh worst in the nation. Our lung cancer rates reflect the population’s smoking prevalence, with Arkansas ranking third in the nation in the incidence of lung cancer and mortality.

Lung cancer develops and grows silently. Often, by the time it is detected a cure is not possible. The development of an effective screening program is essential to save lives because of the silent nature of early disease, the estimated 88-92 percent survival rate of Stage I lung cancer and the disease’s typical progression to mortality. Effective screening is especially important in Arkansas because the population has significant risk.

Many non-randomized trials have demonstrated the high sensitivity of low dose helical computed tomography (LDCT) in the detection of lung cancer. However, disease detection is only part of the goal. To be truly effective, lives must be saved. The National Lung Screening Trial (NLST), published in 2011, was the first large, prospective, randomized, controlled, multi-center trial in the U.S. to evaluate LDCT versus radiograph. The NLST’s demonstrated endpoint was fewer deaths through screening. The NLST randomized 53,454 high-risk subjects to undergo annual LDCT or a single posterior-anterior chest radiograph. Both groups were followed for three years. Positive results (defined as finding a non-calcified nodule at least 4 mm.) were recorded for 24.2 percent of the LDCT examinations with 96.4 percent representing false positives—a focus of criticism. In the LDCT arm, 1,060 lung cancers were diagnosed, compared with 941 in the radiograph arm. Fifty-two percent of the cancers found in the LDCT arm were stage IA, while only 33 percent in the radiograph arm were stage IA. The result was a 20 percent reduction in lung cancer mortality and a 7 percent decrease in overall mortality.

In addition to a sensitive diagnostic test, a good cancer-screening program must test a population with a high prevalence of detectable disease—the better the selection criteria, the higher the pretest probability. National Comprehensive Cancer Network (NCCN) guidelines recommend screening individuals ages 55-74, with a 30-pack-year history, who currently smoke or quit smoking less than 15 years ago. The U.S. Preventive Services Task Force recommends a LDCT screening program for ages 55-80. However, Medicare currently provides coverage only for ages 55-77 with the same smoking and quit requirements as above. Additionally, Medicare requires the patient to be asymptomatic for lung cancer and well documented. Patients should have a life expectancy of at least 10 years, be free of other
terminal malignancies, and willing and able to undergo treatment. The mortality benefit will not be gained if patients are unfit for the most effective treatment. Other known risk factors (exposure to radon, asbestos or second-hand smoke) increase patients’ risk. However, they are not supported by a level of evidence high enough to warrant insurance coverage or widespread adoption (NCCN’s category 2B recommendation).

An actuarial analysis\(^8\) found lung screening was cost effective—less than $19,000 per life-year saved. That is less than or comparable to mammography or Pap testing.

Few participants in a lung cancer-screening program will have lung cancer. A much more common but often overlooked diagnosis is nicotine addiction. While the NLST reported a 48 percent smoking rate in their screened population,\(^8\) an internal review shows that 69 percent in the University of Arkansas for Medical Sciences (UAMS) LDCT program are current smokers at intake. Lung cancer screening provides a key opportunity to reach current smokers with evidence-based resources to improve cessation rates. The NCCN’s recently developed cessation guideline\(^9\) supports asking about tobacco at every encounter, use of individual or combination pharmacotherapy, counseling and regular follow-up to assure abstinence, or provide further support. Multiple modalities of cessation assistance are complementary and should be used together.

Lung cancer screening is not one simple test but should be a program that integrates cessation resources at multiple points in the process. By nature, the pre-screening intake, discussion of scan results and plans for follow up provide “teachable moments” where discussion of cessation and intervention may be integrated.\(^10\) In the UAMS program, every patient meets face-to-face with a certified tobacco treatment specialist (CTTS) to discuss cessation and he or she is offered counseling and referral to additional resources. The UAMS program is overseen by Drs. Meek and Frost, both faculty radiologists. Scheduling of LDCT studies and tobacco cessation is provided by a CTTS supported by UAMS’ surgery department. By incorporating cessation resources as integral components of a lung cancer-screening program, many people who would not otherwise seek assistance will receive tobacco cessation help.

In Arkansas, high lung cancer incidence and mortality are primarily due to high smoking rates. Lung cancer is a disease that is preventable by tobacco prevention and cessation programs. These programs are vital for our future, but do not address current risk in smokers or those who have quit recently. The lung cancer screening programs now available will enable us to detect early stage cancer and potentially save lives. However, screening must be done in the context of well-organized, guideline-driven programs that adhere to evidence-based guidelines. Effective lung screening provides a LDCT, uses standardized language in reports, has a uniform and efficient workflow regarding treatment of positive findings, provides multidisciplinary evaluation, and tracks data for outcomes and quality assurance. Integration of evidence-based smoking cessation resources into screening programs helps prevent rather than simply detect cancer. Other cessation benefits include reducing the risk of other cancers and decreasing cardiovascular and chronic pulmonary disease. ▲

Drs. Meek and Frost are with the University of Arkansas for Medical Sciences (UAMS) department of radiology; Ms. Franklin and Dr. Steliga are with the UAMS department of surgery.

REFERENCES

CASE PRESENTATION

CHIEF COMPLAINT:
Urticaria and angioedema

HISTORY OF PRESENT ILLNESS:
A 56-year-old male with history of occasional urticaria presented to the University of Arkansas for Medical Sciences (UAMS) emergency department (ED) following an episode of anaphylaxis. He reported the onset of diffuse urticaria that woke him from sleep. The patient took 25 mg of diphenhydramine and 10 mg of cetirizine; however, the hives continued to progress. Additionally, he developed abdominal discomfort and the sudden urge to defecate. He became lightheaded and called for his wife before losing consciousness. She administered an Epi-Pen injection and called 911. Upon arrival of emergency personnel, the patient had regained consciousness, but his blood pressure was 74/54. He was given a normal saline bolus in route to the ED.

PHYSICAL EXAM:
Upon arrival to the ED, the patient's blood pressure had normalized, and his physical exam was notable for a rash (Figure 1) as well as slight (1+) edema of the hands. There was no facial or tongue swelling and no stridor or wheezing. He was given diphenhydramine 50 mg, methylprednisolone 125 mg, and famotidine 40 mg.

HOSPITAL COURSE:
After stabilization in the ED, further history revealed a similar event including hives, angioedema, and syncope that occurred 3 years previously. At that time, the patient was taking an angiotensin-converting enzyme (ACE)-inhibitor for hypertension, which was discontinued due to concerns that the medication had triggered the event. Daily cetirizine was prescribed due to concerns of chronic urticaria and angioedema; however, it was stopped a few months later because no further anaphylactic episodes occurred. After stopping cetirizine, the patient developed recurrent episodes of hives without angioedema, syncope, or other symptom. He also noted an increase in the frequency and severity of hives during the two weeks prior to the presentation above. The patient recalled no new foods, medications, or stings prior to these events. However, the patient did consume pork the evening preceding the described presentation. Additionally, he reported spending a considerable amount of time outdoors and had received several tick bites leading up to the current event. A serum tryptase level was drawn at the time of presentation and was elevated at 16.3 mg/L (reference 0-11 mg/L), consistent with anaphylaxis. The patient was observed overnight with resolution of his symptoms.

POST-HOSPITAL COURSE
Upon discharge, the patient was seen in the UAMS Allergy and Immunology Clinic. Follow-up testing revealed normalization of serum tryptase to 4 mg/L, a slightly elevated serum total IgE level of 220 IU/L (reference 2-214 IU/L), and an elevated serum specific-IgE to the disaccharide Galactose-alpha 1,3-Galactose of 45.60 IU/L (reference <0.35 IU/L). Other laboratory is listed in Table I.

QUESTION #1: WHAT IS GALACTOSE-ALPHA 1, 3-GALACTOSE (ALPHA-GAL)?
Galactose-Alpha 1,3-Galactose (alpha-gal) is a disaccharide found as a terminal sugar on glycosylated cell surfaces of bacteria, most animals, and lower primates. Humans lack the gene encoding the enzyme galactosyltransferase and thus do not express alpha-gal on their cell membranes. The absence of this disaccharide plays a beneficial role in protecting humans from many enveloped viruses that utilize this sugar as a receptor for cell entry. In fact, all immunocompetent humans will have IgG antibodies to the disaccharide alpha-gal, but only a subgroup of patients in the United States has IgE class antibodies to alpha-gal.

QUESTION #2: WHAT IS THE CONNECTION BETWEEN ALPHA-GAL AND ALLERGY?
A link between alpha-gal and cetuximab, a chimeric mouse-human IgG1 monoclonal antibody

Figure 1: Right leg of the case patient with urticaria preceding the anaphylactic event described in the manuscript.
Table I: Laboratory evaluation in allergy clinic.

<table>
<thead>
<tr>
<th>CBC with Differential</th>
<th>Patient Values</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>10.76 k/UL</td>
<td>4.0 –11.0 k/µL</td>
</tr>
<tr>
<td>Neutrophils Percent</td>
<td>53.7 %</td>
<td>47.0 – 82.0 %</td>
</tr>
<tr>
<td>Lymphocytes Percent</td>
<td>34.2 %</td>
<td>15.0 – 45.0 %</td>
</tr>
<tr>
<td>Monocytes Percent</td>
<td>10.1 %</td>
<td>2.0 – 12.0 %</td>
</tr>
<tr>
<td>Eosinophils Percent</td>
<td>1.5 %</td>
<td>0.0 – 6.0 %</td>
</tr>
<tr>
<td>Basophils Percent</td>
<td>0.5 %</td>
<td>0.0 – 2.0 %</td>
</tr>
<tr>
<td>Neutrophils Absolute Count</td>
<td>5.78 k/UL</td>
<td>150 – 450 k/µL</td>
</tr>
<tr>
<td>Lymphocytes Absolute Count</td>
<td>3.68 k/UL</td>
<td>1.00 – 5.00 k/µL</td>
</tr>
<tr>
<td>Monocytes Absolute Count</td>
<td>1.09 k/UL</td>
<td>0.00 – 1.00 k/µL</td>
</tr>
<tr>
<td>Eosinophils Absolute Count</td>
<td>0.16 k/UL</td>
<td>0.00 – 0.60 k/µL</td>
</tr>
<tr>
<td>Basophils Absolute Count</td>
<td>0.05 k/UL</td>
<td>0.00 – 0.20 k/µL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thyroid Studies</th>
<th>Patient Values</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSH</td>
<td>2.060 mIU/mL</td>
<td>0.47-4.68 mIU/mL</td>
</tr>
<tr>
<td>fT4</td>
<td>1.24 ng/dL</td>
<td>0.65-1.85ng/dL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergy Evaluation</th>
<th>Patient Values</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryptase (in ED)</td>
<td>16.3mg/L</td>
<td>0-11mg/L</td>
</tr>
<tr>
<td>Tryptase (in clinic)</td>
<td>4mg/L</td>
<td>0-11mg/L</td>
</tr>
<tr>
<td>IgE</td>
<td>220 IU/L</td>
<td>2-214 IU/L</td>
</tr>
<tr>
<td>IgE to alpha-gal</td>
<td>45.6 IU/L</td>
<td>&lt;0.35 IU/L</td>
</tr>
</tbody>
</table>

WBC= white blood count; TSH= thyroid stimulating hormone; fT4= free T4; IgE= immunoglobulin E

against epidermal growth factor used in chemotherapeutic treatment regimens of various cancers, was established after it was noted that a subset of patients had anaphylaxis on first exposure to this medication. Often overlooked in the cetuximab manuscript is the potential allergens on serum-specific IgE and anaphylaxis to cetuximab. In 2009, researchers at the University of Virginia, described 24 individuals that developed anaphylaxis 3-6 hours after eating red meat, an unusually long time for most IgE-mediated food reactions. The individuals also had serum IgE specific to cetuximab and alpha-gal. The authors concluded that these patients had delayed food hypersensitivity to alpha-gal induced by ingestion of mammalian meat, including beef, pork, and lamb. The geographical distribution of patients in this study mirrored that of the adult populations with the majority of patients located in the southeastern United States where the Lone star tick is endemic. Greater than 90% of children with positive IgE to alpha-gal reported tick bites in the previous year.

often overlooked is the potential allergens on cetuximab, it was determined that during production, alpha-gal was placed on the surface of the antibody, and it was IgE to this carbohydrate moiety that subsequently led to anaphylaxis. Often overlooked in the cetuximab manuscript is the potential allergens on serum-specific IgE and anaphylaxis to cetuximab. In 2009, researchers at the University of Virginia, described 24 individuals that developed anaphylaxis 3-6 hours after eating red meat, an unusually long time for most IgE-mediated food reactions. The individuals also had serum IgE specific to cetuximab and alpha-gal. The authors concluded that these patients had delayed food hypersensitivity to alpha-gal induced by ingestion of mammalian meat, including beef, pork, and lamb. The geographical distribution of patients in this study mirrored that of the adult populations with the majority of patients located in the southeastern United States where the Lone star tick is endemic. Greater than 90% of children with positive IgE to alpha-gal reported tick bites in the previous year.

Both RMSF and human Ehrlichiosis are arthropod-borne diseases most notably distributed by the lone star tick (Amblyomma americanum). The lone star tick occupies an area that extends across the south-central and southeastern United States and is expanding. Lone star tick bites can induce an increase in both total serum IgE and serum-specific IgE to alpha-gal. Furthermore, sera from 125 individuals living in Virginia demonstrate a positive correlation between serum-specific IgE to alpha-gal and proteins from emulsified Lone star tick bodies.

QUESTION #3: WHAT IS THE CONNECTION BETWEEN TICK EXPOSURE AND ALPHA-GAL ALLERGY?

Both RMSF and human Ehrlichiosis are arthropod-borne diseases most notably distributed by the lone star tick (Amblyomma americanum). The lone star tick occupies an area that extends across the south-central and southeastern United States and is expanding. Lone star tick bites can induce an increase in both total serum IgE and serum-specific IgE to alpha-gal. Furthermore, sera from 125 individuals living in Virginia demonstrate a positive correlation between serum-specific IgE to alpha-gal and proteins from emulsified Lone star tick bodies.

QUESTION #4: DOES THIS ALLERGY OCCUR IN CHILDREN?

Although first described in adults, in 2013 Kennedy et al described 45 pediatric patients with anaphylaxis and urticaria 3-6 hours after eating mammalian meat. These patients demonstrated high levels of alpha-gal IgE and IgE for beef (r=0.89) and pork (r=0.87). Furthermore, the geographical distribution of children in this study mirrored that of the adult populations with the majority of patients located in the southeastern United States where the Lone star tick is endemic. Greater than 90% of children with positive IgE to alpha-gal reported tick bites in the previous year.

Although first described in adults, in 2013 Kennedy et al described 45 pediatric patients with anaphylaxis and urticaria 3-6 hours after eating mammalian meat. These patients demonstrated high levels of alpha-gal IgE and IgE for beef (r=0.89) and pork (r=0.87). Furthermore, the geographical distribution of children in this study mirrored that of the adult populations with the majority of patients located in the southeastern United States where the Lone star tick is endemic. Greater than 90% of children with positive IgE to alpha-gal reported tick bites in the previous year.
year, and many reported persistent itching, swelling, and erythema around the area of the tick bite lasting for 2 to 3 weeks, a more prolonged course than patients without an IgE response to alpha-gal.10

**QUESTION #5: WHAT SHOULD I TELL MY PATIENT WITH ALPHA-GAL ALLERGY?**

Patients who have allergy to alpha-gal should meticulously avoid all mammalian meat products. It is important to note that if a patient is tolerating mammalian dairy products these items do not have to be stopped. Patients with IgE to alpha-gal and a clinical history suggestive of this disease should be provided with an epinephrine auto injector. Lastly, it is the experience of the authors that tick avoidance will lead to waning of the IgE antibodies to alpha-gal over time, and it may be possible to reintroduce mammalian meat. However, reintroduction of mammalian meats should only be performed in a controlled setting under the supervision of a clinician experienced in the treatment of anaphylaxis.5,10

**CONCLUSIONS**

Our patient presented with delayed hypersensitivity following mammalian meat ingestion with elevated serum-specific IgE to alpha-gal. He has successfully avoided mammalian meat, and he has had no further episodes of anaphylaxis. This case represents a novel food allergy with delayed anaphylaxis to an oral carbohydrate allergen. It can affect adults and children and has a higher prevalence in south-central and southeastern United States. The disease prevalence correlates with the distribution of the habitat of the lone star tick (A. americanum), though the evidence for causation remains to be seen. Physicians in Arkansas should consider this diagnosis in patients who present without an immediate trigger for recurrent episodes of urticaria and/or anaphylaxis and have a clinical history supporting the diagnosis.

**REFERENCES**


AMS Benefits, Inc.

Created by the Arkansas Medical Society to deliver quality insurance coverage to Arkansas physicians, their families and their practices.

Providing the protection you need to focus on your patients.

Coverage Includes

Group Health
Individual Health
Group Disability
Individual Disability
Health Savings Account Plans
Business Overhead
Life Insurance
Dental Insurance
Vision Insurance

Comprehensive Insurance. Custom made for you.
www.ArkMed.org/AMSBenefits
800.542.1058 | Agency NPN# 1650351 | AR License #100112594
INTRODUCTION

Slipped capital femoral epiphysis (SCFE) is a common cause of hip pathology seen in obese adolescents. It is characterized by posteroinferior displacement of the capital femoral epiphysis (femoral head) on the metaphysis (femoral neck). The name is actually misleading as the epiphysis remains in place within the acetabulum and the metaphysis “slips” out from the epiphysis. The incidence has been documented to be as high as 10 per 100,000 in the United States. The average age at diagnosis is 13.5 years in males and 12 years in females. The majority of patients with this diagnosis are over the 95th percentile in weight.

As seen in the case example, the diagnosis is often missed on initial presentation for various reasons. While the pathology is localized entirely in the hip, patients will frequently complain of distal thigh or knee pain. The deformity can be subtle on plain radiographs initially, and appropriate films (two views of both hips) are not always attained to detect these findings. The consequences of a missed diagnosis are significant and can adversely affect these patients for the remainder of their lives. The goal of this article is to provide an overview of this disorder to the primary care provider and to provide healthcare professionals with tools to recognize patients at risk for this disorder and diagnose a patient with SCFE.

HISTORY AND PHYSICAL EXAMINATION:

As previously noted, patients presenting with SCFE are typically obese adolescents who have a wide variety of complaints. Hip or groin pain is most common, but patients may also complain of distal thigh or knee pain. These symptoms may be present for a few days representing an acute injury or fracture from a twisting mechanism or deep squat. Importantly, these symptoms can also be more chronic with a duration of up to several weeks to months with an insidious onset of symptoms. Patients may be simply out-toeing, develop a subtle limp, an antalgic gait, or be unable to weightbear. Before examining the injured extremity, it is recommended to first examine the contralateral side to ascertain a normal range of motion for that patient. Patients with SCFE commonly have decreased internal rotation in the affected hip, decreased abduction of the hip, and obligate external rotation of the hip with flexion.

IMAGING

When the clinical assessment is concerning for SCFE, plain radiographs are indicated. Two views of both hips are essential. Imaging of both hips is necessary to not only assess the contralateral hip for pathology but also for comparison. A solitary AP film of the pelvis is inadequate (Figure 2A) and will miss a significant amount of pathology (Figure 2B). Figure 1 shows an AP pelvis radiograph of a 14-year-old male with a severe left SCFE. Note the severe displacement and angulation between the femoral epiphysis and metaphysis compared to the right side. Notice that the epiphysis is located within the acetabulum and the metaphysis is displaced.
patients are able to weightbear with mild pain, an AP and frog- leg lateral radiograph of the pelvis is appropriate. When patients are in severe pain and unable to weightbear, an AP and cross table lateral of each hip is needed. When assessing these films, severe SCFEs are obvious but more mild slips can be missed. Klein’s line (a line drawn along the superolateral aspect of the femoral neck on the AP view and should intersect the epiphysis (femoral head) (Figure 2C)) is a useful tool. Other more subtle findings include a widened physeal and an angulated epiphysis.  

**TREATMENT**

Once the diagnosis of SCFE is confirmed, the patient should be made nonweightbearing and referral to a pediatric orthopaedic surgeon is recommended immediately. Surgical treatment is indicated. Surgical intervention entails gentle closed reduction, placement of one or two screws. The goals of surgery are to improve alignment, prevent further slip progression, and to stabilize the slip.

**DISCUSSION**

SCFE is a common hip disorder. Unfortunately delayed diagnosis is prevalent due to subtle findings on physical examination and radiographs. The primary care provider must be cognizant of the specific patient population prone to develop this disorder and be able to critically evaluate the physical examination and radiographic findings before discharging a patient from the clinic setting.

An obese (weight > 95th percentile) adolescent (10-16 years of age) with any complaints of hip, thigh or knee pain should raise the concern for a SCFE. Any complaints of an acute traumatic event from a twisting injury or deep squat are also worrisome and should add SCFE to the differential. A SCFE patient will likely out-toe, have a subtle limp or even be unable to weightbear. Physical examination findings include decreased internal rotation in the affected hip, decreased abduction of the hip, and obligated external rotation of the hip with flexion. If there is any concern for SCFE then plain radiographs are needed. AP pelvis and lateral radiographs of both hips are recommended. Typical findings confirming SCFE include Klein's line passing lateral to the epiphysis, a widened physeal, and an angulated epiphysis. Once the diagnosis is made, immediate nonweightbearing and referral to a pediatric orthopaedist is indicated. The morbidity of a missed SCFE diagnosis is significant. As patients continue to weightbear on a SCFE they risk further slippage. Rahme et al. noted a delayed diagnosis rate near 20% and a significant relationship between delayed diagnosis and increasing slip severity. Worsening slip severity has been associated with decreased range of motion in the hip, pain, osteonecrosis, and early degenerative arthritis.

The clinical scenario described earlier is an all too common presentation for SCFE. Unfortunately, the authors have seen numerous patients with delayed diagnosis and unnecessary studies including an MRI of the knee when a detailed history and physical examination coupled with simple radiographs would have made the diagnosis. It is the hope of the authors that this article will serve as a reminder of the population at risk for SCFE and provide the tools to the primary care provider necessary to diagnose this disorder.

**REFERENCES**

ATTENTION MEDICAID ELIGIBLE PROFESSIONALS

Don’t miss out!

AFMC is now offering no-cost assistance to Medicaid eligible professionals* in Arkansas to achieve and sustain Meaningful Use.

2016 is the FINAL YEAR to begin participation in the Medicaid incentive program. Don’t miss out on the opportunity to earn incentive payments of up to $63,750.

*MDs and DOs, dentists, nurse practitioners and certified nurse midwives, physician assistants and other specialists as established by guidelines from the Centers for Medicare & Medicaid Services (CMS).

For more information about this program and our services, visit afmc.org/healthit or call 501-212-8616.
Particulate Exposure at two Arkansas Racinos; Unsafe Environments?

J. R. Few; Thaddeus Bartter, MD; Matthew Steliga, MD; Katherine Donald; Gary Wheeler, MD, MPH; Tekla Bartter, APRN, CNP; Julie Andersen, MEd
1From Handsel Art & Advertising, 2From the Division of Pulmonary and Critical Care Medicine, University of Arkansas for Medical Sciences
3From the Division of Cardiothoracic Surgery, University of Arkansas for Medical Sciences, 4From the Coalition for a Tobacco Free Arkansas
5From the Infectious Disease Branch & Tobacco Prevention and Cessation Program Branch, Arkansas Department of Health
6From the Division of Pulmonary & Critical Care Medicine, University of Arkansas for Medical Sciences, 7From Handsel Art & Advertising

Abstract

The purpose of this pilot project was to initiate data collection on secondhand smoke (SHS) for two racinos (racetrack casinos) exempted from Arkansas' 2006 Clean Indoor Air Act. Air quality was assessed during regular hours in sites open to the public. All measurements of fine particulates (PM_{2.5}) within both facilities exceeded maximal safe EPA standards for an equivalent 24-hour average exposure. The exemptions as they stand, fail to protect all interested citizens.

Introduction

In 2006, Richard Carmona, the US Surgeon General, was unequivocal: “The science is clear. Secondhand smoke is not a mere annoyance but a serious health hazard.”  That same year, a Special Session of the Arkansas General Assembly passed Act 8, the Arkansas Clean Indoor Air Act. The law's numerous exemptions included Arkansas' racinos, Oaklawn Park, a thoroughbred race track and casino in Hot Springs and Southland Park, a greyhound race track and casino in West Memphis. The potential impact of those exemptions upon public health in Arkansas has not been evaluated. The goal of this pilot study was to provide both observational and quantitative particulate analyses of these two venues to understand whether further evaluation and/or regulation may be warranted.

Methods

Observational and quantitative sampling for both racinos was done mid week in mid to late afternoon in order to not skew limited opportunities for measurement with heavy weekend or holiday traffic. The observational portion involved descriptive spacial analysis of how the smoking and non-smoking areas of each venue related to each other. The quantitative portion involved study of particulate concentrations in different areas of each facility using a particle analyzer, the TSI AM 510 SidePak Personal Aerosol Monitor (TSI, Inc. Shoreview, MN). This monitor measures the ambient concentrations of particulate matter with an aerodynamic diameter of less than 2.5 micrometers, reported as the PM_{2.5}. The study was performed by Handsel Art & Advertising (Marion County, Arkansas) in collaboration with the Arkansas Department of Health. Data collection used methods developed by the Johns Hopkins Bloomberg School of Public Health.

Results

Oaklawn Racing and Gaming

The Oaklawn Park environment is notable for signage and a program page titled “Oaklawn and the Clean Air Act” containing a map to smoking and non-smoking areas throughout the park. The 2006 law does not have any language designating smoking versus non-smoking areas. The indoor facility is large, nearly a quarter of a mile long, with several levels. In the racing area, stairwells and escalators connect non-smoking and smoking seating, and the smell of tobacco smoke is evident in all areas. The PM_{2.5} sampling of ambient air in the parking lot, including a ride in a gas fueled trolley, measured 28.1 ug/m^3. The second sample was obtained from a northern non-smoking mezzanine. The mezzanine is open, and there are smoking areas on the floors above and below. An 0.5-hour sampling in the mezzanine revealed an average of 143 ug/m^3.

The casino portion of Oaklawn had approximately 500 customers at the time of sampling. On visual survey, there were 35 to 40 active smokers. There is no physical boundary separating these designated smoking and non-smoking areas. A 0.5 hour sample in the casino area yielded a particulate reading of 91 ug/m^3.

Southland Park Gaming and Racing

Southland Park does not advertise or map out smoking and non-smoking areas. Visitors must pass through the gaming areas to get to the dog racing seating. There are several upgrades to viewing the greyhounds but none had any significant air or smoke barriers. There is only one non-smoking area, west of theatre seating and simulcasts. The smell of tobacco smoke permeates the facility. Ambient air sampled outside of Southland (200 yards from a local highway with heavy traffic, Route I 40) measured 22.3 ug/m^3. A 0.5 hour sampling upstairs above the theatre seating for the races yielded a measurement of 293.1 ug/m^3.

The casino portion of Southland is more than double the size of the Oaklawn. During sampling, over 1,000 customers were present, and approximately one in ten were smoking. Non-smoking designations were not evident within the casino. A 0.5 hour sample yielded particulate levels of 165.1 ug/m^3.

Discussion

High levels of particulate matter are deleterious to human health.\textsuperscript{1-3} These fine particles form the most deleterious component of airborne particulate matter.\textsuperscript{5} The PM_{2.5}, expressed in units of ug/m^3, is a measure of concentration of fine particles. PM_{2.5} can be deeply inhaled and impact the small airways of the lung. The Environmental Protection Agency (EPA) regulates acceptable PM_{2.5} levels and has decreased the upper limit of acceptability in recent years. The current upper level is 35 ug/m^3 averaged over a 24 hour period.\textsuperscript{6}

This pilot environmental sampling of Arkansas' gaming venues suggests that SHS exemptions lead to air quality that is unacceptable by EPA standards. Both the racing and the gambling areas of each venue exceeded the EPA limits and ranged from over 2.5 to over 8 times the upper limits of acceptability. The ambient outside air measurements support the concept that the unacceptable interior levels are the result of a facet inferior to the facilities.

The methodology employed for this pilot study has inherent limitations. These are spot measurements by a single monitor with risks for calibration error. The EPA standards apply to averaged levels, not to spot readings, and averaging multiple measurements from multiple meters would produce more accurate results. We would note that the monitoring was performed on mid-week afternoons, and that spot-measured PM_{2.5} would undoubtedly be higher during peak attendance hours. The sampling time was chosen specifically to avoid an over-estimation of average exposure. Finally, one cannot prove the origin of the increases in PM_{2.5}. Damaging particulates most commonly come from stationary sources such as factories, from mobile sources such as automobiles, and from passive smoking.\textsuperscript{7} The difference between the ambient external air and the internal venue measurements appears to exclude the first two factors. It does not rule out the possibility that some other source within the racetrack generates fine particulate but none were evident. It seems most likely that secondhand smoke was the primary cause of these unacceptable levels.
Some of the findings of this study were predictable. As stated in the surgeon general's study of secondhand smoke, “Eliminating smoking in indoor spaces is the only way to fully protect nonsmokers from secondhand smoke exposure. Separating smokers from nonsmokers within the same air space, cleaning the air, opening windows, and ventilating buildings does not eliminate secondhand smoke exposure.”1

The juxtaposition of smoking and non-smoking areas throughout the racinos, even when non-smoking was designated, make it nearly impossible to ensure clean air for employees and for guests of all ages.

Summary and Recommendations

The particulate matter in secondhand smoke is damaging to human health. It appears that exemptions to the Arkansas Clean Indoor Air Act, noted with this study at the state's racinos, lead to exposure of all guests (including children, who were present at Oaklawn) and employees to levels of fine particles that are known to be deleterious to human health. Effluent permitted by these exemptions are in direct conflict with the right of citizens to breathe air that meets safety standards. Since passage of the 2006 Clean Indoor Air Act there has been abundant new data about SHS and the toxicity of high PM<sub>2.5</sub>; the call to act has strengthened over time.

The data in this paper could lead to one or more of several actions including the racinos voluntarily making their facilities smoke free or rescinding the exemptions to the Arkansas Clean Indoor Air Act.

References


---

**Table 1 – PM<sub>2.5</sub> Assays and EPA Upper Safety Limits**

<table>
<thead>
<tr>
<th>Location*</th>
<th>Particulate Level (PM&lt;sub&gt;2.5&lt;/sub&gt;)</th>
<th>% of maximal EPA standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oaklawn Parking Lot</td>
<td>28.1 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>80%</td>
</tr>
<tr>
<td>Oaklawn Racing Non-smoking</td>
<td>143 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>408%</td>
</tr>
<tr>
<td>Oaklawn Casino</td>
<td>91 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>260%</td>
</tr>
<tr>
<td>Southland Parking Lot</td>
<td>22.3 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>64%</td>
</tr>
<tr>
<td>Southland Racing</td>
<td>293.1 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>837%</td>
</tr>
<tr>
<td>Southland Casino</td>
<td>165.1 ug/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>471%</td>
</tr>
</tbody>
</table>

*See text for details.

---

**FAMILY PRACTICE PHYSICIAN**

Amite County Medical Services, Inc., a Federally Qualified Health Center, located in Liberty, MS is currently seeking a talented and quality driven Family Practice Physician to be located at either the Liberty and/ or McComb, MS location. This qualified individual will be responsible for providing primary care including accurate assessment, appropriate treatment and/or referral and proper documentation and follow-up. This is a Full-Time position.

- Progressive, Joint Commission Accredited Community Health Center
- Rewarding Work Environment
- New Facility With State of the Art Equipment
- Competitive Salary and Excellent Benefits Package
- Approved for National Health Service Corp Loan Repayment Program
- Federal Tort Claims Act Coverage
- Reasonable Call Schedule

**SUBMIT RESUME TO:**
Executive Director
Amite County Medical Services, Inc.
P.O. Box 511
Liberty, MS 39645
Fax (601) 657-8867 - acmsinc@bellsouth.net
Equal Opportunity Employer
WHEN YOUR BANKING COULD USE A CHECKUP.
WE’RE HERE.

Cash Management
At First Security, we understand the importance of a healthy business. That’s why we provide financial management tools to improve cash flow, increase efficiencies, reduce costs and prevent fraud. We can help you run your practice smarter, faster and easier than ever. Are you ready for better banking? First Security is here for you.

ONLY IN ARKANSAS

First Security
Bank Better.
onlyinark.com | fsbank.com
Multiple Tools for Arkansas Doctors

SVMIC is Uniquely Equipped to Help Arkansas Doctors Succeed

25+ Years of experience as the premier medical professional liability carrier for Arkansas physicians & surgeons; more continuous years protecting doctors in Arkansas than anyone else.

9 Number of physicians on the Arkansas Advisory Committee who review claims and make underwriting decisions for Arkansas doctors on behalf of SVMIC; local representation by 3 Arkansans on the SVMIC Board of Directors means the unique concerns and challenges of the state are well represented within SVMIC governance.

2,560 Claims handled by SVMIC attorneys from inception in Arkansas to date; unmatched claims expertise working with local defense counsel in Arkansas helps defend your personal and professional reputation if the time comes.

31 Consecutive years SVMIC has maintained an “A” (Excellent) or better financial rating from A.M. Best; industry-leading financial stability means we will be here when you need us.

We have local representatives in Arkansas to serve your needs. Contact Sharon Theriot or Mandy Holmes at mkt@svmic.com or call 800.342.2239.

Follow us @SVMIC • www.svic.com