THE Journal
OF THE ARKANSAS MEDICAL SOCIETY
Vol.111 • No. 9
FEBRUARY 2015

AMS' FALL HOD MEETING EMPHASIZES LEGISLATIVE SESSION

DIFFERENT PATIENTS...

Different needs

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Everyone over the age of six months needs an annual flu vaccination, especially those who have a higher risk of medical complications due to influenza—including people under the age of 5 or over the age of 50, pregnant women, and people who have certain medical conditions like asthma, diabetes or chronic lung disease. By ensuring that your patients get the right type of vaccine, you can help all Arkansans stay healthy and well this winter. And remember, it's vital that health care workers are also vaccinated.

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Influenza vaccines approved for use in the U.S. for the 2014-15 influenza season

NAME	MANUFACTURER	AGE RANGE	TRIVALENT /QUADRIVALENT
Afluria Inactivated influenza vaccine	bio/CSL	>9 years*	Trivalent 0.5 mL single-dose Prefilled syringe or multi-dose vial
Fluarix Inactivated influenza vaccine	GlaxoSmithKline	≥3 years	Trivalent and Quadrivalent 0.5 mL single-dose Prefilled syringe
FluBlok Recombinant influenza vaccine	Protein Sciences	≥18 years	Trivalent 0.5 mL single-dose Single-dose vial
Flucelvax Inactivated influenza vaccine	Novartis and Diagnostics	≥18 years	Trivalent 0.5 mL single-dose Prefilled syringe
FluLaval Inactivated influenza vaccine	GlaxoSmithKline	≥3 years	Trivalent and Quadrivalent 0.5 mL single-dose Prefilled syringe or multi-dose vial
FluMist Live attenuated influenza vaccine	MedImmune	2–49 years	Quadrivalent 0.2 mL single-dose Prefilled intranasal spray
Fluvirin Inactivated influenza vaccine	Novartis	≥4 years	Trivalent 0.5 mL single-dose Prefilled syringe or multi-dose vial
Fluzone Inactivated influenza vaccine	Sanofi Pasteur	>6–35 months**	Trivalent 0.25mL single-dose multi-dose vial
		≥6–35 months**	Quadrivalent 0.25 mL single-dose Prefilled syringe or multi-dose vial
		≥36 months	Trivalent and Quadrivalent 0.5 mL single-dose Prefilled syringe or multi-dose vial
		18–64 years	Trivalent 0.1 mL prefilled microinjection system intradermal
Fluzone High-Dose Inactivated influenza vaccine	Sanofi Pasteur	≥65 years	Trivalent 0.5 mL single-dose Prefilled syringe

*Afluria is licensed for ages 5 and older, but ACIP recommends that it not be used in children 5 through 8 years because of increased reports of febrile reactions in this age group. If no other age-appropriate, inactivated influenza vaccine is available for a child 5 through 8 who has a medical condition that increases the risk for influenza complications, Afluria can be used. However, providers should first discuss the benefits and risks of vaccination with Afluria with the child's parent or caregiver. Afluria may be used in persons 9 years of age and older.

** For infants and toddlers 6 months through 35 months of age a second dose may be required 1 month later

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ON THE COVER

AMS' Fall HOD Meeting Emphasizes Legislative Session

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by CASEY L. PENN

Winner of the ASAE Excellence in Communications Award

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AMS Job One

H. SCOTT SMITH, JD
DIRECTOR OF GOVERNMENTAL AFFAIRS

Advocacy on your and your patients' behalf is job one at AMS…it always has been and always will be. But what is AMS "advocacy" and what do you think of first?

I'm guessing most of you will initially think of legislation or litigation. These are the more "high profile" advocacy efforts because it's a big deal when the Arkansas Legislature convenes for general session every other year, and also a big deal when we end up battling in court. Also, I suspect that these battles at the Capitol and the courthouse are more likely to be thought of first because we work extra hard at keeping you informed DURING the fight. And for legislative issues, we frequently seek your assistance through legislative alerts and specific action requests to contact your legislators. How many times have we asked for your help in contacting our Congressional delegation regarding SGR over the past decade?

In court, we led the nation, and helped win a fight for physicians against economic credentialing and for the physician-patient relationship. We took Arkansas Medicaid to court to prevent reimbursement cuts, and won. Currently, we are informally assisting the Attorney General's office in defending one of the bills we supported in the 2013 legislative session, the Peer Review Fairness Act, which simply sets forth basic due-process for physicians.

Other legislative fights were successful because YOU were aware of, and engaged in the battle by contacting your legislators. Without you, no Peer Review Fairness…Tort Reform…Any Willing Provider… Clean Indoor Air...Delegation... Trauma System Establishment…Private Option. Thank you.

Recently, our legislative advocacy was successful in seeing Insurance Department Rule 108 pass (or more precisely, deemed "favorably reviewed") out of the Rules and Regulations committee on an 8 to 5 vote. The rule requires health plans on the Insurance Exchange to participate in and support the Patient Centered Medical Home (PCMH) program, including setting a minimum average of $5 per member per month paid to the qualifying clinics.

This was an important, albeit difficult, victory because APRNs fought hard to get the department to use "provider neutral" language in defining who could lead a PCMH. Neutral language would have allowed someone other than a physician to lead a PCMH.

With your help in contacting legislators, and in working together with the Arkansas Academy of Family Physicians, the Arkansas Chapter of the American Academy of Pediatrics, the Arkansas Chapter of the American College of Physicians and the Arkansas Osteopathic Medical Association, the rule will now go into effect.

But, without a previous victory, the recent win would not have happened.

The Insurance Department had initially developed Rule 108 with the "provider neutral" language back in the early summer. AMS urged the Commissioner to reconsider the rule, and change the neutral language to be physician-specific, as in Arkansas Medicaid. Again, with your help by contacting the Commissioner, he agreed to change the language and from that point we worked together to get the rule "reviewed" by legislators.

This state agency/legislative advocacy regarding the proposed rule was unique, and still a somewhat "higher" profile fight, but what about advocacy without litigation or a legislative component? Generally, it will neither fall within the "interesting" nor "sound-bite"-able categories. When was the last time you saw a news piece about a health insurance company's failure to comply with a law or a state agency's regulation?

So, congratulations if governmental agency advocacy even crossed your mind when I asked you to think of advocacy. It's not "high" profile, but it is a vital piece of what we do for you and your patients. State and federal agencies enforce legislation, generally through more specific rules and regulations.

AMS advocates for strong, appropriate legal and regulatory compliance within a number of government agencies. From mid-to-late December, we worked with the Insurance Department to address problems with United Healthcare's failure to follow a credentialing law AMS supported many years ago. The department had received numerous complaints from physicians and asked AMS to see whether others around the state had been having similar problems.

Again, with your help, AMS discovered that there clearly appeared to be significant problems with delays in their credentialing and "contract loading" (identification and payment linkage of a newly credentialed physician to his or her new practice). We found that what was supposed to take no longer than a few months had regularly been taking longer, and in some cases, MUCH longer. We found examples of delays dating back to February and March of 2014. Outrageous.

These advocacy efforts are ongoing, but as I write, United has been given until the end of January to present a plan to the Commissioner to not only address the current complaints, but to also present a systemic fix to the problem. We will keep you posted. Perhaps this issue needs a higher profile in the form of a stronger, new law. AMS

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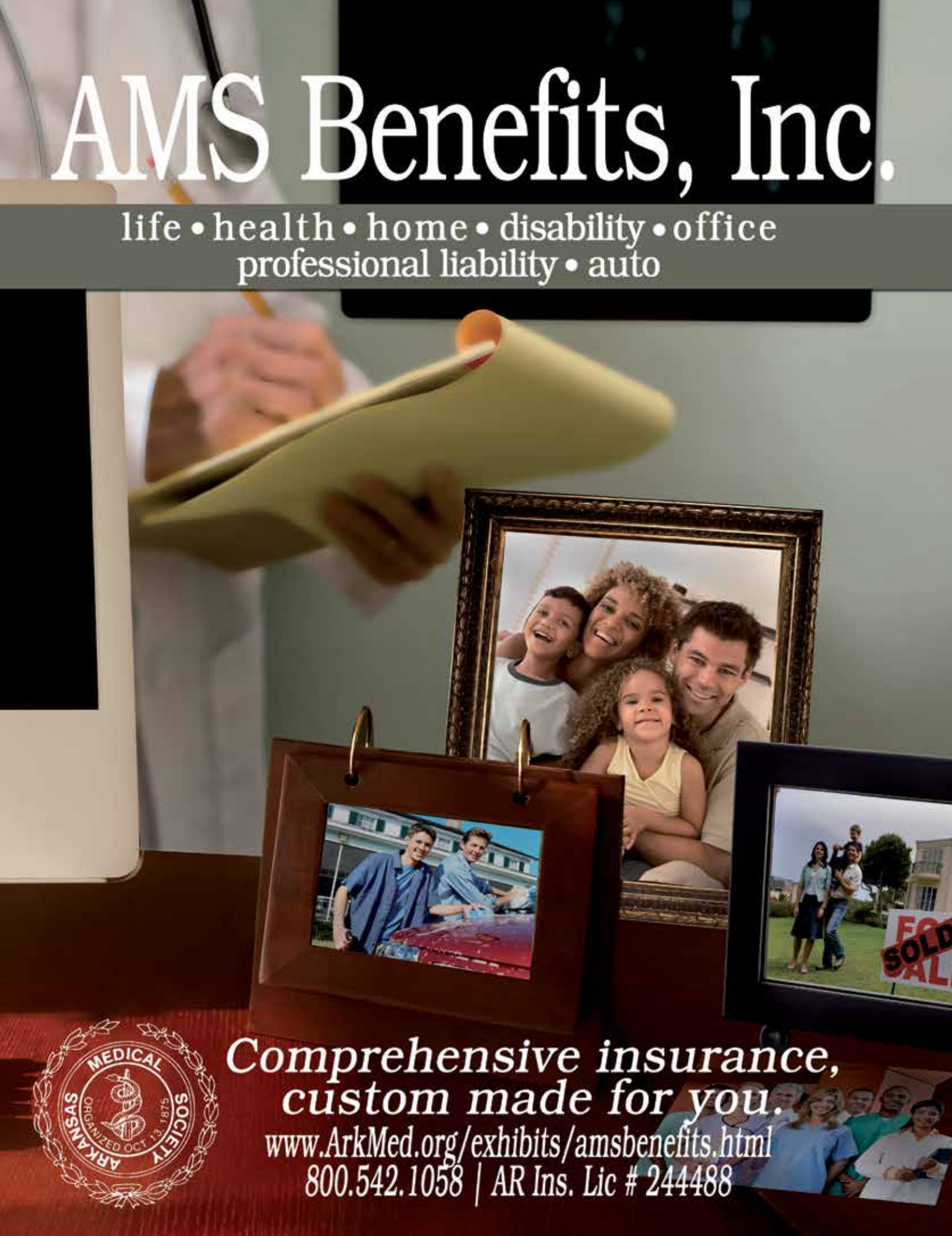
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MEDICAL
ARKANSAS SOCIETY
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by CASEY L. PENN

AMS' FALL HOD MEETING EMPHASIZES LEGISLATIVE SESSION

The Arkansas Medical Society House of Delegates held its fall meeting in the beautiful setting of Mount Magazine State Park. There, members and officers gathered to discuss pertinent business. The agenda included the ongoing Ebola virus scare and other health news as well as discussion centered on the 2015 legislative session.

Randy Meador, State Volunteer Mutual Insurance Company, Dennis Yelvington, MD, AMS Chairman of the Board

The Business

AMS President Alan Wilson welcomed members by expressing his appreciation for their participation. "Your attendance is important," he said, stressing the importance of the Society collectively. "There are issues that will come up in the legislative session and otherwise. As representatives of the Arkansas Medical Society, we're here for the patients. We work together to improve health care in the state of Arkansas."

Routine business included adopting minutes from May's meeting, hearing from the AMS Board of Trustees (who reported record membership levels!) and listening to a report from the Arkansas Medical Society Political Action Committee (ArkMed-PAC).

The latter committee is ever grateful for physicians' participation and support, as explained by ArkMed-PAC Board Chair Tracy Baltz, MD. The non-partisan group financially supports physician-friendly candidates running for state and federal office.

Health News / Warnings

State Epidemiologist / Medical Director for Communicable Diseases, Dirk Haselow, MD, Ph.D., updated physicians on viruses of which they need to be aware. Ebola being a main concern in the media, Dr. Haselow spent time debunking myths related to the disease and providing information useful to physicians and their patients. Concerning the spread of the disease, Dr. Haselow indicated that, contrary to what patients may fear, Ebola is *not* environmentally persistent. "While the virus is a threat, it is not the high threat that flu represents," he said. "There have been four cases [of Ebola] in the United States so far. It's important to know that you can't get it through air, water or food in the U.S. The general population should rest a bit easier."

Dirk Haselow, MD, PhD

The flu killed an estimated 50,000 Americans last year in the United States – 76 in Arkansas alone. Arkansas Surgeon General Joe Thompson, MD, was present at the HOD meeting and echoed Dr. Haselow's concerns about both Ebola and influenza. "There is a need for trusted voices in the medical community to avoid panic by sharing information about the limited relative risk," said Dr. Thompson. "The far greater risk – when the flu hits, [is that] you'll have people thinking they were sitting next to someone who had Ebola." Both doctors recommended getting your flu shot.

Another virus on the Arkansas Department of Health's radar, according to Dr. Haselow, is *Chikungunya,* a mosquito-borne illness similar to West Nile and Dengue Fever. Most common in Africa and Asia, the virus is spread by two types of mosquitoes – both indigenous to Arkansas.

"The reason we're talking about Chikungunya," said Dr. Haselow, "is that in the last year, its geographic distribution has expanded to 44 additional countries. It has reached epidemic transmission in these countries, and now is showing local transmission in the United States."

Steve Magie, MD and Deborah Ferguson, State Representative

Physicians should expect to hear about and possibly treat Chikungunya in their patient populations as summer rolls around. "We expect this virus to spread across the country," said Dr. Haselow, who explained that symptoms include severe short-term, hand, wrist, or ankle pain in most patients, and more chronic, joint pain in some patients. If a patient exhibits symptoms of the virus, physicians should try to ascertain his travel history (to determine their risk of infection). Diagnostic testing (available at the Arkansas Department of Health) is important, according to Haselow. He also recommended that when physicians suspect Chikungunya in any given patient, they should recommend the patient stay indoors and use repellent to reduce further spread.

The Law / Legislative Update

Beyond dealing with the latest bugs, the pending legislative session seemed to be forefront in the minds of attendees and presenters alike. Come January 12, legislators will be at the Capitol deciding issues that affect our future as Arkansans, physicians, patients and medical professionals. The Medical Society will be on alert and in attendance, giving due diligence to the issues at hand.

AMS Governmental Affairs Director Scott Smith discussed expectations, including widespread predictions of a growing number of Republicans entering both the House and Senate. November 4 election results more than bore out such predictions.

Some of the legislators closest to AMS who just won re-election or election for the first time include Sen. Cecile Bledsoe (Rogers), Sen. Missy Irvin (Mountain View), Rep. Deborah Ferguson, DDS (West Memphis), Rep. Steve Magie, MD (Conway) and Ken Henderson (Russellville).

Smith was glad to see some of the openings on pertinent committees filled by these candidates. Representatives Ferguson, Magie and Henderson will all be on the Public Health Committee in the House. Senators Bledsoe and Irvin are on the committee in the Senate, with Sen. Bledsoe as the chair.

During the session, AMS will maintain a presence at the Capitol, where they will be watching out for physicians' best interests. Smith, along with AMS Executive Vice President David Wroten and others working on behalf of AMS will spend the next few months monitoring, and working, hundreds of bills.

Smith expects to tackle several key issues during the coming session – among them the private option, scope of practice, and insurance-related matters. To get a sense for where to put the most AMS energy during the session, Smith asked HOD members to prioritize likely issues in order of importance. Some concerns that rose to the top of a long list included continued improvement of the state's prescription drug monitoring program, continued enhanced reimbursement rates for Medicaid and "preserving physician independence."

"We're working on how best to preserve physician independence," said Smith, who expects, to deal with a growing number of scope of practice issues. Some are new while some are back, but all center on one fundamental question: who should have what authority? "Again, everybody wants to practice medicine, but nobody wants to go to medical school, or so it seems. It's easier to pass a bill than to go to medical school."

What Can You Do?

As a physician, what can you do to affect legislation in a positive way? According to the legislators in attendance at the HOD meeting, you can do a great deal. Rep. Ferguson described, for instance, a situation where a caring legislator presented a bill without knowing the true consequences of the language therein.

To illustrate how the language of a bill can open it to dire consequences, Rep. Ferguson explained Rule 108, a rule that governs who leads a patient-centered medical home for the insurance companies. "It's been an ongoing discussion with the Department of Insurance for several months," she said. "Originally, the rule read that a PCMH, patient-centered medical home, would be led by a *provider.* We asked that the word *provider* be replaced with *physician*. My daughter finished her residency and got insurance on the California Exchange. When it came time to choose a *provider* in California, she could have chosen a chiropractor, a naturopath, an APN or a physician. That's what [the word] *provider* could mean in the future for who would lead a PCMH. It's not just about APNs. We feel strongly that even though an APN can coordinate care for a majority of patients, for higher levels of care, it needs to be *physician-led.* Physicians should be coordinating with specialists and making those higher-level decisions.

> **During the session, AMS will maintain a presence at the Capitol, where they will be watching out for physicians' best interests.**
>
> *– Scott Smith*
> *AMS Governmental Affairs Director*

"The Medical Society called me and after attending the public comment meeting we asked that the rule be changed to reflect the Medicaid definition for the PCMH," said Rep. Ferguson. Moreover, it was; the rule in question was rewritten as *physician-led;* however, this situation represents just one example of why physicians must pay attention to legislative alerts or requests from Wroten or Smith. "It's very important to respond. When a rule goes to the Legislature, and there are no physicians that comment on the rule, but 40 APNs have commented, [legislators] think you don't care. It's important to make public comments because it shows you care."

Representatives Ferguson and Magie recommended also that physicians reach out to legislators through their participation in the

Joe Thompson, MD
Arkansas Surgeon General

Doctor of the Day program. "This program is one of the best programs of the Medical Society," said Rep. Ferguson. "When you find out you're to be Doctor of the Day, call your senator and your representative ahead. We stay busy during session. Call them ahead and tell them you're going to be Doctor of the Day and ask if you can talk to them over lunch. Visit the Public Health committees in the House and Senate. No one other than members of the House of Representatives is allowed on the floor; however, they allow the Doctor of the Day on the House Floor."

Rep. Magie, who looks forward to again serving Arkansans in the House, echoed Rep. Ferguson's appreciation of the Doctor of the Day and stressed just how important – and relatively easy – it is to develop a relationship with legislators. "I'll tell you this about the State Legislature," said Dr. Magie. "It is an honor to serve. The people there truly are there to serve. They want to do the right thing for their constituents back home. There's a lot you can do to establish a personal relationship with your legislator … they will remember people who came out to help their campaign by making calls or canvassing neighborhoods."

AMS will be asking members to reach out to legislators regarding the reappropriation of the private option passed in 2013. "It will require 75% of the vote again," elaborated Dr. Thompson, who shared data from the plan's first year of implementation. A recent assessment of the private option by the Arkansas Hospital Association revealed that from January to June of this year, with the private option in place, there was a more than 46.5% reduction in uninsured hospital admissions. "From a programmatic perspective, this continues to confirm the effectiveness of people having a financial barrier removed and then getting them to the more appropriate venue of care."

Dr. Thompson also commented on Arkansas Health Care Payment Improvement Initiative progress – another issue likely to be addressed during the session. "Commercial Carriers and Medicaid are trying to put physician leadership back into the process, so that we have local clinical leadership of patient care," he informed members. "We're starting to get some national recognition for doing things differently and better."

For more information about ArkMed-PAC, Doctor of the Day, or getting involved in the legislative session, please contact Scott Smith at (501) 224-8967. AMS

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Health Literacy: Increasing Pharmacological Compliance

BY LYNDA BETH MILLIGAN, MD, FAAFP, CPE, CHCQM

Working as a volunteer physician in a predominantly Spanish-speaking clinic, my colleagues and I learned the importance of health literacy and its impact on patient care. Patients were willing to follow directions but we were not achieving medication compliance. Because medication bottle directions were in English, Spanish-speaking patients were being over- or under-medicated due to a communications problem. Compliance improved when we began ordering the prescription bottle directions to be written in Spanish. Additionally, directions were reviewed each time the patient presented for follow-up in the clinic.

This example typifies the pervasive impact of low health literacy on physician-patient communication, compliance, outcomes and informed consent. It determines a patient's level of understanding about health conditions, preventive treatments, health insurance options, and every aspect of the health care system. Among the United States population, less than 60 percent has English as their first language.[1] The Office of Management and Budget estimated in a 2002 report that there are 66 million patient encounters across language barriers annually. The Arkansas Department of Health's 2013 Health Assessment and Improvement Plan states that there are 820,000 Arkansas adults (37 percent of the adult population) with low health literacy.

Health literacy means having the ability to obtain, process and understand basic health information and services needed to make appropriate health decisions and follow instructions for treatment.[2] However, only about 12 percent of American adults meet this standard of health literacy. The National Institutes of Health report that these skills are absent in more than half the United States population. More than a third of American adults do not have a level of health literacy that is sufficient to understand typical medication information.[3] Most studies report that more than 90 million American adults have limited health literacy skills.[4]

The average American adult has an eighth-grade reading level; 20 percent of the population reads at or below a fifth-grade level. However, most medical information is written at a 12th-grade level or higher.[5] Literacy includes more than reading skills. It includes the ability to analyze and decode instructions, understand charts and diagrams, understand and weigh risks and benefits, and mathematical skills needed to understand dosages, and calculate premiums, copays and deductibles.

The costs of low health literacy are staggering—$106 to $236 billion annually.[5] Low literacy level Medicare beneficiaries' health care costs were four times higher than for those with high-level literacy.[1]

Additionally, complex instructions, explained rapidly and delivered to a patient in a stressful situation, from unfamiliar clinicians, using unknown medical jargon are not likely to be understood, much less retained.

RISKS

The issue of health literacy is a fundamental component of efforts to reduce health disparities. Health literacy has a direct impact on health care compliance, outcomes and costs. Patients with low health literacy have poorer control over managing chronic diseases and have less understanding of and participation in disease prevention programs.

People of all ages, races, and income and education levels are challenged by health literacy. Minorities, immigrants, people with English as a second language, older adults, persons with limited formal education, low-income people and homeless people are especially vulnerable due to low health literacy. African- and Hispanic-Americans

have about twice the rate of inadequate health literacy as Caucasians.[2] Health literacy is most limited among people with the least education.

Among Americans over age 65, the low-health-literacy rates exceed 80 percent.[5] Health literacy can have more impact on elderly patients because many have multiple illnesses and chronic conditions, and are prescribed more medications than any other age cohort. Their vision, hearing and cognition status also influences their reading and comprehension abilities.

It is impossible to determine health literacy levels by observation alone. Low-literacy adults have learned to hide their inadequacy due to feelings of shame and decreased self-worth about their skills and knowledge deficits. Most are too embarrassed to ask questions or fear asking a "stupid" question.

Other clues to low literacy include excuses such as "I forgot my glasses." Low-health-literacy patients have difficulty explaining their medical or health concerns and cannot explain what their medications are for or how to take them. They may ask office staff for help or bring a person with them who can read. They don't follow through with tests and appointments, and are non-compliant with medications, recommended interventions and treatments. They will postpone decision making "until I can talk to my family about this," or "I'll read this when I get home." They may have many papers folded up in their purse or pocket. They seldom ask questions and if they do, the questions are very basic.

STRATEGIES

The primary responsibility for improving health literacy lies with health care professionals, hospitals and other providers. These links provide free downloadable tools to help physicians improve communication with low-health-literacy patients:

- **http://www.cms.gov/Outreach-and-Education/Outreach/WrittenMaterialsToolkit/downloads/ToolkitPart05Chapter06.pdf**
- **ahrq.gov/professionals/quality-patient-safety/pharmhealthlit/pharmlit.pdf**

Making health care communication more effective can improve outcomes for all patients. Because observation alone cannot determine a patient's health literacy level, the Agency for Healthcare Research and Quality recommends implementing a universal precautions approach, one that simplifies and reinforces all communications for all patients.[3]

Asking patients to "teach back" what they have been told improves medical outcomes. Teach back to assess patient understanding was included as one of the top 11 patient safety practices for reducing medical errors.[6]

After explaining a new concept, new medication or treatment plan, ask the patient to repeat what you said, in his or her own words. The response will tell you far more about his or her understanding than asking, "Do you understand? Continue to reassess comprehension and adjust your response until the patient has a full understanding.

Putting the burden of effective communication and understanding on yourself, makes patients more at ease and willing to make an effort to comprehend. ▲

Strategies to improve communication

- Use plain language; avoid medical jargon. Speak slowly. Listen to the patient and use his or her terms.
- Keep instructions short and avoid vague terms. Reinforce and repeat instructions.
- Focus on one to three key messages. Ask the patient to list top concerns and combine those with your key messages to focus instructions on a manageable amount of information.
- Focus instructions on specific actions the patient needs to take and personalize instructions.
- Develop short, simple explanations for side effects and common medical conditions.
- Include what condition the medication will treat when writing prescriptions.
- Avoid using BID on a prescription; change to "take with breakfast and supper," or give exact times ("take at 7 a.m. and 6 p.m.").
- Communicate with the pharmacist when a medication is stopped. ▲

Dr. Milligan is vice president, corporate medical director with the Arkansas Foundation for Medical Care.

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CASE STUDY

Assessment of Hydrocodone Prescribing Within a Family Medicine Residency Program

Dosha Cummins, PharmD; Tom Frank, PharmD; Scott Dickson, MD; Amanda Deel, DO; Leslye McGrath, MD; Joe Stallings, MD; Scott Laffoon, MD; Mike Mackey, MD; Skip Carter

UAMS Northeast, AHEC Northeast Family Practice Residency Program, Jonesboro

Abstract

Background and objectives:

Hydrocodone is one of the most frequently prescribed medications in the United States. Chronic users of hydrocodone are high-risk patients who consume valuable time and resources within a Family Medicine Residency Program. A narcotic agreement is a tool to help providers define patient expectations regarding chronic medication use. Objectives of this project were to classify hydrocodone utilizers by frequency of use, determine use of narcotic agreements in chronic users, and evaluate patients' adherence to agreement parameters.

Methods:

A report was created for all hydrocodone prescriptions generated between January and June 2013. Patients were classified as acute, episodic or chronic users. Clinic records were reviewed to determine if chronic users had an existing narcotic agreement with the Family Medical Clinic (FMC). Adherence to agreement criteria was assessed by reviewing the Arkansas Prescription Monitoring Program.

Results:

A total of 371 patients received hydrocodone prescriptions; forty-eight percent (N=177) were chronic users. Chronic users accounted for 85% (N=44,693) of the 52,478 hydrocodone units prescribed. Forty-four percent (N=78) of chronic users had a narcotic agreement; 37% (N=29) were completely compliant with the terms.

Conclusions:

The majority of hydrocodone prescribed within our FMC during the study period was for chronic users, most of whom did not have narcotic agreements. A minority of patients with agreements were adherent to all parameters. Identifying chronic utilizers in a timely manner, standardizing implementation of narcotic agreements, and integrating prescription database monitoring into routine care would permit providers to more appropriately manage these high risk patients.

Introduction

Patients with chronic pain on narcotics are inherently a high-risk population. The time and resources consumed by those with increased risk of inappropriate medication use makes for inefficient clinic operation. Statistics confirm an escalation in both opiate use and related consequences. Sales of opiate prescriptions have increased 300% since 1999[1]. CDC data indicates a corresponding fourfold rise in deaths from opiate analgesics between 1999 and 2010. Furthermore, in 2010 three out of every four deaths from prescription medications were due to opiate analgesics[2]. Amongst the opiate class, hydrocodone continues to be one of the most commonly prescribed medications, with over 135 million prescriptions filled in 2012 alone[3].

Multiple factors contribute to the volume of hydrocodone that is being prescribed. We chose to investigate our own prescribing patterns within the FMC by determining which patients received hydrocodone prescriptions during a specified time period. The Arkansas State Board of Medicine advises physicians to obtain a written informed consent from patients who are at risk of abusing controlled substances used to treat pain. Narcotic agreements are a tool for informing patients and establishing expectations regarding the chronic use of opiate analgesics. These agreements typically require patients to utilize a single provider for prescriptions and a sole pharmacy for filling the designated medication. The availability of a state prescription monitoring program (PMP) has introduced a real-time means of verifying patient fulfillment with agreement terms. Our practice lacked a model for objectively identifying chronic narcotic users and assessing their narcotic agreement compliance by reviewing an electronic PMP.

This project focused on methods for identifying chronic hydrocodone users, assessing narcotic agreement status for chronic users, and determining adherence to agreement parameters by reviewing a prescription monitoring database.

METHODOLOGY

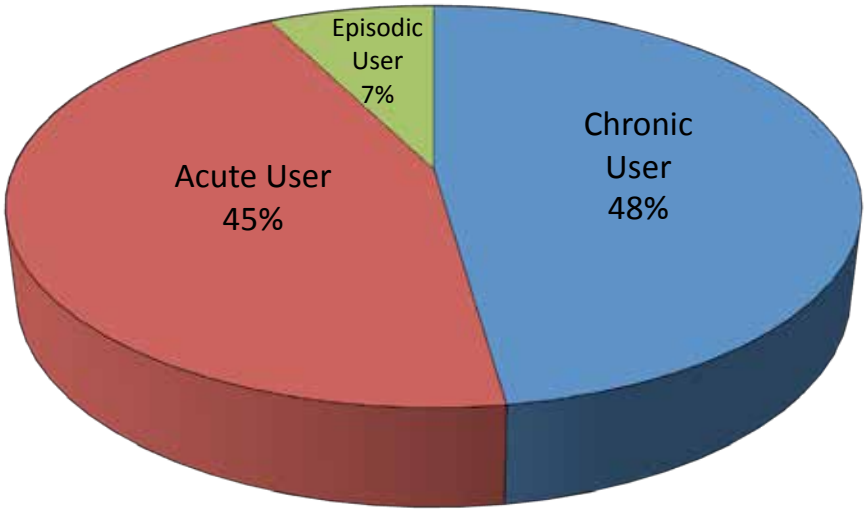
IRB Approval

The University of Arkansas for Medical Sciences did not require approval for this project since it was an evaluation of an internal process.

Identification of Chronic Users and Determination of Narcotic Agreement Status

A Centricity® EMR Crystal Report was generated to identify all patients who received a hydrocodone prescription between January 1 and June 30, 2013. Resident and attending physician patients were included in the report. Research team members reviewed each chart to classify patients as either acute users (one-time only prescription), episodic users (more than 1 prescription but small quantities prescribed), or chronic users (≥180 hydrocodone units prescribed during 6 months). Charts of each chronic user were further assessed to determine if a narcotic agreement had been established between our clinic and the patient. Profiles for each chronic user with a narcotic agreement were

Figure 1. Hydrocodone Utilizers by Patient Type
(N= 371 patients)



then reviewed in the PMP to determine their level of agreement adherence.

Arkansas Prescription Monitoring Program

Arkansas's PMP became accessible to providers in the spring of 2013. This program was created to provide controlled substance information to ensure legitimate use, help curtail misuse and abuse, assist in combating illegal trade in and diversion, and enable access to prescription information by practitioners. Arkansas law requires each dispenser to electronically submit information for controlled substances on a weekly basis. Physicians and pharmacists licensed in Arkansas are able to retrieve a password and log on to the system. The registry includes prescription data back to the fall of 2012.

The PMP permits assessment of patient's compliance with two specific narcotic agreement expectations: the FMC's role as the primary source of the specified medication and the patient's utilization of a single pharmacy. Reconciling the parameters of a patient's agreement with the database allows verification that the patient is fulfilling terms of their agreement.

RESULTS

Analysis of data retrieved from the EMR report revealed that 371 patients received a prescription for hydrocodone between January 1 and June 30, 2013. The total number of hydrocodone tablets or pills (eg, units) prescribed to these patients during the six-month period was 52,478. Approximately half of the hydrocodone prescriptions recipients were for chronic utilizers (Figure 1). Additionally, the chronic use population accounted for a disproportionate 85% of hydrocodone units during the same period. Forty-four percent of chronic hydrocodone users had a narcotic agreement, and an even smaller percentage was completely compliant with their agreement terms (Table 1).

Table 1. Narcotic Agreement Adherence

Uses FMC only AND designated pharmacy	37%
Uses NEITHER FMC nor designated pharmacy solely	28%
Uses FMC only, but multiple pharmacies	18%
Uses designated pharmacy, but multiple providers	10%
Patient not found in PMP	7%

Discussion

This project provided objective data on how much hydrocodone was prescribed from an FMC during a specified period. Although chronic users did not constitute the majority of patients receiving hydrocodone, they received the majority of prescriptions. Current data on prescribing patterns within a clinic is valuable to properly manage high risk patients taking potentially hazardous medications. Extracting information from individual charts is time consuming. Project extensions include integrating a narcotic agreement field into a chronic care check list. This check list item will permit more consistent utilization of agreements among chronic narcotic users, as well as provide a searchable field for quality assurance reports.

We aim to more appropriately manage chronic hydrocodone users in the FMC by using statistics from this project as a benchmark. We endeavor to increase the percentage of patients with a narcotic agreement, to routinely monitor the PMP when warranted, and to ultimately curtail the amount of hydrocodone prescribed in the FMC.

Note: Parallel hydrocodone data were retrieved from the EMR for January 1 through June 30, 2014. A total of 48,795 hydrocodone units were prescribed to 361 patients.

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SCIENTIFIC ARTICLE

Cholesterol and Family History: When Genetics Matters

ABSTRACT

Familial hypercholesterolemia (FH) is an inherited, autosomal codominant disease that increases the risk for cardiovascular mortality by 100 fold. Patients usually have LDL levels above 300 mg/dl. Although signs such as tendon xanthomas, xanthelasmas and corneal arcus may suggest the diagnosis, genetic testing is the most accurate way of diagnosing FH. Genetic testing has been shown to be a cost-efficient method to screen individuals and their relatives for FH. Establishing an accurate diagnosis is important: high potency statins are first-choice agents, the treatment goal is at least a 50% reduction in LDL cholesterol, and LDL apheresis may be indicated.

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Cardiovascular disease is the leading cause of death in the United States, and Arkansas ranks #5 in the US in cardiovascular mortality.[1] While lifestyle and environment are major causes in the general population, approximately 1 in 500 people have familial hypercholesterolemia (FH), a genetic predisposition which increases risk of cardiovascular mortality 100 fold.[2] This disease is under-recognized and remains untreated in about 80% of affected individuals.[3,4]

FH is an autosomal co-dominant genetic disorder characterized by high levels of total cholesterol, LDL cholesterol, and physical signs such as xanthomas in the tendons and skin.[5] Mutations in three genes are causative. By far the most frequently mutated gene, accounting for over 90% of cases, is the low-density lipoprotein receptor (*LDLR*).[6] The two other causative genes are *APOB*, which encodes the ApoB protein that binds LDL to its receptor[7]; and *PCSK9* – a gene that encodes a protein which regulates levels of LDL receptors.[7] Genetic testing is a cost effective way of establishing a definitive diagnosis of FH. [9]

The hallmark of FH is a marked increase in total and LDL cholesterol. Patients with a muta-

tion in one of the causative genes typically have total cholesterol levels in the range of 350-550 mg/dl. People with mutations in both copies of the *LDLR* gene (a homozygous case) may have cholesterol levels up to 1000 mg/dL. High cholesterol levels lead to lesions in the coronary arteries and often other external sequelae, such as xanthomas which result from accumulated deposition of cholesterol in skin and tendons. These benign lesions are frequently recognized in the elbows, hands and Achilles and are harbingers of underlying vascular pathology. Similarly, the cornea may have a presenile arcus, seen as a white clouding in the peripheral cornea. Xanthelasmas are due to deposits in the skin around the eyes.[10] These physical findings are supportive but not confirmatory of the diagnosis.

FH has traditionally been diagnosed by a complex combination of lipid levels, age and family history included as part of the MEDPED or the Simon Broome criteria. Total cholesterol levels higher than 270 mg/dl or LDL cholesterol greater than 200 mg/dl in patients <18 y/o without a family history are sufficient to establish the diagnosis based on the MEDPED criteria. The cutoff levels are lower for patients with a known family. The Simon Broome criteria combine the presence of high lipids, using a cutoff of total cholesterol greater than 290 mg/dl or LDL greater than 190 mg/dl in adults and 260 mg/dl and 155 mg/dl in children respectively, with the presence of a family history of tendon xanthomas (definite FH) or of high cholesterol and early myocardial infarction (possible FH). As all criteria require obtaining information about first and second degree relatives, a detailed family history is required in any individual whose LDL is higher than 190 mg/dl.

The diagnosis can be more precisely established today by strategic implementation of genetic testing. The National Lipid Association (NLA) Expert Panel on Familial Hypercholesterolemia has provided recommendations for the screening and treatment of patients with FH. Early identification and aggressive treatment of FH in individual patients, as well as screening of all first-degree relatives, are recommended to minimize the risk for premature CHD. The National Institute for Health and Care Excellence in the United Kingdom recommends that all individuals with a diagnosis of possible familial hypercholesterolemia be referred to a specialist for further workup and then initiation of cascade genetic testing in first, second and third degree relatives.[11] Cascade testing begins with full sequencing of the *LDLR* plus targeted sequencing of the known pathogenic mutations in *APOB* and *PCSK9* in the proband. Once a mutation is identified, relatives can be tested for the familial mutation. If no mutation is identified, relatives may be screened based on the relatively imprecise values of LDL cholesterol.[11]

Table 1 – Indications for LDL apheresis

Coronary Disease Risk Factors	LDL level (mg/dl)	Non-HDL level (mg/dl)
0-1	300	330
2 or more	200	230
CAD, other vascular disease, Diabetes	160	190

Traditional risk factors for vascular disease, such as gender, smoking, hypertension, low HDL cholesterol, and elevated lipoprotein (a), continue to be important in FH and they modify the risk for cardiovascular events.[12] The current guidelines for management of FH in Europe and Canada use lower LDL goals in patients that have the presence of other risk factors.[13,14] The US National Lipid Association (NLA) advocates for a 50% reduction in LDL from pre-treatment levels on all patients.[14] A treatment goal LDL of 100 mg/dl is appropriate for higher-risk patients with multiple risk factors.

A genetic diagnosis impacts medical management. For example, a 21-year-old man with an LDL level of 180 mg/dl without FH and no other cardiovascular risk factors would have a goal of 30% reduction in LDL according to the new American Heart Association guidelines,[15] but only if he meets a 10-year risk threshold of 7.5%. However, if the patient tests positive for a mutation in LDLR, one would apply the MEDPED guidelines, and he would need management with a high potency statin (atorvastatin or rosuvastatin) to a goal LDL of 95 mg/dl (50% reduction).

Statins are first-line pharmacological therapy for heterozygous individuals with FH but may need to be used aggressively or combined with other medications. Evidence from 26 randomized trials demonstrates that intensive statin dosing produces a further 15% reduction in CHD incidence and ischemic stroke compared with less intensive regimens or control (16) This applies equally to adults and children older than age 8. The NLA recommends that all children be referred to a lipid specialist before initiating treatment. A high potency statin should be used in all cases. Ezetimibe, bile acid sequestrants and niacin are options in patients who do not reach treatment goals with statin alone. LDL apheresis can be used in patients that have not responded to maximal therapy after 6 months. **Table 1** shows the LDL and non-HDL cholesterol levels at which to consider LDL apheresis.[2]

Despite these treatment recommendations, only 21% of patients with FH in a 2009 cross-sectional study reached a cholesterol level of <100 mg/dl and only 47% reached a 50% reduction in total LDL.[17] Even when maximal therapy is used, 27% of patients remain with an LDL above 100 mg/dl. Whether the treatment goal is unreasonable, or physicians should aim for these low LDL levels remains controversial.

In summary, in this era of molecular medicine, FH is an example of a genetic condition in which asymptomatic individuals may be recognized with subsequent early initiation of treatment. Cascade testing for a specific known mutation in family members of an affected person accentuate the importance of diagnosing the initial proband. FH should be considered and a three generation family history obtained in all patients with an LDL over 170 with subsequent referral to genetics as indicated. Because of the public health importance of this under-recognized disease, clinical vigilance is necessary and may result in long term savings to the healthcare system as well as a more personalized approach to the management of patients and families.

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Thrombotic Thrombocytopenic Purpura

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Background

Thrombotic Thrombocytopenic Purpura (TTP) is characterized by a pentad of clinical features: microangiopathic hemolytic anemia (MAHA), thrombocytopenia, change of mental status, renal insufficiency, and fever (Table 1). The presence of MAHA and thrombocytopenia are sufficient for making a presumptive diagnosis of TTP.

The most important pathophysiological aspects of TTP is the formation of platelet thrombi in the microvasculature of various organs and the presence of fragmented red blood cells and thrombocytopenia in the peripheral blood.[1] Early recognition of the disease is crucial, because it is associated with a very high mortality rate (up to 90%) if plasma exchange is not started in a timely fashion.

Incidence

The incidence of TTP is higher in women and African Americans and peaks between the ages of 30 and 50 years.[2]

Table 1. The conventional Pentad of TTP. MAHA + Thrombocytopenia are the most significant identifying features. All 5 clinical features are rarely found in a single patient.

Clinical findings in TTP
Microangiopathic hemolysis
Variable thrombocytopenia: 5,000 - 120,000 platelets; average is 25,000
CNS symptoms: confusion, headaches, seizure, focal deficits; rarely, reversible posterior leukoencephalopthy syndrome (PRES) on MRI
Renal abnormalities: from normal or mild proteinuria (common) to overt glomerulonephritis (rare)
Fever
Cardiac: not common but acute MI is possible

An estimated 11.2 cases/million of clinically suspected TTP are diagnosed each year in the United States, based on the presence of microangiopathic hemolytic anemia and thrombocytopenia.[2] The incidence of idiopathic TTP is 4.4 cases/million/year, and 1.7 cases/million/year for cases with severe ADAMTS13 deficiency (<5% activity).

Pathophysiology:

The first discovery that shed light on the pathophysiology of TTP occurred in the early 1980's when ultra large multimers of von Willebrand factors (ULvWF) in hereditary TTP patients were identified.[3] Two decades later it was discovered that there is decreased A Disintegrin And Metallo-protease with thromboSpondin-1–like domains member 13 (ADAMTS13) activity in TTP patients.

Table 2. TTP is either acquired due to the presence of an inhibitor (> 90% of cases), or hereditary (rare).

Diagnostic Categories
Acquired
Idiopathic (Autoimmune; the most common)
Drug-associated (mitomycin C, cyclosporine, quinine, ticlopidine, gemcitabine, and clopidogrel)
Alternative diagnoses
Autoimmune disease
Sepsis
Systemic malignancy
HIV infection
Malignant hypertension
Multi-organ failure
Pregnancy (pregnancy decreases ADAMTS13 BY ~30%)
Hereditary (Upshaw-Schulman syndrome)

Table 3: First clinical presentation of patients with TTP.

Presentations for Idiopathic TTP[8]	
Abdominal pain	18%
Nausea	10%
Headache	8%
Vomiting	8%
Severe CNS Symptoms	6%
Weakness	6%

ADAMTS13 plays a vital role in the cleavage of vWF.[4] Large vWF multimeres are released from endothelial cells on the vessel wall and are normally cleaved by ADAMTS13 to form smaller multimers that mediate platelet adhesion at sites of vascular injury. If left uncleaved, vWF has a greater ability to react with platelets and cause disseminated thrombi.

TTP is characterized by severe deficiencies of ADAMTS13 (< 5%). However, there is no definition for the exact cutoff for ADAMTS13 levels below which TTP will invariably occur.

TTP can be hereditary or acquired. In the former case, patients harbor an ADAMTS13 deficiency that will not be clinically significant until a stressor precipitates further drop in ASAMTS13 leading to the hemolytic microangiopathy (Table 2). Idiopathic TTP (autoimmune) is the most common type and is associated with autoantibodies to ADAMTS13. The role of ADAMTS13 in the pathogenesis of secondary/non-idiopathic TTP remains to be defined.

Causes:

ADAMTS13 activity is decreased by one of the following mechanisms:

- Autoimmune IgG inhibitors of ADAMTS13 (Acquired).[5]
- ADAMTS13 gene mutations (Hereditary).[6]

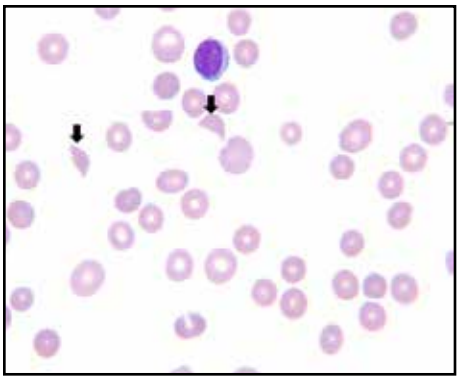

Figure 1. *Fragmented red cells (schistocytes), indicated by the black arrows, and the lack of platelets are consistent with the presence of microangiopathic hemolysis.*

Autoimmune inhibitors account for >90% cases of ADAMTS13 deficiency. A minority of acquired cases may be related to antibodies to CD36 that is expressed on the endothelial cells of small vasculature and helps attach large vWF multimers before their cleavage by ADAMTS13.[7] The diagnosis of congenital TTP (hereditary TTP; Upshaw-Schulman syndrome) is confirmed by demonstrating a mutation in the ADAMTS13 gene.

Clinical presentation

Clinical presentation is not specific. (See table 3).

Diagnosis

1) The first step for making a diagnosis of TTP is to identify MAHA,[9] the hallmark of TTP. MAHA is identified through the following:
   - Elevated free hemoglobin and LDH, and low haptoglobin aid in identifying hemolysis, and the presence of schistocyte count >1.0 percent, or observing ≥2 schistocytes in a microscopic high power field with an overall magnification of 100, is strongly suggestive of MAHA. Figure 1.
   - Coombs test (IgG, C3) should be negative
2) The second step is to evaluate the platelet count.
   - The presence of MAHA + thrombocytopenia is enough to alert clinicians of possible TTP and initiate plasma exchange protocols. Given that idiopathic TTP is an acute, life-threatening condition that requires prompt treatment, plasma exchange should not be held waiting for ADAMTS13 results.
3) Check for ADAMTS13 activity, and ADAMTS13 inhibitors (auto-antibodies)
4) Renal function can be normal in TTP; mild proteinuria with elevated creatinine might be observed. Current evidence suggests that advanced renal failure, hypertension, fluid overload, and need of dialysis therapy are uncommon in autoimmune TTP.[1]
5) Central nervous system (CNS) symptoms as well as fever are associated with, but non-specific for, TTP.
6) The prothrombin time (PT) and partial thromboplastin time (PTT) are normal in TTP.

Differential diagnosis:

See figures 2 for the differential diagnosis of thrombocytopenia and 3 for the differential diagnosis of MAHA.

Hemolytic uremic syndrome (HUS)

Among the long list of differential diagnoses for MAHA (Figure 3), clinically, HUS stands out for its similarity to the TTP syndrome. HUS, typically, consists of a triad of MAHA, thrombocytopenia, and acute renal failure.

HUS most commonly follows infection with a Shiga toxin-producing *Escherichia coli*. Most individuals diagnosed with HUS are children between 5-10 years of age and the elderly. Atypical HUS (5-10% of cases) is caused by dysregulation of the complement system; it is usually characterized by low complement C3 levels and activation of complement C5.

Despite the similar presentation of HUS and TTP, the two should be clearly distinguished because they differ in pathogenesis and treatment.

HUS treatment generally consists of supportive therapy with fluid and electrolytes management; however, plasma exchange and Eculizumab (human antibody to C5) may have a role in treatment of atypical HUS.

Treatment:

Daily therapeutic plasma exchange is the mainstay of TTP treatment. It is done by removing the patient's plasma and replacing it with plasma from healthy donors.

Plasma exchange works by removing ADAMTS13 inhibitors and large vWF multimers while replenishing ADAMTS13 levels, thereby reducing vWF-induced platelet aggregation.

Remission is achieved in 90% of patients using plasma exchange. Corticosteroids are often used in addition to plasma exchange to help control the production of ADAMTS13 antibodies, which act as inhibitors. [10] Rituximab, a monoclonal antibody against CD-20, can be used for difficult cases who do not respond to plasma exchange and corticosteroids.

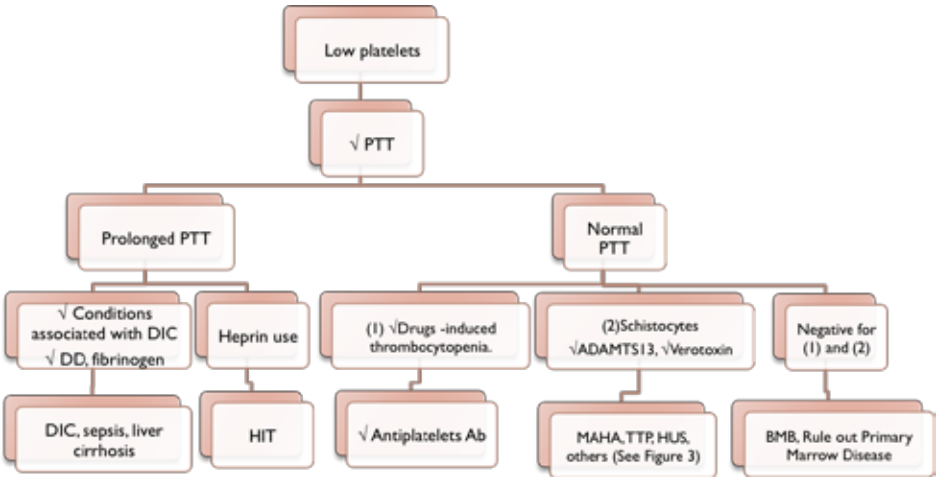

Figure 2. *Differential diagnosis of thrombocytopenia. PTT, partial thromboplastin time; DD, D-Dimers; DIC, disseminated intravascular coagulation; HUS, hemolytic uremic syndrome BMB, bone marrow biopsy; HIT, heparin-induced thrombocytopenia; Ab, antibody*

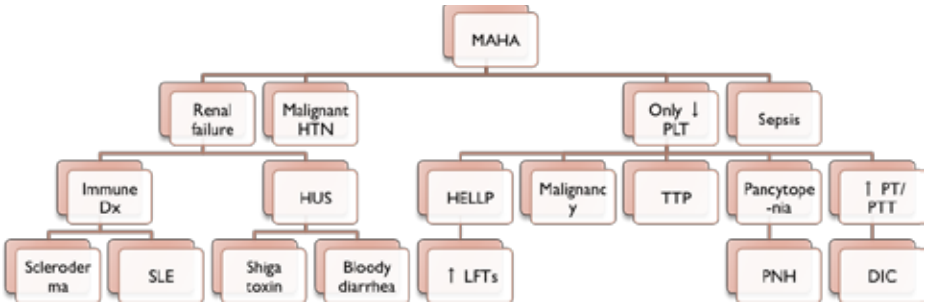

Figure 3. *An algorithm for approaching patients with MAHA. We suggest looking at associated clinical signs, and ruling out other causes of MAHA when TTP is of concern. MAHA + thrombocytopenia are highly suggestive of TTP. If a patient has low platelets without prominent renal failure, sepsis, or malignant hypertension (HTN), one should search for signs of disseminated intravascular coagulation (DIC), paroxysmal nocturnal hemoglobinuria (PNH) and HELLP (Hemolysis, Elevated Liver enzymes and Low platelet count). After ruling out other causes, then TTP is likely to be the final diagnosis. HUS, hemolytic uremic syndrome; LFTs, liver function tests; SLE, systemic lupus erythematous.*

Prognosis

Idiopathic TTP with severely low ADAMTS13 level, and undetectable inhibitor at presentation, is associated with good response to plasma exchange, around 91%.[11] Recurrence rates are around 27% with long-term sequelae in about 10% of patients.

Higher mortality rates are observed in patients when the TTP is associated with hematopoietic stem cell transplantation,[12] cancer, drugs or pregnancy. This observation may be related to causative comorbid conditions.

A reduced level of consciousness at presentation is associated with increased mortality.[13] It may be related to clinical or subclinical seizure that should be investigated and treated.

Current research

- The use of Rituximab and Intermediate-Purity Plasma-Derived Factor VIII Concentrate (contains very high amount of ADAMTS13) as adjuncts to therapeutic plasma exchange was investigated at our institution in three patients with ADAMTS13 Inhibitor with promising results.[14]

-There is an ongoing trial at UAMS to evaluate if the addition of N-acetylcysteine (NAC) to daily therapeutic plasma exchange would improve ADAMTS13-mediated cleavage of vWF (NCT01808521).

- Another study is looking into the role of cyclosporine and corticosteroids in preventing relapses (NCT00713193).

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OBITUARIES

March 24, 1941 -
December 9, 2014

KENNETH "KEN" LARRY LAMASTUS

Kenneth "Ken" Larry Lamastus, born March 24, 1941 lost his long battle with cancer on December 9, 2014, and is now resting peacefully in the arms of the Lord. He leaves behind his devoted wife, Quy Nguyen Lamastus; his son, Shawn Lamastus and family; stepson, Austin McClure; and many loving extended family members and friends.

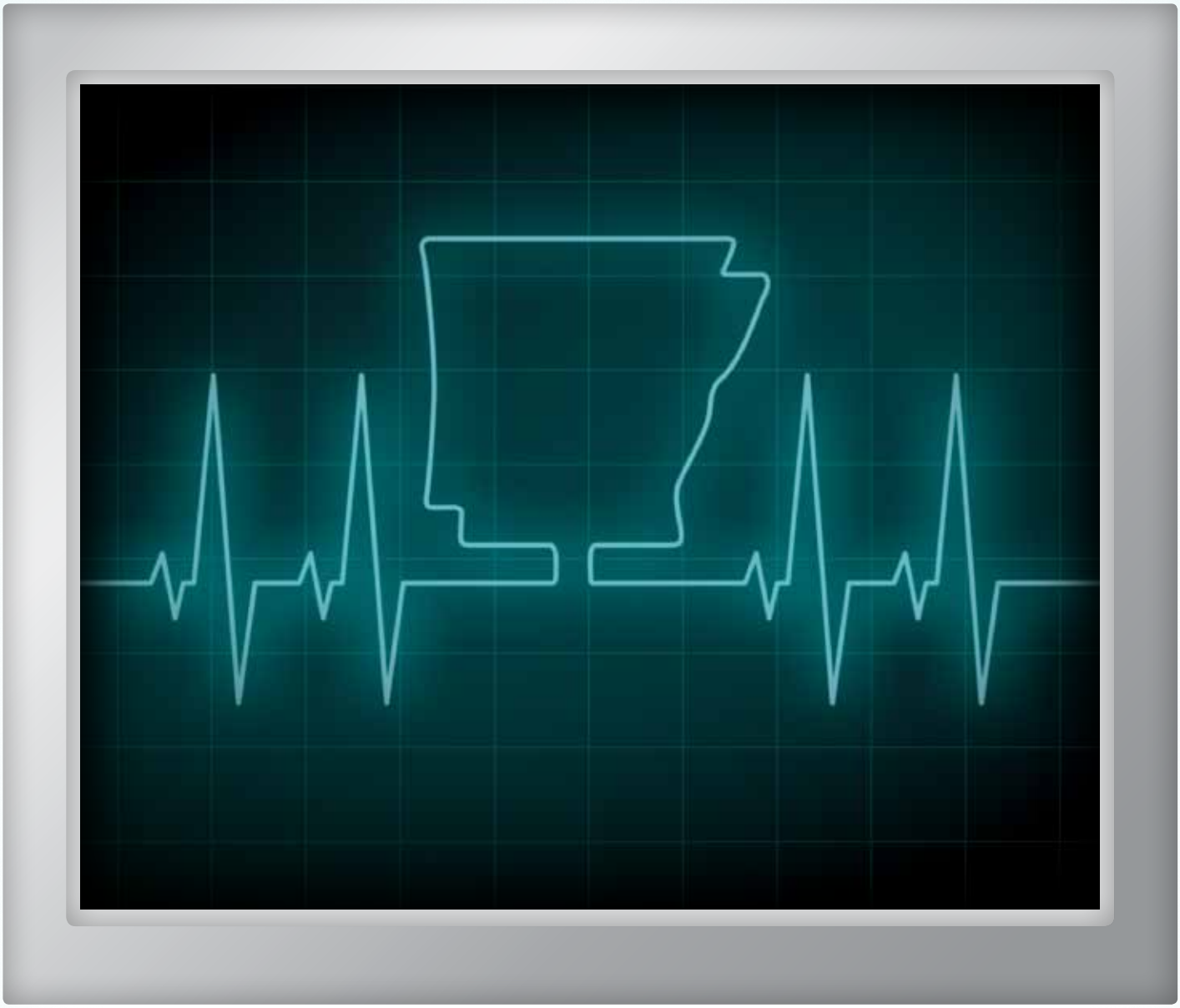
Ken always enjoyed being involved with his community and politics. He started his career as a medical laboratory technician. He completed his Masters' Degree and went on to become a Hospital Administrator. Later Ken served for 28 years with the Arkansas Medical Society as the CEO until he retired in 2005. Ken received many awards and recognitions in his professional life. This was highlighted by his receiving The Ken Graves Memorial Award for his exemplary work and service to his profession as well as his community. This award is the most prestigious award for an Association Executive in Arkansas and is for lifetime achievement. Ken also served his town of Maumelle by becoming a City Board Director and as the Mayor of Maumelle.

Ken spent his retirement years enjoying his home on the Arkansas River with all that peaceful lifestyle afforded him – boating, reading, history, and caring for his beloved dog, Masako.

GALE ALLEN MCFARLAND, MD

CAMDEN – **Gale Allen McFarland, MD**, 61, passed away Thursday, December 18, 2014 at Ouachita County Medical Center in Camden. Dr. McFarland attended the University of Arkansas at Monticello finishing with a BS in Wildlife Management, in May, 1976. Graduate School at Louisiana Tech University followed with Gale earning a Master of Science degree in Botany, July, 1979. He put environmental science behind him when he was accepted to medical school at the University of Arkansas for Medical Sciences in 1979. In May, 1983 with his M.D. degree in hand, Dr. McFarland was off to New Orleans, LA to pursue a residency with the LSU general surgery department. After two years, Gale changed his career aspirations to urology and completed 3 years of residency with the LSU - Ochsner Urology program. By this time he was married to Janice Marie Jackson and had three sons; Steven Ross, Justin Lehman, and James Wesley McFarland. The young family relocated to Camden, AR in July, 1983 where Dr. McFarland opened the Camden Urology Clinic. Two more sons were born to Jan and Gale Allen; Travis Allen and Auburn Jackson McFarland. Gale and Jan divorced in 1996. Gale married Wendy Gayle Andrews in 1997 and not only has she been his wife she served as his urological nurse at the clinic. The practice provided little time for vacations, but the family still maintains the farm in Banks. Gale states his vacation was going to work on the farm. Dr. McFarland played piano and Hammond organ, first training in classical and religious music, but later switching to rock and country. He played in several bands in the Warren and Camden areas and retired from "gigging" in 1996, while occasionally playing in rare jam sessions with his musician friends. Other hobbies have been jogging, bicycling, and always trying to lead a healthy lifestyle to "practice what he preaches" to his patients at his urology clinic. Dr. McFarland was active as a 5th

District Trustee with the Arkansas Medical Society, and was a member of the Arkansas Urologic Society and the American Urological Association. Dr. McFarland is survived by his wife Wendy and sons, Steven, Wesley, Travis, and Jackson. He is preceded in death by both parents and his second son Justin. AMS



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