ADDICTION CLINIC
The Other Side of Addiction
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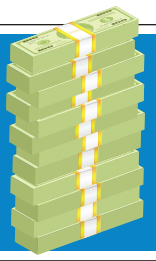

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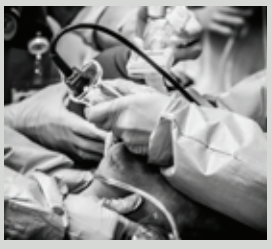

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A DEEPER FEAR

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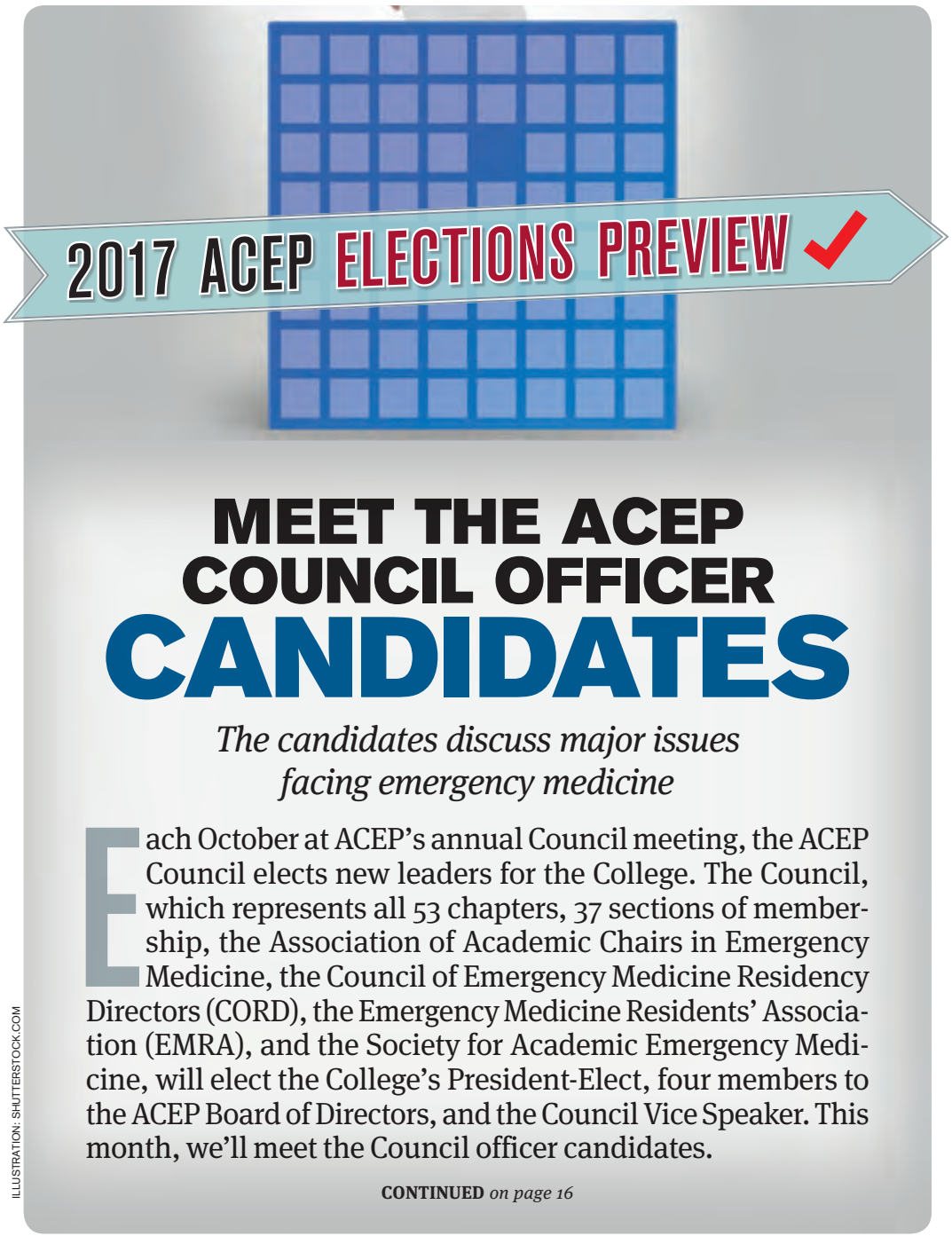

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MEET THE ACEP COUNCIL OFFICER CANDIDATES

The candidates discuss major issues facing emergency medicine

Each October at ACEP's annual Council meeting, the ACEP Council elects new leaders for the College. The Council, which represents all 53 chapters, 37 sections of membership, the Association of Academic Chairs in Emergency Medicine, the Council of Emergency Medicine Residency Directors (CORD), the Emergency Medicine Residents' Association (EMRA), and the Society for Academic Emergency Medicine, will elect the College's President-Elect, four members to the ACEP Board of Directors, and the Council Vice Speaker. This month, we'll meet the Council officer candidates.

CONTINUED *on page 16*

MALWARE ATTACKS

PHOTO: SHUTTERSTOCK

DIGITAL DOOMSDAY

Firsthand account of a hospital/ED cyber attack

by JENNIFER PUGH, MD, MBA, FACEP; AND CHRISTIAN DAMEFF, MD, MS

As practicing emergency physicians, we plan for the worst, knowing that modern health care, even with all of its fancy technology, is fragile. Our specialty prides itself on being the master of disaster medicine and can, with very few resources, provide world-class care during hurricanes, tornadoes, infectious disease outbreaks, and multiple casualty tragedies. With recent global cyber attacks, namely WannaCry and Petya, spreading to infect hospitals across the globe and rendering them paralyzed, it is clear emergency medicine is facing a powerful new threat.[1,2] This article is a firsthand account of such a cyber attack and offers some guidance on developing your own low-tech cyber-disaster plan so you can be prepared when hackers come for your hospital.

On April 9, 2017, Erie County Medical Center (ECMC), the only regional Level 1 trauma hospital in western New York, was attacked by hackers.[3] The hackers didn't gain access to the system through malicious emails or a compromised flash drive. Instead, they used an automatic program known as SamSam to try millions of password combinations for the hospital's web

CONTINUED *on page 23*

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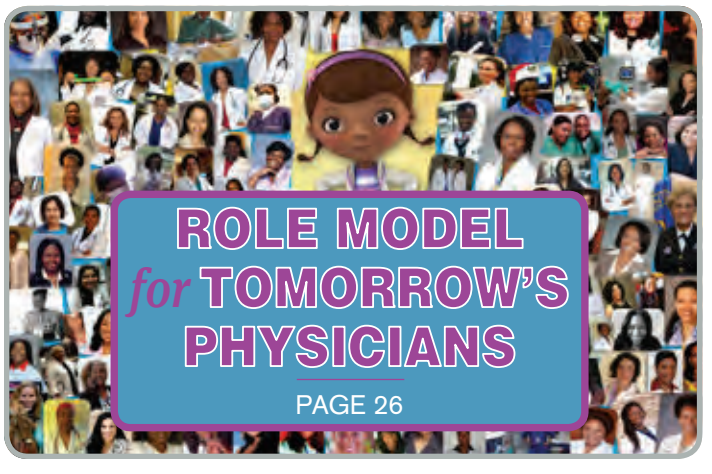


Think ELIQUIS–

For your appropriate patients with NVAF or DVT/PE

IMPORTANT SAFETY INFORMATION

WARNING: (A) PREMATURE DISCONTINUATION OF ELIQUIS INCREASES THE RISK OF THROMBOTIC EVENTS, (B) SPINAL/EPIDURAL HEMATOMA

(A) Premature discontinuation of any oral anticoagulant, including ELIQUIS, increases the risk of thrombotic events. If anticoagulation with ELIQUIS is discontinued for a reason other than pathological bleeding or completion of a course of therapy, consider coverage with another anticoagulant.

(B) Epidural or spinal hematomas may occur in patients treated with ELIQUIS who are receiving neuraxial anesthesia or undergoing spinal puncture. These hematomas may result in long-term or permanent paralysis. Consider these risks when scheduling patients for spinal procedures. Factors that can increase the risk of developing epidural or spinal hematomas in these patients include:

- **use of indwelling epidural catheters**
- **concomitant use of other drugs that affect hemostasis, such as nonsteroidal anti-inflammatory drugs (NSAIDs), platelet inhibitors, other anticoagulants**
- **a history of traumatic or repeated epidural or spinal punctures**
- **a history of spinal deformity or spinal surgery**
- **optimal timing between the administration of ELIQUIS and neuraxial procedures is not known**

Monitor patients frequently for signs and symptoms of neurological impairment. If neurological compromise is noted, urgent treatment is necessary.

Consider the benefits and risks before neuraxial intervention in patients anticoagulated or to be anticoagulated.

CONTRAINDICATIONS

- Active pathological bleeding
- Severe hypersensitivity reaction to ELIQUIS (e.g., anaphylactic reactions)

IMPORTANT SAFETY INFORMATION

WARNINGS AND PRECAUTIONS

- **Increased Risk of Thrombotic Events after Premature Discontinuation:** Premature discontinuation of any oral anticoagulant, including ELIQUIS, in the absence of adequate alternative anticoagulation increases the risk of thrombotic events. An increased rate of stroke was observed during the transition from ELIQUIS to warfarin in clinical trials in atrial fibrillation patients. If ELIQUIS is discontinued for a reason other than pathological bleeding or completion of a course of therapy, consider coverage with another anticoagulant.
- **Bleeding Risk:** ELIQUIS increases the risk of bleeding and can cause serious, potentially fatal, bleeding.
  - Concomitant use of drugs affecting hemostasis increases the risk of bleeding, including aspirin and other antiplatelet agents, other anticoagulants, heparin, thrombolytic agents, SSRIs, SNRIs, and NSAIDs.
  - Advise patients of signs and symptoms of blood loss and to report them immediately or go to an emergency room. Discontinue ELIQUIS in patients with active pathological hemorrhage.
  - There is no established way to reverse the anticoagulant effect of apixaban, which can be expected to persist for at least 24 hours after the last dose (i.e., about two half-lives). A specific antidote for ELIQUIS is not available.
- **Spinal/Epidural Anesthesia or Puncture:** Patients treated with ELIQUIS undergoing spinal/epidural anesthesia or puncture may develop an epidural or spinal hematoma which can result in long-term or permanent paralysis.

  The risk of these events may be increased by the postoperative use of indwelling epidural catheters or the concomitant use of medicinal products affecting hemostasis. Indwelling epidural or intrathecal catheters should not be removed earlier than 24 hours after the last administration of ELIQUIS. The next dose of ELIQUIS should not be administered earlier than 5 hours after the removal of the catheter. The risk may also be increased by traumatic or repeated epidural or spinal puncture. If traumatic

Eliquis® (apixaban) tablets 5mg 2.5mg

NVAF

Indicated to reduce the risk of stroke and systemic embolism in patients with NVAF[1]

DVT/PE

Indicated for the treatment of DVT and PE, and to reduce the risk of recurrent DVT and PE following initial therapy[1]

Learn more about ELIQUIS today at **hcp.eliquis.com**

DVT: deep vein thrombosis; NVAF: nonvalvular atrial fibrillation; PE: pulmonary embolism.

IMPORTANT SAFETY INFORMATION

WARNINGS AND PRECAUTIONS (cont'd)

puncture occurs, delay the administration of ELIQUIS for 48 hours. Monitor patients frequently and if neurological compromise is noted, urgent diagnosis and treatment is necessary. Physicians should consider the potential benefit versus the risk of neuraxial intervention in ELIQUIS patients.

- **Prosthetic Heart Valves:** The safety and efficacy of ELIQUIS have not been studied in patients with prosthetic heart valves and is not recommended in these patients.
- **Acute PE in Hemodynamically Unstable Patients or Patients who Require Thrombolysis or Pulmonary Embolectomy:** Initiation of ELIQUIS is not recommended as an alternative to unfractionated heparin for the initial treatment of patients with PE who present with hemodynamic instability or who may receive thrombolysis or pulmonary embolectomy.

ADVERSE REACTIONS

- The most common and most serious adverse reactions reported with ELIQUIS were related to bleeding.

TEMPORARY INTERRUPTION FOR SURGERY AND OTHER INTERVENTIONS

- ELIQUIS should be discontinued at least 48 hours prior to elective surgery or invasive procedures with a moderate or high risk of unacceptable or clinically significant bleeding. ELIQUIS should be discontinued at least 24 hours prior to elective surgery or invasive procedures with a low risk of bleeding or where the bleeding would be noncritical in location and easily controlled. Bridging anticoagulation during the 24 to 48 hours after stopping ELIQUIS and prior to the intervention is not generally required. ELIQUIS should be restarted after the surgical or other procedures as soon as adequate hemostasis has been established.

IMPORTANT SAFETY INFORMATION

DRUG INTERACTIONS

- **Strong Dual Inhibitors of CYP3A4 and P-gp:** Inhibitors of cytochrome P450 3A4 (CYP3A4) and P-glycoprotein (P-gp) increase exposure to apixaban and increase the risk of bleeding. For patients receiving ELIQUIS doses of 5 mg or 10 mg twice daily, reduce the dose of ELIQUIS by 50% when ELIQUIS is coadministered with drugs that are strong dual inhibitors of CYP3A4 and P-gp (e.g., ketoconazole, itraconazole, ritonavir, or clarithromycin). In patients already taking 2.5 mg twice daily, avoid coadministration of ELIQUIS with strong dual inhibitors of CYP3A4 and P-gp.
- **Strong Dual Inducers of CYP3A4 and P-gp:** Avoid concomitant use of ELIQUIS with strong dual inducers of CYP3A4 and P-gp (e.g., rifampin, carbamazepine, phenytoin, St. John's wort) because such drugs will decrease exposure to apixaban and increase the risk of stroke and other thromboembolic events.
- **Anticoagulants and Antiplatelet Agents:** Coadministration of antiplatelet agents, fibrinolytics, heparin, aspirin, and chronic NSAID use increases the risk of bleeding. APPRAISE-2, a placebo-controlled clinical trial of apixaban in high-risk post-acute coronary syndrome patients treated with aspirin or the combination of aspirin and clopidogrel, was terminated early due to a higher rate of bleeding with apixaban compared to placebo.

PREGNANCY CATEGORY B

- There are no adequate and well-controlled studies of ELIQUIS in pregnant women. Treatment is likely to increase the risk of hemorrhage during pregnancy and delivery. ELIQUIS should be used during pregnancy only if the potential benefit outweighs the potential risk to the mother and fetus.

Reference: 1. ELIQUIS® Package Insert. Bristol-Myers Squibb Company, Princeton, NJ, and Pfizer Inc, New York, NY.

Please see Brief Summary of Full Prescribing Information, including **Boxed WARNINGS**, on adjacent pages.

Bristol-Myers Squibb Pfizer

ELIQUIS® (apixaban) tablets, for oral use

℞ ONLY

Brief Summary of Prescribing Information. For complete prescribing information consult official package insert.

WARNING: (A) PREMATURE DISCONTINUATION OF ELIQUIS INCREASES THE RISK OF THROMBOTIC EVENTS

(B) SPINAL/EPIDURAL HEMATOMA

(A) PREMATURE DISCONTINUATION OF ELIQUIS INCREASES THE RISK OF THROMBOTIC EVENTS

Premature discontinuation of any oral anticoagulant, including ELIQUIS, increases the risk of thrombotic events. If anticoagulation with ELIQUIS is discontinued for a reason other than pathological bleeding or completion of a course of therapy, consider coverage with another anticoagulant *[see Dosage and Administration, Warnings and Precautions, and Clinical Studies (14.1) in full Prescribing Information]*.

(B) SPINAL/EPIDURAL HEMATOMA

Epidural or spinal hematomas may occur in patients treated with ELIQUIS who are receiving neuraxial anesthesia or undergoing spinal puncture. These hematomas may result in long-term or permanent paralysis. Consider these risks when scheduling patients for spinal procedures. Factors that can increase the risk of developing epidural or spinal hematomas in these patients include:

- **use of indwelling epidural catheters**
- **concomitant use of other drugs that affect hemostasis, such as nonsteroidal anti-inflammatory drugs (NSAIDs), platelet inhibitors, other anticoagulants**
- **a history of traumatic or repeated epidural or spinal punctures**
- **a history of spinal deformity or spinal surgery**
- **optimal timing between the administration of ELIQUIS and neuraxial procedures is not known**

[see Warnings and Precautions]

Monitor patients frequently for signs and symptoms of neurological impairment. If neurological compromise is noted, urgent treatment is necessary *[see Warnings and Precautions]*.

Consider the benefits and risks before neuraxial intervention in patients anticoagulated or to be anticoagulated *[see Warnings and Precautions]*.

INDICATIONS AND USAGE

Reduction of Risk of Stroke and Systemic Embolism in Nonvalvular Atrial Fibrillation— ELIQUIS® (apixaban) is indicated to reduce the risk of stroke and systemic embolism in patients with nonvalvular atrial fibrillation.

Prophylaxis of Deep Vein Thrombosis Following Hip or Knee Replacement Surgery— ELIQUIS is indicated for the prophylaxis of deep vein thrombosis (DVT), which may lead to pulmonary embolism (PE), in patients who have undergone hip or knee replacement surgery.

Treatment of Deep Vein Thrombosis—ELIQUIS is indicated for the treatment of DVT.

Treatment of Pulmonary Embolism—ELIQUIS is indicated for the treatment of PE.

Reduction in the Risk of Recurrence of DVT and PE—ELIQUIS is indicated to reduce the risk of recurrent DVT and PE following initial therapy.

DOSAGE AND ADMINISTRATION (Selected information)

Temporary Interruption for Surgery and Other Interventions

ELIQUIS should be discontinued at least 48 hours prior to elective surgery or invasive procedures with a moderate or high risk of unacceptable or clinically significant bleeding. ELIQUIS should be discontinued at least 24 hours prior to elective surgery or invasive procedures with a low risk of bleeding or where the bleeding would be non-critical in location and easily controlled. Bridging anticoagulation during the 24 to 48 hours after stopping ELIQUIS and prior to the intervention is not generally required. ELIQUIS should be restarted after the surgical or other procedures as soon as adequate hemostasis has been established. (For complete *Dosage and Administration* section, see full Prescribing Information.)

CONTRAINDICATIONS

ELIQUIS is contraindicated in patients with the following conditions:

- Active pathological bleeding *[see Warnings and Precautions and Adverse Reactions]*
- Severe hypersensitivity reaction to ELIQUIS (e.g., anaphylactic reactions) *[see Adverse Reactions]*

WARNINGS AND PRECAUTIONS

Increased Risk of Thrombotic Events after Premature Discontinuation

Premature discontinuation of any oral anticoagulant, including ELIQUIS, in the absence of adequate alternative anticoagulation increases the risk of thrombotic events. An increased rate of stroke was observed during the transition from ELIQUIS to warfarin in clinical trials in atrial fibrillation patients. If ELIQUIS is discontinued for a reason other than pathological bleeding or completion of a course of therapy, consider coverage with another anticoagulant *[see Dosage and Administration (2.4) and Clinical Studies (14.1) in full Prescribing Information]*.

Bleeding

ELIQUIS increases the risk of bleeding and can cause serious, potentially fatal, bleeding *[see Dosage and Administration (2.1) in full Prescribing Information and Adverse Reactions]*.

Concomitant use of drugs affecting hemostasis increases the risk of bleeding. These include aspirin and other antiplatelet agents, other anticoagulants, heparin, thrombolytic agents, selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, and nonsteroidal anti-inflammatory drugs (NSAIDs) *[see Drug Interactions]*.

Advise patients of signs and symptoms of blood loss and to report them immediately or go to an emergency room. Discontinue ELIQUIS in patients with active pathological hemorrhage.

Reversal of Anticoagulant Effect

A specific antidote for ELIQUIS is not available, and there is no established way to reverse the bleeding in patients taking ELIQUIS. The pharmacodynamic effect of ELIQUIS can be expected to persist for at least 24 hours after the last dose, i.e., for about two drug half-lives. Use of procoagulant reversal agents, such as prothrombin complex concentrate (PCC), activated prothrombin complex concentrate or recombinant factor VIIa, may be considered but has not been evaluated in clinical studies *[see Clinical Pharmacology (12.2) in full Prescribing Information]*. When PCCs are used, monitoring for the anticoagulation effect of apixaban using a clotting test (PT, INR, or aPTT) or anti-factor Xa (FXa) activity is not useful and is not recommended. Activated oral charcoal reduces absorption of apixaban, thereby lowering apixaban plasma concentration *[see Overdosage]*.

Hemodialysis does not appear to have a substantial impact on apixaban exposure *[see Clinical Pharmacology (12.3) in full Prescribing Information]*. Protamine sulfate and vitamin K are not expected to affect the anticoagulant activity of apixaban. There is no experience with antifibrinolytic agents (tranexamic acid, aminocaproic acid) in individuals receiving apixaban. There is no experience with systemic hemostatics (desmopressin and aprotinin) in individuals receiving apixaban and they are not expected to be effective as a reversal agent.

Spinal/Epidural Anesthesia or Puncture

When neuraxial anesthesia (spinal/epidural anesthesia) or spinal/epidural puncture is employed, patients treated with antithrombotic agents for prevention of thromboembolic complications are at risk of developing an epidural or spinal hematoma which can result in long-term or permanent paralysis.

The risk of these events may be increased by the postoperative use of indwelling epidural catheters or the concomitant use of medicinal products affecting hemostasis. Indwelling epidural or intrathecal catheters should not be removed earlier than 24 hours after the last administration of ELIQUIS. The next dose of ELIQUIS should not be administered earlier than 5 hours after the removal of the catheter. The risk may also be increased by traumatic or repeated epidural or spinal puncture. If traumatic puncture occurs, delay the administration of ELIQUIS for 48 hours.

Monitor patients frequently for signs and symptoms of neurological impairment (e.g., numbness or weakness of the legs, bowel, or bladder dysfunction). If neurological compromise is noted, urgent diagnosis and treatment is necessary. Prior to neuraxial intervention the physician should consider the potential benefit versus the risk in anticoagulated patients or in patients to be anticoagulated for thromboprophylaxis.

Patients with Prosthetic Heart Valves

The safety and efficacy of ELIQUIS (apixaban) have not been studied in patients with prosthetic heart valves. Therefore, use of ELIQUIS is not recommended in these patients.

Acute PE in Hemodynamically Unstable Patients or Patients who Require Thrombolysis or Pulmonary Embolectomy

Initiation of ELIQUIS is not recommended as an alternative to unfractionated heparin for the initial treatment of patients with PE who present with hemodynamic instability or who may receive thrombolysis or pulmonary embolectomy.

ADVERSE REACTIONS

The following serious adverse reactions are discussed in greater detail in other sections of the prescribing information.

- Increased risk of thrombotic events after premature discontinuation *[see Warnings and Precautions]*
- Bleeding *[see Warnings and Precautions]*
- Spinal/epidural anesthesia or puncture *[see Warnings and Precautions]*

Clinical Trials Experience

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

Reduction of Risk of Stroke and Systemic Embolism in Patients with Nonvalvular Atrial Fibrillation

The safety of ELIQUIS was evaluated in the ARISTOTLE and AVERROES studies *[see Clinical Studies (14) in full Prescribing Information]*, including 11,284 patients exposed to ELIQUIS 5 mg twice daily and 602 patients exposed to ELIQUIS 2.5 mg twice daily. The duration of ELIQUIS exposure was ≥12 months for 9375 patients and ≥24 months for 3369 patients in the two studies. In ARISTOTLE, the mean duration of exposure was 89 weeks (>15,000 patient-years). In AVERROES, the mean duration of exposure was approximately 59 weeks (>3000 patient-years).

The most common reason for treatment discontinuation in both studies was for bleeding-related adverse reactions; in ARISTOTLE this occurred in 1.7% and 2.5% of patients treated with ELIQUIS and warfarin, respectively, and in AVERROES, in 1.5% and 1.3% on ELIQUIS and aspirin, respectively.

Bleeding in Patients with Nonvalvular Atrial Fibrillation in ARISTOTLE and AVERROES

Tables 1 and 2 show the number of patients experiencing major bleeding during the treatment period and the bleeding rate (percentage of subjects with at least one bleeding event per 100 patient-years) in ARISTOTLE and AVERROES.

Table 1: Bleeding Events in Patients with Nonvalvular Atrial Fibrillation in ARISTOTLE*

	ELIQUIS N=9088 n (per 100 pt-year)	Warfarin N=9052 n (per 100 pt-year)	Hazard Ratio (95% CI)	P-value
Major†	327 (2.13)	462 (3.09)	0.69 (0.60, 0.80)	<0.0001
Intracranial (ICH)‡	52 (0.33)	125 (0.82)	0.41 (0.30, 0.57)	-
Hemorrhagic stroke§	38 (0.24)	74 (0.49)	0.51 (0.34, 0.75)	-
Other ICH	15 (0.10)	51 (0.34)	0.29 (0.16, 0.51)	-
Gastrointestinal (GI)¶	128 (0.83)	141 (0.93)	0.89 (0.70, 1.14)	-
Fatal**	10 (0.06)	37 (0.24)	0.27 (0.13, 0.53)	-
Intracranial	4 (0.03)	30 (0.20)	0.13 (0.05, 0.37)	-
Non-intracranial	6 (0.04)	7 (0.05)	0.84 (0.28, 2.15)	-

* Bleeding events within each subcategory were counted once per subject, but subjects may have contributed events to multiple endpoints. Bleeding events were counted during treatment or within 2 days of stopping study treatment (on-treatment period).
† Defined as clinically overt bleeding accompanied by one or more of the following: a decrease in hemoglobin of ≥2 g/dL, a transfusion of 2 or more units of packed red blood cells, bleeding at a critical site: intracranial, intraspinal, intraocular, pericardial, intra-articular, intramuscular with compartment syndrome, retroperitoneal or with fatal outcome.
‡ Intracranial bleed includes intracerebral, intraventricular, subdural, and subarachnoid bleeding. Any type of hemorrhagic stroke was adjudicated and counted as an intracranial major bleed.
§ On-treatment analysis based on the safety population, compared to ITT analysis presented in Section 14.
¶ GI bleed includes upper GI, lower GI, and rectal bleeding.
** Fatal bleeding is an adjudicated death with the primary cause of death as intracranial bleeding or non-intracranial bleeding during the on-treatment period.

In ARISTOTLE, the results for major bleeding were generally consistent across most major subgroups including age, weight, $CHADS_2$ score (a scale from 0 to 6 used to estimate risk of stroke, with higher scores predicting greater risk), prior warfarin use, geographic region, and aspirin use at randomization (Figure 1). Subjects treated with apixaban with diabetes bled more (3.0% per year) than did subjects without diabetes (1.9% per year).

Table 2: Bleeding Events in Patients with Nonvalvular Atrial Fibrillation in AVERROES

	ELIQUIS (apixaban) N=2798 n (%/year)	Aspirin N=2780 n (%/year)	Hazard Ratio (95% CI)	P-value
Major	45 (1.41)	29 (0.92)	1.54 (0.96, 2.45)	0.07
Fatal	5 (0.16)	5 (0.16)	0.99 (0.23, 4.29)	-
Intracranial	11 (0.34)	11 (0.35)	0.99 (0.39, 2.51)	-

Events associated with each endpoint were counted once per subject, but subjects may have contributed events to multiple endpoints.

Other Adverse Reactions

Hypersensitivity reactions (including drug hypersensitivity, such as skin rash, and anaphylactic reactions, such as allergic edema) and syncope were reported in <1% of patients receiving ELIQUIS.

Prophylaxis of Deep Vein Thrombosis Following Hip or Knee Replacement Surgery

The safety of ELIQUIS has been evaluated in 1 Phase II and 3 Phase III studies including 5924 patients exposed to ELIQUIS 2.5 mg twice daily undergoing major orthopedic surgery of the lower limbs (elective hip replacement or elective knee replacement) treated for up to 38 days.

In total, 11% of the patients treated with ELIQUIS 2.5 mg twice daily experienced adverse reactions.

Bleeding results during the treatment period in the Phase III studies are shown in Table 3. Bleeding was assessed in each study beginning with the first dose of double-blind study drug.

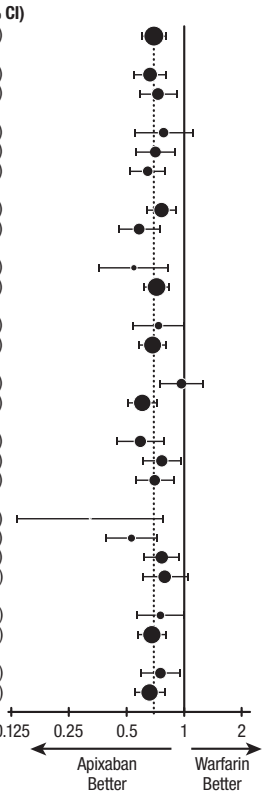
Table 3: Bleeding During the Treatment Period in Patients Undergoing Elective Hip or Knee Replacement Surgery

Bleeding Endpoint*	ADVANCE-3 Hip Replacement Surgery		ADVANCE-2 Knee Replacement Surgery		ADVANCE-1 Knee Replacement Surgery	
	ELIQUIS 2.5 mg po bid 35±3 days	Enoxaparin 40 mg sc qd 35±3 days	ELIQUIS 2.5 mg po bid 12±2 days	Enoxaparin 40 mg sc qd 12±2 days	ELIQUIS 2.5 mg po bid 12±2 days	Enoxaparin 30 mg sc q12h 12±2 days
	First dose 12 to 24 hours post surgery	First dose 9 to 15 hours prior to surgery	First dose 12 to 24 hours post surgery	First dose 9 to 15 hours prior to surgery	First dose 12 to 24 hours post surgery	First dose 12 to 24 hours post surgery
All treated	N=2673	N=2659	N=1501	N=1508	N=1596	N=1588
Major (including surgical site)	22 (0.82%)†	18 (0.68%)	9 (0.60%)‡	14 (0.93%)	11 (0.69%)	22 (1.39%)
Fatal	0	0	0	0	0	1 (0.06%)
Hgb decrease ≥2 g/dL	13 (0.49%)	10 (0.38%)	8 (0.53%)	9 (0.60%)	10 (0.63%)	16 (1.01%)
Transfusion of ≥2 units RBC	16 (0.60%)	14 (0.53%)	5 (0.33%)	9 (0.60%)	9 (0.56%)	18 (1.13%)
Bleed at critical site§	1 (0.04%)	1 (0.04%)	1 (0.07%)	2 (0.13%)	1 (0.06%)	4 (0.25%)
Major + CRNM¶	129 (4.83%)	134 (5.04%)	53 (3.53%)	72 (4.77%)	46 (2.88%)	68 (4.28%)
All	313 (11.71%)	334 (12.56%)	104 (6.93%)	126 (8.36%)	85 (5.33%)	108 (6.80%)

* All bleeding criteria included surgical site bleeding.
† Includes 13 subjects with major bleeding events that occurred before the first dose of apixaban (administered 12 to 24 hours post surgery).
‡ Includes 5 subjects with major bleeding events that occurred before the first dose of apixaban (administered 12 to 24 hours post surgery).
§ Intracranial, intraspinal, intraocular, pericardial, an operated joint requiring re-operation or intervention, intramuscular with compartment syndrome, or retroperitoneal. Bleeding into an operated joint requiring re-operation or intervention was present in all patients with this category of bleeding. Events and event rates include one enoxaparin-treated patient in ADVANCE-1 who also had intracranial hemorrhage.
¶ CRNM = clinically relevant nonmajor.

Figure 1: Major Bleeding Hazard Ratios by Baseline Characteristics – ARISTOTLE Study

Subgroup	n of Events / N of Patients (% per year) Apixaban	Warfarin	Hazard Ratio (95% CI)
All Patients	327 / 9088 (2.1)	462 / 9052 (3.1)	0.69 (0.60, 0.80)
Prior Warfarin/VKA Status			
Experienced (57%)	185 / 5196 (2.1)	274 / 5180 (3.2)	0.66 (0.55, 0.80)
Naive (43%)	142 / 3892 (2.2)	188 / 3872 (3.0)	0.73 (0.59, 0.91)
Age			
<65 (30%)	56 / 2723 (1.2)	72 / 2732 (1.5)	0.78 (0.55, 1.11)
≥65 and <75 (39%)	120 / 3529 (2.0)	166 / 3501 (2.8)	0.71 (0.56, 0.89)
≥75 (31%)	151 / 2836 (3.3)	224 / 2819 (5.2)	0.64 (0.52, 0.79)
Sex			
Male (65%)	225 / 5868 (2.3)	294 / 5879 (3.0)	0.76 (0.64, 0.90)
Female (35%)	102 / 3220 (1.9)	168 / 3173 (3.3)	0.58 (0.45, 0.74)
Weight			
≤60 kg (11%)	36 / 1013 (2.3)	62 / 965 (4.3)	0.55 (0.36, 0.83)
>60 kg (89%)	290 / 8043 (2.1)	398 / 8059 (3.0)	0.72 (0.62, 0.83)
Prior Stroke or TIA			
Yes (19%)	77 / 1687 (2.8)	106 / 1735 (3.9)	0.73 (0.54, 0.98)
No (81%)	250 / 7401 (2.0)	356 / 7317 (2.9)	0.68 (0.58, 0.80)
Diabetes Mellitus			
Yes (25%)	112 / 2276 (3.0)	114 / 2250 (3.1)	0.96 (0.74, 1.25)
No (75%)	215 / 6812 (1.9)	348 / 6802 (3.1)	0.60 (0.51, 0.71)
$CHADS_2$ Score			
≤1 (34%)	76 / 3093 (1.4)	126 / 3076 (2.3)	0.59 (0.44, 0.78)
2 (36%)	125 / 3246 (2.3)	163 / 3246 (3.0)	0.76 (0.60, 0.96)
≥3 (30%)	126 / 2749 (2.9)	173 / 2730 (4.1)	0.70 (0.56, 0.88)
Creatinine Clearance			
<30 mL/min (1%)	7 / 136 (3.7)	19 / 132 (11.9)	0.32 (0.13, 0.78)
30-50 mL/min (15%)	66 / 1357 (3.2)	123 / 1380 (6.0)	0.53 (0.39, 0.71)
>50-80 mL/min (42%)	157 / 3807 (2.5)	199 / 3758 (3.2)	0.76 (0.62, 0.94)
>80 mL/min (41%)	96 / 3750 (1.5)	119 / 3746 (1.8)	0.79 (0.61, 1.04)
Geographic Region			
US (19%)	83 / 1716 (2.8)	109 / 1693 (3.8)	0.75 (0.56, 1.00)
Non-US (81%)	244 / 7372 (2.0)	353 / 7359 (2.9)	0.68 (0.57, 0.80)
Aspirin at Randomization			
Yes (31%)	129 / 2846 (2.7)	164 / 2762 (3.7)	0.75 (0.60, 0.95)
No (69%)	198 / 6242 (1.9)	298 / 6290 (2.8)	0.66 (0.55, 0.79)



Note: The figure above presents effects in various subgroups, all of which are baseline characteristics and all of which were pre-specified, if not the groupings. The 95% confidence limits that are shown do not take into account how many comparisons were made, nor do they reflect the effect of a particular factor after adjustment for all other factors. Apparent homogeneity or heterogeneity among groups should not be over-interpreted.

Adverse reactions occurring in ≥1% of patients undergoing hip or knee replacement surgery in the 1 Phase II study and the 3 Phase III studies are listed in Table 4.

Table 4: Adverse Reactions Occurring in ≥1% of Patients in Either Group Undergoing Hip or Knee Replacement Surgery

	ELIQUIS (apixaban), n (%) 2.5 mg po bid N=5924	Enoxaparin, n (%) 40 mg sc qd or 30 mg sc q12h N=5904
Nausea	153 (2.6)	159 (2.7)
Anemia (including postoperative and hemorrhagic anemia, and respective laboratory parameters)	153 (2.6)	178 (3.0)
Contusion	83 (1.4)	115 (1.9)
Hemorrhage (including hematoma, and vaginal and urethral hemorrhage)	67 (1.1)	81 (1.4)
Postprocedural hemorrhage (including postprocedural hematoma, wound hemorrhage, vessel puncture site hematoma and catheter site hemorrhage)	54 (0.9)	60 (1.0)
Transaminases increased (including alanine aminotransferase increased and alanine aminotransferase abnormal)	50 (0.8)	71 (1.2)
Aspartate aminotransferase increased	47 (0.8)	69 (1.2)
Gamma-glutamyltransferase increased	38 (0.6)	65 (1.1)

Less common adverse reactions in apixaban-treated patients undergoing hip or knee replacement surgery occurring at a frequency of ≥0.1% to <1%:

Blood and lymphatic system disorders: thrombocytopenia (including platelet count decreases)

Vascular disorders: hypotension (including procedural hypotension)

Respiratory, thoracic, and mediastinal disorders: epistaxis

Gastrointestinal disorders: gastrointestinal hemorrhage (including hematemesis and melena), hematochezia

Hepatobiliary disorders: liver function test abnormal, blood alkaline phosphatase increased, blood bilirubin increased

Renal and urinary disorders: hematuria (including respective laboratory parameters)

Injury, poisoning, and procedural complications: wound secretion, incision-site hemorrhage (including incision-site hematoma), operative hemorrhage

Less common adverse reactions in apixaban-treated patients undergoing hip or knee replacement surgery occurring at a frequency of <0.1%:

Gingival bleeding, hemoptysis, hypersensitivity, muscle hemorrhage, ocular hemorrhage (including conjunctival hemorrhage), rectal hemorrhage

Treatment of DVT and PE and Reduction in the Risk of Recurrence of DVT or PE

The safety of ELIQUIS has been evaluated in the AMPLIFY and AMPLIFY-EXT studies, including 2676 patients exposed to ELIQUIS 10 mg twice daily, 3359 patients exposed to ELIQUIS 5 mg twice daily, and 840 patients exposed to ELIQUIS 2.5 mg twice daily.

Common adverse reactions (≥1%) were gingival bleeding, epistaxis, contusion, hematuria, rectal hemorrhage, hematoma, menorrhagia, and hemoptysis.

AMPLIFY Study

The mean duration of exposure to ELIQUIS was 154 days and to enoxaparin/warfarin was 152 days in the AMPLIFY study. Adverse reactions related to bleeding occurred in 417 (15.6%) ELIQUIS-treated patients compared to 661 (24.6%) enoxaparin/warfarin-treated patients. The discontinuation rate due to bleeding events was 0.7% in the ELIQUIS-treated patients compared to 1.7% in enoxaparin/warfarin-treated patients in the AMPLIFY study.

In the AMPLIFY study, ELIQUIS was statistically superior to enoxaparin/warfarin in the primary safety endpoint of major bleeding (relative risk 0.31, 95% CI [0.17, 0.55], P-value <0.0001).

Bleeding results from the AMPLIFY study are summarized in Table 5.

Table 5: Bleeding Results in the AMPLIFY Study

	ELIQUIS N=2676 n (%)	Enoxaparin/Warfarin N=2689 n (%)	Relative Risk (95% CI)
Major	15 (0.6)	49 (1.8)	0.31 (0.17, 0.55) p<0.0001
CRNM*	103 (3.9)	215 (8.0)	
Major + CRNM	115 (4.3)	261 (9.7)	
Minor	313 (11.7)	505 (18.8)	
All	402 (15.0)	676 (25.1)	

* CRNM = clinically relevant nonmajor bleeding.
Events associated with each endpoint were counted once per subject, but subjects may have contributed events to multiple endpoints.

Adverse reactions occurring in ≥1% of patients in the AMPLIFY study are listed in Table 6.

Table 6: Adverse Reactions Occurring in ≥1% of Patients Treated for DVT and PE in the AMPLIFY Study

	ELIQUIS N=2676 n (%)	Enoxaparin/Warfarin N=2689 n (%)
Epistaxis	77 (2.9)	146 (5.4)
Contusion	49 (1.8)	97 (3.6)
Hematuria	46 (1.7)	102 (3.8)
Menorrhagia	38 (1.4)	30 (1.1)
Hematoma	35 (1.3)	76 (2.8)
Hemoptysis	32 (1.2)	31 (1.2)
Rectal hemorrhage	26 (1.0)	39 (1.5)
Gingival bleeding	26 (1.0)	50 (1.9)

AMPLIFY-EXT Study

The mean duration of exposure to ELIQUIS was approximately 330 days and to placebo was 312 days in the AMPLIFY-EXT study. Adverse reactions related to bleeding occurred in 219 (13.3%) ELIQUIS-treated patients compared to 72 (8.7%) placebo-treated patients. The discontinuation rate due to bleeding events was approximately 1% in the ELIQUIS-treated patients compared to 0.4% in those patients in the placebo group in the AMPLIFY-EXT study.

Bleeding results from the AMPLIFY-EXT study are summarized in Table 7.

Table 7: Bleeding Results in the AMPLIFY-EXT Study

	ELIQUIS (apixaban) 2.5 mg bid N=840 n (%)	ELIQUIS 5 mg bid N=811 n (%)	Placebo N=826 n (%)
Major	2 (0.2)	1 (0.1)	4 (0.5)
CRNM*	25 (3.0)	34 (4.2)	19 (2.3)
Major + CRNM	27 (3.2)	35 (4.3)	22 (2.7)
Minor	75 (8.9)	98 (12.1)	58 (7.0)
All	94 (11.2)	121 (14.9)	74 (9.0)

* CRNM = clinically relevant nonmajor bleeding.
Events associated with each endpoint were counted once per subject, but subjects may have contributed events to multiple endpoints.

Adverse reactions occurring in ≥1% of patients in the AMPLIFY-EXT study are listed in Table 8.

Table 8: Adverse Reactions Occurring in ≥1% of Patients Undergoing Extended Treatment for DVT and PE in the AMPLIFY-EXT Study

	ELIQUIS 2.5 mg bid N=840 n (%)	ELIQUIS 5 mg bid N=811 n (%)	Placebo N=826 n (%)
Epistaxis	13 (1.5)	29 (3.6)	9 (1.1)
Hematuria	12 (1.4)	17 (2.1)	9 (1.1)
Hematoma	13 (1.5)	16 (2.0)	10 (1.2)
Contusion	18 (2.1)	18 (2.2)	18 (2.2)
Gingival bleeding	12 (1.4)	9 (1.1)	3 (0.4)

Other Adverse Reactions

Less common adverse reactions in ELIQUIS-treated patients in the AMPLIFY or AMPLIFY-EXT studies occurring at a frequency of ≥0.1% to <1%:

Blood and lymphatic system disorders: hemorrhagic anemia

Gastrointestinal disorders: hematochezia, hemorrhoidal hemorrhage, gastrointestinal hemorrhage, hematemesis, melena, anal hemorrhage

Injury, poisoning, and procedural complications: wound hemorrhage, postprocedural hemorrhage, traumatic hematoma, periorbital hematoma

Musculoskeletal and connective tissue disorders: muscle hemorrhage

Reproductive system and breast disorders: vaginal hemorrhage, metrorrhagia, menometrorrhagia, genital hemorrhage

Vascular disorders: hemorrhage

Skin and subcutaneous tissue disorders: ecchymosis, skin hemorrhage, petechiae

Eye disorders: conjunctival hemorrhage, retinal hemorrhage, eye hemorrhage

Investigations: blood urine present, occult blood positive, occult blood, red blood cells urine positive

General disorders and administration-site conditions: injection-site hematoma, vessel puncture-site hematoma

DRUG INTERACTIONS

Apixaban is a substrate of both CYP3A4 and P-gp. Inhibitors of CYP3A4 and P-gp increase exposure to apixaban and increase the risk of bleeding. Inducers of CYP3A4 and P-gp decrease exposure to apixaban and increase the risk of stroke and other thromboembolic events.

Strong Dual Inhibitors of CYP3A4 and P-gp

For patients receiving ELIQUIS 5 mg or 10 mg twice daily, the dose of ELIQUIS should be decreased by 50% when it is coadministered with drugs that are strong dual inhibitors of CYP3A4 and P-gp (e.g., ketoconazole, itraconazole, ritonavir, or clarithromycin) *[see Dosage and Administration (2.5) and Clinical Pharmacology (12.3) in full Prescribing Information]*.

For patients receiving ELIQUIS at a dose of 2.5 mg twice daily, avoid coadministration with strong dual inhibitors of CYP3A4 and P-gp *[see Dosage and Administration (2.5) and Clinical Pharmacology (12.3) in full Prescribing Information]*.

Strong Dual Inducers of CYP3A4 and P-gp

Avoid concomitant use of ELIQUIS with strong dual inducers of CYP3A4 and P-gp (e.g., rifampin, carbamazepine, phenytoin, St. John's wort) because such drugs will decrease exposure to apixaban *[see Clinical Pharmacology (12.3) in full Prescribing Information]*.

Anticoagulants and Antiplatelet Agents

Coadministration of antiplatelet agents, fibrinolytics, heparin, aspirin, and chronic NSAID use increases the risk of bleeding.

APPRAISE-2, a placebo-controlled clinical trial of apixaban in high-risk, post-acute coronary syndrome patients treated with aspirin or the combination of aspirin and clopidogrel, was terminated early due to a higher rate of bleeding with apixaban compared to placebo. The rate of ISTH major bleeding was 2.8% per year with apixaban versus 0.6% per year with placebo in patients receiving single antiplatelet therapy and was 5.9% per year with apixaban versus 2.5% per year with placebo in those receiving dual antiplatelet therapy.

In ARISTOTLE, concomitant use of aspirin increased the bleeding risk on ELIQUIS from 1.8% per year to 3.4% per year and concomitant use of aspirin and warfarin increased the bleeding risk from 2.7% per year to 4.6% per year. In this clinical trial, there was limited (2.3%) use of dual antiplatelet therapy with ELIQUIS.

USE IN SPECIFIC POPULATIONS

Pregnancy

Pregnancy Category B

There are no adequate and well-controlled studies of ELIQUIS in pregnant women. Treatment is likely to increase the risk of hemorrhage during pregnancy and delivery. ELIQUIS should be used during pregnancy only if the potential benefit outweighs the potential risk to the mother and fetus.

Treatment of pregnant rats, rabbits, and mice after implantation until the end of gestation resulted in fetal exposure to apixaban, but was not associated with increased risk for fetal malformations or toxicity. No maternal or fetal deaths were attributed to bleeding. Increased incidence of maternal bleeding was observed in mice, rats, and rabbits at maternal exposures that were 19, 4, and 1 times, respectively, the human exposure of unbound drug, based on area under plasma-concentration time curve (AUC) comparisons at the maximum recommended human dose (MRHD) of 10 mg (5 mg twice daily).

Labor and Delivery

Safety and effectiveness of ELIQUIS during labor and delivery have not been studied in clinical trials. Consider the risks of bleeding and of stroke in using ELIQUIS in this setting *[see Warnings and Precautions]*.

Treatment of pregnant rats from implantation (gestation Day 7) to weaning (lactation Day 21) with apixaban at a dose of 1000 mg/kg (about 5 times the human exposure based on unbound apixaban) did not result in death of offspring or death of mother rats during labor in association with uterine bleeding. However, increased incidence of maternal bleeding, primarily during gestation, occurred at apixaban doses of ≥25 mg/kg, a dose corresponding to ≥1.3 times the human exposure.

Nursing Mothers

It is unknown whether apixaban or its metabolites are excreted in human milk. Rats excrete apixaban in milk (12% of the maternal dose).

Women should be instructed either to discontinue breastfeeding or to discontinue ELIQUIS (apixaban) therapy, taking into account the importance of the drug to the mother.

Pediatric Use

Safety and effectiveness in pediatric patients have not been established.

Geriatric Use

Of the total subjects in the ARISTOTLE and AVERROES clinical studies, >69% were 65 and older, and >31% were 75 and older. In the ADVANCE-1, ADVANCE-2, and ADVANCE-3 clinical studies, 50% of subjects were 65 and older, while 16% were 75 and older. In the AMPLIFY and AMPLIFY-EXT clinical studies, >32% of subjects were 65 and older and >13% were 75 and older. No clinically significant differences in safety or effectiveness were observed when comparing subjects in different age groups.

Renal Impairment

Reduction of Risk of Stroke and Systemic Embolism in Patients with Nonvalvular Atrial Fibrillation

The recommended dose is 2.5 mg twice daily in patients with at least two of the following characteristics *[see Dosage and Administration (2.1) in full Prescribing Information]*:

- age ≥80 years
- body weight ≤60 kg
- serum creatinine ≥1.5 mg/dL

Patients with End-Stage Renal Disease on Dialysis

Clinical efficacy and safety studies with ELIQUIS did not enroll patients with end-stage renal disease (ESRD) on dialysis. In patients with ESRD maintained on intermittent hemodialysis, administration of ELIQUIS at the usually recommended dose *[see Dosage and Administration (2.1) in full Prescribing Information]* will result in concentrations of apixaban and pharmacodynamic activity similar to those observed in the ARISTOTLE study *[see Clinical Pharmacology (12.3) in full Prescribing Information]*. It is not known whether these concentrations will lead to similar stroke reduction and bleeding risk in patients with ESRD on dialysis as was seen in ARISTOTLE.

Prophylaxis of Deep Vein Thrombosis Following Hip or Knee Replacement Surgery, and Treatment of DVT and PE and Reduction in the Risk of Recurrence of DVT and PE

No dose adjustment is recommended for patients with renal impairment, including those with ESRD on dialysis *[see Dosage and Administration (2.1) in full Prescribing Information]*.

Clinical efficacy and safety studies with ELIQUIS did not enroll patients with ESRD on dialysis or patients with a CrCl <15 mL/min; therefore, dosing recommendations are based on pharmacokinetic and pharmacodynamic (anti-FXa activity) data in subjects with ESRD maintained on dialysis *[see Clinical Pharmacology (12.3) in full Prescribing Information]*.

Hepatic Impairment

No dose adjustment is required in patients with mild hepatic impairment (Child-Pugh class A). Because patients with moderate hepatic impairment (Child-Pugh class B) may have intrinsic coagulation abnormalities and there is limited clinical experience with ELIQUIS in these patients, dosing recommendations cannot be provided *[see Clinical Pharmacology (12.2) in full Prescribing Information]*. ELIQUIS is not recommended in patients with severe hepatic impairment (Child-Pugh class C) *[see Clinical Pharmacology (12.2) in full Prescribing Information]*.

OVERDOSAGE

There is no antidote to ELIQUIS. Overdose of ELIQUIS increases the risk of bleeding *[see Warnings and Precautions]*.

In controlled clinical trials, orally administered apixaban in healthy subjects at doses up to 50 mg daily for 3 to 7 days (25 mg twice daily for 7 days or 50 mg once daily for 3 days) had no clinically relevant adverse effects.

In healthy subjects, administration of activated charcoal 2 and 6 hours after ingestion of a 20-mg dose of apixaban reduced mean apixaban AUC by 50% and 27%, respectively. Thus, administration of activated charcoal may be useful in the management of apixaban overdose or accidental ingestion.

PATIENT COUNSELING INFORMATION

Advise patients to read the FDA-approved patient labeling (Medication Guide).

Advise patients of the following:

- Not to discontinue ELIQUIS without talking to their physician first.
- That it might take longer than usual for bleeding to stop, and they may bruise or bleed more easily when treated with ELIQUIS. Advise patients about how to recognize bleeding or symptoms of hypovolemia and of the urgent need to report any unusual bleeding to their physician.
- To tell their physicians and dentists they are taking ELIQUIS, and/or any other product known to affect bleeding (including nonprescription products, such as aspirin or NSAIDs), before any surgery or medical or dental procedure is scheduled and before any new drug is taken.
- If the patient is having neuraxial anesthesia or spinal puncture, inform the patient to watch for signs and symptoms of spinal or epidural hematomas *[see Warnings and Precautions]*. If any of these symptoms occur, advise the patient to seek emergent medical attention.
- To tell their physicians if they are pregnant or plan to become pregnant or are breastfeeding or intend to breastfeed during treatment with ELIQUIS *[see Use in Specific Populations]*.
- How to take ELIQUIS if they cannot swallow, or require a nasogastric tube *[see Dosage and Administration (2.6) in full Prescribing Information]*.
- What to do if a dose is missed *[see Dosage and Administration (2.2) in full Prescribing Information]*.

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CANNABIS: AN OLD MEDICINE WITHOUT A PACKAGE INSERT

Physicians need to educate themselves on cannabis so they can educate patients

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by SCOTT A. BIER, MD, FACEP

I was disappointed by the one-sided argument published in *ACEP Now*'s May 2017 article "Experiencing the Dangers of Marijuana Firsthand" by Brad Roberts, MD. Most of what the author points to as his evidence comes from dated reports and the anecdotal personal experience of a physician who describes himself as just out of residency. Most disturbing are instances in which Dr. Roberts conflates correlation with causation, such as his conclusion that legal cannabis is responsible for increased homelessness in Pueblo, Colorado. While I agree with his assertion that there are "likely some very effective ways to use cannabinoid receptors" and the need for unbiased education, his main premise is deeply flawed and stigmatizes the millions of patients who are helped daily by medical cannabis.

Many key facts were omitted from Dr. Roberts article, including recent studies that show decreases in overall prescriptions as well as hospitalizations and overdoses related to opioids in states that have legal and regulated medical cannabis programs.[1,2] In fact, one study even showed a decrease in 21- to 40-year-old drivers who tested positive for opioids involved in fatal car crashes in medically legal states.[3] Also absent was a description of the draconian restrictions that remain to this day on cannabis research, making it difficult to perform the type of double-blind, prospective, peer-reviewed studies that validate what countless patients already know about these medicinal compounds.[4] I find it difficult to understand how Dr. Roberts can assert that medical cannabis should have a "black-box warning" since it is typically well-tolerated and there has never been a case of fatal overdose. Perhaps instead he should advocate for similar warnings for diphenhydramine, which not only causes cardiotoxicity and anticholinergic syndrome but also has psychoactive side effects?

To say there is no cited research related to cannabis use is simply untrue. Earlier this year, the National Academies of Sciences, Engineering, and Medicine performed a rigorous and conservative review of the scientific literature regarding the therapeutic use of cannabis and cannabis-derived products published since 1999. Among other conclusions, the report found strong evidence that cannabis preparations were effective in treating chronic pain, muscle spasms related to multiple sclerosis, and chemotherapy-induced nausea and vomiting.[5] Another recent article reviewing 140 studies performed over the past 40 years concludes that cannabis-based medicines show promising effects in the treatment of anxiety disorders, dystonia, and some forms of epilepsy.[6]

We, as the medical community, suffer from a collective amnesia as it pertains to cannabis as medicine. In fact, before the arbitrary application of the Marijuana Tax Act of 1937, which effectively made cannabis illegal, physicians had published hundreds of papers recommending its use for myriad medical conditions.[7] It was even listed on the American Pharmacopeia as a medicine until 1941. With recent studies reaffirming what we already knew 100 years ago, where is the outrage from medical professionals about the virtual impossibility of doing clinical trials in this country to validate formulations, dosages, and efficacy?

Dr. Roberts questions why so-called "cannabis refugees" move to Colorado for medicinal cannabis, thereby leaving "established medical care" for their illness. I think the more appropriate questions are, Why should these patients need to leave their home state in the first place? Why should crossing a state line determine whether patients are entitled to avail themselves of all potential treatments for their illnesses?

I agree that we should improve medical education as it pertains to medical cannabis. Furthermore, as a physician, I am not completely comfortable with so-called "budtenders," who may lack proper training about medical cannabis products. However, if the medical profession does not step in, what alternative source of information do patients have?

As legalization spreads around the United States, public education is paramount. Many of the problems portrayed in Dr. Roberts' article were likely the result of overconsumption or accidental ingestion, especially with edible formulations. These enterically absorbed preparations have a slower onset of action than inhalation, the more traditional method of consumption. Those who have not been properly educated about the associated delay in onset may ingest more edibles, resulting in a larger than desired dose.

This is no different than naive alcohol consumers overindulging as a result of their unfamiliarity with alcohol's effects. Furthermore, the vast majority of cannabis ingestion–related emergency patients I have cared for in my 13-plus-year career have presented after consuming cannabis laced with other chemicals such as methamphetamine or formaldehyde. These preparations are almost exclusively the products of the illegal market, which would be greatly curtailed by a legal and regulated cannabis industry.

Whether referring to medical or adult recreational cannabis, we must educate the public about improper storage of all drugs, given the associated risk of accidental ingestion. There have been instances in which cannabis-containing preparations that were not properly labeled have been ingested, leading to untoward effects and even hospitalization in some cases. This is an issue that many states with legal programs have attempted to remedy alongside the cannabis industry, which has done an admirable job of self-regulating. Potentially harmful substances, whether prescription opioids, alcohol, or cannabis, should be secured away from children and unsuspecting adults to avoid these situations.

Dr. Roberts' article represents the antiquated thinking that allows this process to continue unchecked. The medical community should educate itself about cannabis and provide guidance to patients and dispensaries on its use. I urge readers to do their own research, attend a conference, or take a CME course rather than make broad statements about cannabis based on selected anecdotes and 80 years of drug war propaganda.

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DR. BIER is vice chair of emergency medicine at Memorial Hermann The Woodlands in Shenandoah, Texas.

"A New Spin" is the personal perspective of the author and does not represent an official position of *ACEP Now* or ACEP.

NEWS FROM THE COLLEGE

UPDATES AND ALERTS FROM ACEP

ACEP Member Wins Medal of Valor

Sean Ochsenbein, MD, an ACEP and EMRA member and first-year resident at Wake Forest University in Winston-Salem, North Carolina, will be receiving the Presidential Public Safety Office Medal of Valor. He is one of only 12 recipients for 2015–2016.

Dr. Ochsenbein receives this honor due to his actions, while returning from a vacation, in caring for victims of a head-on collision that resulted in a fire. After finding one victim deceased, he found the driver of the other vehicle alive but trapped. Thinking quickly, he used a tow strap to force the driver's door open and free him minutes before the vehicle was engulfed in flames. Dr. Ochsenbein credits his quick action and skill to his training and mentorship with the Putnam County (Tennessee) Rescue Squad, whose assistant chief, David Anderson, nominated him.

PHOTO: SEAN OCHSENBEIN

Dr. Ochsenbein

The Medal of Valor is the highest national award for valor by a public safety officer. An act of valor is defined as being above and beyond the call of duty and exhibiting exceptional courage, extraordinary decisiveness and presence of mind, and unusual swiftness of action, regardless of one's personal safety in an attempt to save or protect human life.

EM Makes its Mark in Maine

Recently, ACEP Executive Director Dean Wilkerson was a guest and panelist at the annual meeting of the Maine Medical Association (MMA). ACEP member Charles Pattavina, MD, FACEP, is the current President of the MMA, a national leadership position and an excellent win for emergency medicine.

(Left to right) Gordon Smith, Executive Vice President of MMA; Charles Pattavina, MD, President of MMA; Dean Wilkerson, ACEP Executive Director.

PHOTO: ACEP

ILLUSTRATION: CHRIS WHISSEN & SHUTTERSTOCK.COM

THE OTHER SIDE OF ADDICTION

My experience running a methadone clinic

by ERIC KETCHAM, MD, MBA, FACEP, FACHE

I am a residency-trained, American Board of Emergency Medicine–certified emergency physician and proud of it. I have enjoyed a broad and rich clinical practice. Truthfully, as much as I enjoy a challenging trauma or critical care case, no other part of my clinical practice gives me as much professional satisfaction as the work I do running an opioid addiction treatment clinic.

How Did I Wind Up Working with Opioid Addicts?

For years, in my emergency department it seemed that the number of patients seeking opioids through the emergency department was growing exponentially, so in 2012, we implemented a very successful opioid-seeking recidivism reduction program, which dramatically cut ED opioid-seeking visits. However, the rapid rise of heroin abuse and opioid overdose in our community continued.

I then realized that the better way to keep an opioid addict from frequenting the emergency department for drug seeking or dying from an overdose would be to enroll that patient into opioid addiction treatment.

I signed up for a buprenorphine class and obtained the "X" license required to be able to prescribe "bupe" for addiction or detox. I started using bupe to treat acute opioid withdrawal in the emergency department and saw how rapidly my patients improved. It was like magic! With no IV medications, just a single sublingual tablet of bupe, the withdrawal symptoms abruptly stopped, and my patients, who just minutes before were vomiting and writhing, suddenly became calm and appropriate. However, even if I prescribed a course of bupe to bridge the patient to an addiction clinic, the patient would sometimes have to wait for two months to see the only reputable physician treating opioid addiction in our community. Thus, I remained frustrated with the inability to make a lasting difference with this challenging patient population.

Great news came in the fall of 2014: A methadone clinic was opening. Unfortunately, the clinic sputtered, and after a few months, the doctor who opened the clinic quit. By the end of 2015, the clinic was on the verge of closing. The clinic was sold, and the new managing company approached me about filling in as the doctor; I laughed. However, as I thought about how desperate I was to have a place to send patients from the emergency department with opioid addiction, I had to consider it.

I was sure that I was going to regret this decision. I was both depressed and nervous. I had never prescribed methadone before, so I needed to learn about this medication, the pharmacokinetics, induction, titration schedules, drug interactions, QT prolongation, peak and trough levels, etc. However, to be candid, I was far less nervous about working with this medication than I was about working with this patient population in a much more intimate, personal setting in contrast to the bright, loud, open emergency department, which helps us maintain the distanced relationship we have with our patients. After all, for me, avoiding intimate, ongoing doctor-patient relationships is one of the draws of emergency medicine.

I never aspired to be any heroin addict's personal doctor. I just wanted to be able to give a dose of bupe and use the "warm handoff" to pass that patient to another doctor for long-term treatment while I "cleaned up" the emergency department.

After all, from my ED experience, I only knew opioid addicts at their worst: apneic with an overdose; altered; sick and feverish with intravenous drug abuse–associated infections; vomiting and writhing in opioid withdrawal; or manipulative, angry, or agitated trying to get an opioid prescription to treat the pain of withdrawal. I never intended to be handing off those patients to myself.

So How Did I Come to Enjoy This Work So Much?

It didn't take long for me to see that my clinic was making a profound difference in people's lives. At the time of induction (when patients receive their first dose of methadone or buprenorphine), many of the patients in my clinic look a lot like our patients in the emergency department in acute opioid withdrawal. In addition to constantly wiping their noses, fidgeting, writhing, and holding a trash can while trying to contain their nausea, they look exhausted, disheveled, and frustrated. Personal hygiene is usually lacking, and they haven't slept in three or more days.

This is when I obtain the history of their opioid use. Most began being prescribed opioids after an injury or surgery; experimenting with a family member's medication; or just trying to find something to treat their anxiety, depression, or social phobia. Other patients tell heartbreaking stories of being introduced to heroin as teenagers by a close, older relative. There is often a history of ensuing years of family conflict, job loss, incarceration, prostitution, etc. Other patients are still very high-functioning, with good educations, professional licenses, and enviable jobs. They have come to the clinic because they realize that their addiction has put them on the verge of losing their families and their careers.

All the patients in the clinic want to be free from the yoke of opioid addiction. They only continue to seek and use opioids to keep from experiencing the terrible misery of opioid withdrawal. They are tired of continually feeling sick and having so much of their time and money consumed with securing their next "fix."

However, often when I see the patients we've inducted a few weeks later, they are unrecognizable to me because they look great. They look clean and well-rested, and they are smiling and cheerful. They have begun the road to recovery and have rekindled relationships with their families. Many have returned to work or school or are simply meeting their family obligations, which they failed to do frequently before.

Recently, I asked a patient, Nicole, why she looked so happy. She said, "Because I am kicking ass in life now." She is 28 years old, and she is now keeping a steady job as a waitress and enjoying it. She is attending classes at a community college, and for the first time in years, she can afford her own apartment. For the first time in 10 years, she feels optimistic about her future.

Certainly, some of our patients drop out of therapy and relapse. Relapse is a part of recovery, and we have inducted some patients more than once. In a year and a half, I have lost three patients to overdoses, two of whom I believe were suicides. I have nearly lost a few others to non-suicidal overdoses, but they were rescued with naloxone. I know that I will lose some of my patients, some at young ages, but far fewer of my patients will die than if they weren't in treatment.

Our clinic now accepts immediate referrals (often the same day) from physician offices, hospital clinics and inpatient units, the criminal justice system, and, of course, the emergency department. In just 16 months, our clinic patient volume has increased by about 150 new, regular patients. During this time, I have heard many stories like Nicole's. So many patients are back to work, not in jail, paying taxes, attending school, caring for others, or just living a happier and healthier life.

My patients routinely thank me for working there. At least a dozen patients have said to me, very emotionally and sincerely, "You saved my life." Truly, the work of the clinic has been life-transforming for so many of our patients.

DR. KETCHAM is medical director of the opioid addiction treatment service via New Mexico Treatment Services in Farmington, co-medical director of EMS agencies of San Juan County, and a staff emergency physician at San Juan Regional Medical Center in Farmington and Los Alamos Medical Center.

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Advocating for Fair Payment for Emergency Medicine

ACEP'S NEW EXECUTIVE DIRECTOR OF PUBLIC AFFAIRS ON MACRA, MEDICARE CHANGES

by LAURA WOOSTER, MPH

Each year, the Centers for Medicare and Medicaid Services (CMS) puts out several regulations that impact how emergency physicians are paid under Medicare. Federal regulations provide details needed to implement legislation once it has been passed by Congress and signed into law by the president. They are promulgated in draft form by the federal agency with jurisdiction over that area, in this case CMS, and released to the public for comment. Some months later, the agency will then release a final rule incorporating any changes it deemed appropriate based in part on the feedback collected from the commenting public. Some regulations, such as the CMS payment rules, require annual updates and are therefore released with proposed revisions each year for stakeholders such as ACEP to comment on.

ACEP provided extensive comment to CMS in August on the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) Quality Payment Program (QPP) proposed rule. At over 1,000 pages, the rule offers details of CMS's vision for the second year of this new payment program for physicians in Medicare. For 2018, CMS proposes to continue many of the "pick-your-pace" flexibilities it provided in 2017 for the merit-based incentive payment system (MIPS) (ie, fee-for-service) component in the program's initial year, but it is starting to raise the bar in order to encourage participating clinicians to more fully embrace a transition. Of note, CMS proposed to significantly increase the threshold for a "low-volume" exception from the requirement to participate in MIPS to fewer than $90,000 in Part B charges or 200 patients. ACEP supported CMS's proposal to allow hospital-based physicians to have some of their performance for MIPS be based on that of their facility, rather than on their individual or group performance, if offered as an option. ACEP also strongly supported CMS's proposal to offer bonus points for clinicians who care for sicker patients and to risk-adjust some components of MIPS scores by sociodemographic factors.

In September, the CY 2018 Medicare physician fee schedule proposed rule provided another opportunity for ACEP to provide extensive input on regulations affecting emergency medicine. While CMS proposed a welcome additional delay for the appropriate use criteria (AUC) program for advanced imaging to 2019, ACEP expressed strong concerns with the program overall and the significant administrative burdens it will create for emergency physicians and called, once again, on CMS to exempt emergency medical conditions as Congress intended.

Continuing the efforts of former US Health and Human Services Secretary Tom Price, MD, to reduce administrative burdens for physicians in Medicare, CMS is proposing to streamline or even do away with documentation requirements for the history and physical portion for evaluation and management (E/M) visits at all levels. ACEP noted its appreciation for such efforts, but urged caution given the unique environment in emergency departments that often necessitates a significant amount of documentation for clinical, legal, operational, and coverage reasons.

CMS also proposed including emergency medicine E/M codes this year as part of its "misvalued codes" initiative that each year looks to identify codes in the fee schedule for potential revaluation in order to ensure better payment accuracy in Medicare. ACEP emphasized that the intensity in reported ED services has increased significantly over the past years but noted that it is premature to advise specifics on potential revaluation of any E/M codes at this time for a number of reasons.

While they are less impactful for emergency physicians, ACEP provided a response to several provisions of the hospital outpatient prospective payment system (HOPPS) proposed rule that suggests changes to the Hospital Outpatient Quality Reporting (OQR) program. ACEP strongly supported a new proposal to account for social risk factors in the OQR. While noting the importance of measuring ED throughput times for psychiatric patients, ACEP expressed strong concerns with CMS's proposal to publicly report results on the Physician Compare website of this measure in the OQR program, given a lack of context that would be reported along with the results.

The final rule for the MACRA QPP program is expected sometime in October, while the fee schedule and HOPPS rules are both expected to be released in final form in November. ACEP will provide a summary to members of any changes in Medicare these rules will bring to their practice for the 2018 calendar year.

MS. WOOSTER is ACEP's associate executive director of public affairs, overseeing the College's federal legislative, regulatory, grassroots, and public relations functions. Prior to joining ACEP, Ms. Wooster served as senior vice president of public policy for the American Osteopathic Association. She also spent five years at the Blue Cross Blue Shield Association, first developing policy on delivery system reform and health IT, then as a congressional and administration lobbyist. Ms. Wooster holds a Bachelor of Science degree in biology from the University of Michigan and a master's degree in public health from the University of Illinois School of Public Health.

Expertise Supporting the Core of Our Mission

ACEP STAFF SUPPORTS HURRICANE HARVEY RESPONSE

by PAT R. ELMES, EMT-P; RICK A. MURRAY, EMT-P; AND CYNTHIA A. SINGH, MS

As Hurricane Harvey descended upon south Texas, many ACEP members and other first responders deployed to care for the victims of the record-breaking storm.

Disaster medical assistance teams (DMATs) from 10 states, US Public Health Service (PHS) personnel, and trauma critical care teams (TCCTs) serendipitously billeted close to ACEP headquarters in Irving, Texas, awaiting their mission assignments. Shari Augustin, Minnesota (MN)-*1* DMAT administrative officer, ACEP Disaster Preparedness and Response Committee member, and Minnesota Chapter ACEP Executive Director, reached out to ACEP national staff with a request: "Could the teams utilize the ACEP headquarters to conduct just-in-time training to prepare them to effectively deploy?" The answer?

"Absolutely, we would be honored!"

ACEP staff quickly arranged to open the headquarters on Sunday, Aug. 27, and Monday, Aug. 28, to provide space, audio/video equipment, food, and drinks to host more than 250 first responders. The building provided a safe and secure location for group training on electronic medical records technology, interdepartmental communication, family notification procedures, patient transport, equipment cache updates, and special considerations during emergency flood response.

Merle Hillman, MD, FACEP, team leader of MN-1 DMAT, expressed his gratitude, saying, "Our physicians, [advance practice providers], nurses, medics, and pharmacists gained valuable training prior to our departure on our medical missions in response to Hurricane Harvey in Houston. I am very thankful to ACEP for allowing us the opportunity to use their state-of-the-art facility to provide our personnel with training that enabled them to better provide emergency medical care to our patients in need."

In addition to providing a training location, staff updated the ACEP website with nationally recognized volunteer opportunities and contact information, featured hospital patient-surge information, and provided links to ACEP's Disaster Hero game (funded through a FEMA grant) for families' preparedness and response, as well as a disaster toolkit for the elderly and special needs patients.

PHOTO: ACEP

Disaster medical assistance teams arrive at ACEP's headquarters for training.

ACEP's Disaster Medicine Section list server was activated to respond to several groups requesting volunteer physician support for local and regional medical operations and urban search-and-rescue (USAR) activities. The list server also provided updates on the hurricane status, suspension/augmentation of physician-credentialing laws in Texas, emergency access to medications through pharmaceutical companies, and additional disaster-response information.

"We were glad to do our small part to assist the true heroes, who are the members of DMAT, USAR, and all the other disaster-response teams who volunteer time away from family and friends to train every month so when duty calls, like this storm, they are ready to respond quickly. They leave for days or weeks at a time to help the sick, injured, and needy, sometimes in the worst of conditions. I'm proud ACEP has such a long history of supporting the mission of these various disaster-response teams," stated Rick Murray, EMT-P, ACEP's director of EMS and disaster preparedness.

MR. ELMES is manager of EMS and disaster preparedness at ACEP. **MR. MURRAY** is director of EMS and disaster preparedness at ACEP. **MS. SINGH** is director of grant and foundation development at ACEP and the Emergency Medicine Foundation.

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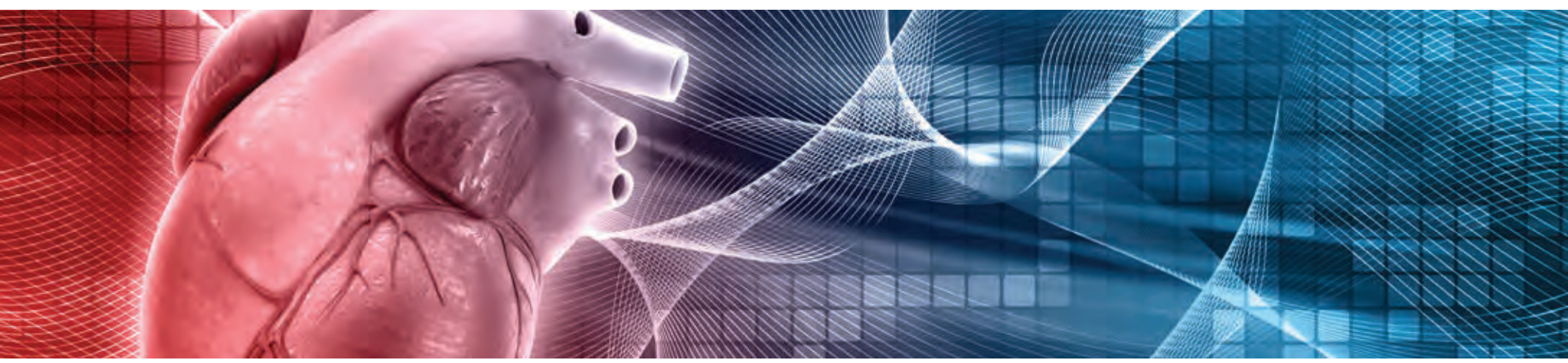

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PHOTO: Michael Nigro/Pacific Press/Alamy Live News

RESPONDING TO TRAGEDY

The UVAHS emergency team was ready to treat victims of the civil unrest in Virginia

by WILLIAM BRADY, MD, FACEP; THOMAS BERRY, MHA; JOSHUA GINSBURG, MD; SAHER IFTIKHAR, MD; KAYVON IZADPANAH, MD; GEORGE LINDBECK, MD, FACEP, FAEMS; SARA SUTHERLAND, MD, FACEP; AND ROBERT O'CONNOR, MD, FACEP

CHARLOTTESVILLE, VIRGINIA, AUG. 12—At 1:42 p.m., a speeding car slammed into a gathering of protestors, injuring many. Within three minutes, the Charlottesville Fire Department notified the University of Virginia Health System (UVAHS) command center of the event, reporting 30 to 40 injured persons with 10 to 20 priority RED (high-priority) victims. At that time, the UVAHS command center notified the emergency department of the occurrence and activated the mass casualty incident (MCI) plan. Within 30 minutes, 20 patients with varying injury severity presented to the emergency department via EMS transport and private vehicles. Additional physicians, nurses, EMTs, and other team members responded to the MCI declaration, including 20 emergency physicians (11 faculty and nine resident physicians), five trauma teams, and additional anesthesiology and critical care physicians along with multiple nurses, EMTs, and other care providers.

This was the sequence of events:

- **1:45 p.m.:** Notification of event to ED nursing and physician leadership.
- **1:47 p.m.:** Activation of UVAHS MCI plan.
- **1:47 p.m.:** Activation of emergency notification systems of health care providers.
- **1:48 p.m.:** EMS diversion from UVAHS of non-priority patients.
- **1:48 p.m.:** ED triage moved from emergency department to hospital lobby.
- **1:52 p.m.:** Report of "CPR in progress" on one victim.
- **1:58 p.m.:** Arrival of first priority patients at UVAHS.
- **2:25 p.m.:** All priority patients had arrived and received initial care.

Approximately 90 minutes later, a Virginia State Police helicopter, deployed to the event, crashed and burned several miles from the event site. Killed in this crash were two Virginia State Police officers, Lieutenant H. Jay Cullen and Trooper-Pilot Berke M.M. Bates. At the time of this writing, the exact cause of the crash was unknown.

One person, Heather Heyer, died in the emergency department as a result of her injuries. Ten patients were admitted (to the operating room and critical care and acute care units), and nine individuals were treated and released from the emergency department. During this time, the UVAHS emergency department continued to provide care for "typical" non-event patients, including those experiencing anaphylaxis, chest pain, dyspnea, etc. An additional 10 to 20 priority GREEN patients were transported to another hospital in Charlottesville. As a result of the Unite the Right rally and related counterprotest, more than 40 patients were treated by both institutions that day, many with complex traumatic injuries; one person died as a result of injuries sustained from a car assault. The majority of those individuals injured by the car received treatment rapidly, and the emergency department returned to normal operations within two hours of initial notification.

These events posed a significant challenge to UVAHS, not only to the emergency department but also the operating room and critical care and acute care units. Despite these challenges, the UVAHS emergency department cared for all patients that day, both related and unrelated to the event. The ability of the emergency department to meet this challenge was a direct result of planning and preparation that occurred over the preceding six weeks as well as past years.

THE UVAHS RESPONSE

With the "scheduled" nature of this MCI, UVAHS and other community partners were able to prepare a coordinated response. The known time and place of this event, however, are in stark contrast to the unanticipated events managed recently by emergency responders in Orlando, Florida; Paris; and Boston.

First and foremost, situational awareness was a priority. During the planning process, UVAHS personnel were informed of the event and the potential impact on hospital operations, including casualty estimates and likely medical conditions generated, using the most likely and most dangerous scenarios. Graduated security options that included access to the facility were implemented. With these notifications, situational awareness was created weeks in advance and carried through the event.

Furthermore, health care provider emergency notification procedures were reviewed and updated when required. For the emergency department, emergency physician (both faculty and resident physician) call-activation systems were revised and tested using the GroupMe app; ED nursing, hospital-based EMTs, and clinical ancillary departments had similar plans. Trauma surgery, anesthesiology, and the various critical care physicians followed similar emergency notification simulations. In addition to emergency notification procedures, the specific medical care roles and responsibilities were evaluated and revised accordingly for the anticipated patient treatment needs. Lastly, potential longevity of the event and related needs were considered with the creation of at least two shifts of additional care providers (physicians, nurses, EMTs, etc).

UVAHS capacity issues were addressed; this portion of the response plan was also vital to operational preparedness and its eventual success. UVAHS leadership made the decision to limit nonurgent procedures and admissions 48 hours in advance of the event. Nonurgent transfers into the hospital were also limited at that time. With this approach, significant inpatient capacity was increased for acute care, including critical care units. Of course, with increased inpatient capacity, the emergency department was able to decompress, creating greater provider availability and bed space for patient management.

In another attempt to decompress the emergency department rapidly, the admissions process for event- and non-event-related patients was significantly curtailed, allowing patients to quickly move to an inpatient location, again creating ED capacity. This intervention, developed and implemented by the chief medical and nursing officers, was also very effective. With the increased ED and UVAHS capacity, the emergency department was able to accept a large number of patients over a very short period of time, with very efficient through-put to maintain readiness for additional patients.

Several additional patient care areas were created. One area, adjacent to the emergency department, was identified as an admission

PHOTOS: William Brady

OPPOSITE PAGE: Responders attend to those injured in skirmishes and after a white nationalist plowed his sports car into a throng of protesters during the "Unite The Right" rally in Charlottesville.

LEFT: UVAHS ambulances staged adjacent to the medical center and ready to respond to emergency calls.

ABOVE:: Gurneys lined up outside of the University of Virginia Medical Center initial casualty collection point (the front entrance to the medical center), ready to receive patients.

IN CHARLOTTESVILLE

holding zone. This area normally functions as a preprocedure and recovery area for invasive radiology procedures; it is equipped with critical care monitoring, gas exchange, and suction capabilities. The hospital lobby, a very large open space, was identified as the triage point for the emergency department if the MCI plan was activated.

In addition, the circular vehicular entranceway into the UVAHS lobby allowed for the rapid entry of ambulances and other automobiles with patients. Patients were quickly unloaded and transferred into the triage area, where high-priority cases were immediately taken to the resuscitation areas of the emergency department. Lower-priority cases were managed in the lobby. Appropriate supplies, equipment, and electronic support for this area were identified and tested in advance. This equipment was stored in areas adjacent to the lobby for immediate use when triage operations shifted from the emergency department to the lobby.

The interface with public safety and other health care community partners, including fire-rescue and law enforcement leaders, was another very important area of planning and preparation. Regarding EMS response and care, UVAHA met with them and developed appropriate communication plans as well as a working knowledge of their ability to triage and manage patients at the event. Law enforcement interface was also vital, not only for security considerations in the emergency department and UVAHS but also for forewarning of the potential threats (eg, firearms, toxins, etc). A UVAHS emergency medicine faculty member, medical director of the Charlottesville Fire Department, was present at this forward triage area, allowing for physician-level triage in the field and direct communication to the UVAHS command center.

On Aug. 11, the UVAHS command center was opened and remained open through the late afternoon of Aug. 13. In the command center, an incident commander was identified along with various command and general staff positions (ie, clinical operations, logistics, plans, public information, and communications), each responsible for their specific area of UVAHS function. A member of the emergency medicine faculty, the medical director of UVAHS emergency management, was present and active on the incident commander's staff. The command center was in communication using telephone, radio, and telemedicine.

The UVAHS command center closely monitored the event via several different mechanisms: real-time video monitoring, direct radio communications with unified command at the scene, on-site physician, and social media monitoring. With this multifactorial monitoring, UVAHS maintained a very high degree of situational awareness and ability to respond. For instance, within minutes of the car striking the crowd, the MCI plan was activated along with the recall of numerous health care providers and the movement of ED triage to the lobby of the hospital.

The use of the command center allowed the emergency department and greater UVAHS to adjust and respond to the changing needs of the community as the event evolved. Furthermore, the command center was able to take a range of duties and responsibilities "off the shoulders" of the emergency physician and nursing leaders, allowing the emergency department personnel to focus on patient management issues.

LOOKING BACK

One area of planning and preparation that could have been more significantly explored was the psychological impact of the event on the health care team pre-, peri-, and postevent.

Immediately prior to the event, the team was able to focus on preparations. Members of the health care team, like many members of the greater Charlottesville community, experienced fear, anxiety, anger, and disbelief that such an event could occur in their community. Of course, the extreme beliefs, opinions, and practices expressed by some of the patients that day represented another challenge; appropriate instruction describing the care of such patients with the suggestion of appropriate strategies was available for providers. After the event, multiple debriefing sessions and after-action reviews were performed, reviewing not only the operational response and areas of potential improvement but also providing emotional support and guidance for the various members of the team.

The emotional devastation inflicted on the community caused by the injuries and loss of life will be with UVAHS for a long time. Lieutenant Cullen, Trooper-Pilot Bates, and Charlottesville-area resident Heather Heyer (the fatality from the car assault) all died that Saturday. The team learned many important lessons that day. Planning and preparation are vital not only for a planned event but also for the unplanned MCI.

The challenge for UVAHS and colleagues in emergency medicine across the nation is that we need to be prepared to react and amass the necessary resources within minutes of notification, for there is no one else who can.

DR. BRADY is professor of emergency medicine and medical director of emergency management at the University of Virginia in Charlottesville.

MR. BERRY is director of emergency management at UVAHS.

DR. GINSBURG is an emergency medicine resident at UVAHS.

DR. IFTIKHAR is an emergency medicine resident at UVAHS.

DR. IZADPANAH is an emergency medicine resident at the University of Virginia.

DR. LINDBECK is associate professor of emergency medicine at UVAHS.

DR. SUTHERLAND is associate professor of emergency medicine at the University of Virginia.

DR. O'CONNOR is professor and chair of emergency medicine and professor of public health sciences at the University of Virginia.

CONTINUED FROM PAGE 1

MEET THE ACEP COUNCIL OFFICER CANDIDATES

COUNCIL SPEAKER CANDIDATE

COUNCIL VICE SPEAKER CANDIDATES

PLATFORM STATEMENTS

The Council officer candidates responded to this question:

Discuss the similarities and differences in the skill sets of the Council officers and Board of Directors. Describe your skills, background, knowledge, or unique abilities that will make you an effective Speaker or Vice Speaker.

COUNCIL SPEAKER

The following member is a candidate for ACEP Council Speaker.

Col. (ret.) John G. McManus Jr., MD, MBA, FACEP (Government Services)

Current Professional Positions: EMS fellowship director and professor of emergency medicine, Georgia Regents University, Augusta
Internships and Residency: transitional internship, Eisenhower Army Medical Center, Augusta, Georgia; chief resident, emergency medicine, Fort Lewis, Washington
Medical Degree: MD, Medical College of Georgia (1992)

Response

After serving for more than 15 years on the Council and the last two years as the Vice Speaker, I have come to recognize that most of the Council possess leadership skill sets. The Board of Directors and Council officers are very collaborative in nature and possess the obvious characteristics of leaders. As elections occur, often the Council will place certain leadership traits higher than others to balance out opinion and promote diversity for society decision making.

My own leadership background is diverse and unique in many ways. I've spent several years working in both medicine and the military for many great leaders, and much to my surprise, the leaders at most of my jobs did not fit commonly espoused theories of leadership. Although several of my previous leaders and mentors were charismatic, possessed a commanding presence, were visionary, and were educated at elite schools, the most successful of these were servant leaders. Over the past two decades, as I have moved up in the leadership ranks, I have relied on being a servant leader as one of my most prized qualities to build consensus, motivate colleagues and peers, and mentor future medical providers off and on the battlefield. A servant leader is one who leads by example and is people-centric. This leader values service to others and believes they have a duty of stewardship. I tend to be a humble but passionate operator in my organizations who believes every member should be treated with equal respect and their opinions valued.

These qualities of servant leadership have served me well and will be ideal to aid in running a successful Council. To be able to devote myself to serving the needs of the individual councillor allows me to focus on meeting the needs of the Council itself. This leadership skill helps develop individual members to bring out the best in themselves and encourages self-expression, facilitates personal growth, and builds a sense of community and joint ownership. Servant leaders are felt to be effective because the needs of followers are so looked after that they reach their full potential and, hence, perform at their best. I really look at this leadership trait as working for the Council rather than leading it, per se. The strength of this way of looking at leadership is that it forces one away from self-serving, domineering leadership and makes one who is leading think harder about how to respect, value, and motivate people working with them. I look forward to the potential opportunity to serve the Council in this capacity.

COUNCIL VICE SPEAKER

The following members are candidates for ACEP Council Vice Speaker.

Sabina Braithwaite, MD, MPH, FACEP, FAEMS (Missouri)

Current Professional Positions: associate professor of emergency medicine and EMS fellowship director, Washington University in St. Louis; clinical educator, Teleflex
Internships and Residency: medical internship, Medical College of Virginia, Richmond; emergency medicine residency, Medical College of Hampton Roads, Norfolk
Medical Degree: MD, Medical College of Virginia (1991)

Response

Both Council officers and Board members must maintain awareness of issues facing not only the organization itself but emergency medicine in general so they are best able to facilitate ACEP's mission to support quality emergency care and promote the interests of emergency physicians. Both groups must be able to:

- entertain views on various sides of the issues
- step back and look through the lens of the organization or the profession, not solely their personal opinion
- recognize their fiduciary responsibility to the organization and its members

At the most basic level, Council officers are primarily being asked to use their meeting management skills to constructively lead a fast-paced, intense, and often passionate and emotionally charged meeting to a productive conclusion reflective of the will of the Council. Their job is to bring hundreds of voices into one with a sense of community with the Council as well as a sense of humor. Their responsibility carries forward between Council meetings in their work with the Steering Committee, looking for ways for the Council to be most effective in being the voice of the membership, and working with the Board to accomplish the organization's priorities as identified in the annual meeting. In contrast, the Board is a contemplative team that thoughtfully and thoroughly reviews, considers, and responds to issues facing the organization, the members, and our field of practice, with a considerably different timeline than the Council.

Council officers are charged with collating, focusing, and amplifying the collective opinion of the Council representatives, who in turn represent the full ACEP membership on the front lines of emergency medicine.

These opinions, in the form of passed resolutions and referred issues, form the "marching orders" that then guide the Board's work on behalf of the membership until the next Council meeting.

Andrea Green, MD, FACEP (Texas)

Current Professional Positions: staff physician, **Emergency Service Partners**/US Acute Care Solutions, travel team

Internships and Residency: residency, Howard University Hospital Emergency Medicine, Washington, D.C.; residency, Sparrow Hospital/University of Michigan Emergency Medicine Program, Lansing

Medical Degree: MD, University of Iowa College of Medicine (1979)

Response

Our Council officers and Board of Directors share the same high-level leadership skill sets. It is the differences in their responsibilities that will dictate utilization of specific skills. The Council officers, charged with speaking for and representing the interests of the Council, will use skills working with the Council to craft resolutions, lead large group discussions, lead timely Council meetings, manage committees, and solve problems collaboratively. The Board of Directors, with responsibility for governance of the organization and setting policy, will use specific skills for fiduciary expertise, strategic vision, policy development, and building quality networks and relationships with organizations. Regardless of the role, both must use their skills to work collaboratively to advance the goals and values of ACEP.

My experiences as President of the Texas College of Emergency Physicians (TCEP), Chair of TCEP committees, emergency department(s) Chair, director of a junior college EMS program, director of a 12-hospital domestic violence program, and CEO of an emergency physician group are but a few career roles that have permitted me the opportunity to develop expertise and successfully demonstrate all of the leadership skills needed for Vice Speaker. My skills include the ability to shape and lead timely and productive group meetings, manage committees, negotiate agreements, problem solve collaboratively, and create policies. I am familiar with parliamentary procedure and am comfortable bringing order and closure to discussions.

I am able to use these skills to serve you. My goals include providing orderly but engaging Council experiences, working to implement effective virtual resolution chat rooms, exploring paths for sharing the Council meetings with colleagues back home (perhaps live streaming), expanding high-tech avenues to facilitate Councillors' participation in multiple reference committees simultaneously, and developing more mentoring and leadership training opportunities for EMRA on Council committees.

I look forward to the opportunity to serve you.

Gary R. Katz, MD, MBA, FACEP (Ohio)

Current Professional Positions: chief medical officer, Family Care Partners, Varsity Healthcare; assistant professor and program director, administration fellowship, department of emergency medicine, The Ohio State

CONTINUED *on page 18*

MYTHS IN EMERGENCY MEDICINE

Rooted in culture, based on tradition

by KEVIN M. KLAUER, DO, EJD, FACEP

The "Strep" Holiday Is Over!

It is common practice, found frequently in emergency department discharge instructions and always mandated by school nurses, that a child who is diagnosed with "strep throat" must be treated with antibiotics for 24 hours or more before returning to school. The rationale, although without foundation, is that this will reduce the risk of disease transmission. Even the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP) still make this recommendation.

According to the CDC, "people with strep throat should stay home from school or day care until they have taken antibiotics for at least 24 hours." The AAP states that "children with strep throat also need to be taking an oral antibiotic for 24 hours before they can return [to school]."[1]

Let's consider for a moment that a given child actually has pharyngitis or tonsillitis caused by group A beta-hemolytic streptococcus. Is the 24 hour-rule worth following or just pediatric folklore?

First, we can probably assume, to a certain degree, in each of our practices that some percentage of those we diagnose with strep, particularly using the Centor or McIsaac (modified Centor including adding one point for age younger than 15 years and subtracting one point for age older than 45 years) criteria, don't even have the disease. So, a small, but not insignificant, percentage of our patients are held to this questionable standard, protecting their classmates from a virus. Second, the socioeconomic considerations shouldn't be discounted. Abolishing this standard would result in better school attendance and avoidance of missed work for parents. Fairfax County, Virginia, estimated the value of a lost working day to be $427.23.[1]

Finally, and most important, Schwartz et al debunked this myth in 2015.[1] They noted in their study that there was sufficient evidence from three studies in 1985 to challenge this practice. Small numbers—0 percent, 3 percent, and 5 percent, respectively—of these 264 patients had persistent positive cultures 18 to 24 hours after initiating antibiotics. Yet the age-old recommendations were never changed.

The Schwartz study, conducted at Inova Children's Hospital in Virginia, revisited this topic, evaluating whether a single dose of amoxicillin for group A strep pharyngitis would allow return to school in 12 to 23 hours. A total of 111 patients, ages 2 to 17 years, who had sore throats, pharyngeal erythema, and a positive rapid antigen test for group A strep were all given a single dose of amoxicillin (50 mg/kg) and then randomized to two groups, with group A receiving an additional dose at least one hour prior to the arrival for the day two office visit and group B receiving no additional doses prior to the return visit. All patients returned the next morning, day two, to obtain a repeat rapid antigen test and a throat culture. Six patients in group A and four patients in group B had a positive rapid antigen test (confirmed with culture). Thus, 91 percent had undetectable levels 11 to 23 hours post treatment following a single dose of amoxicillin. The authors concluded that if children receive their first dose of amoxicillin 12 hours (5 p.m.) prior to the next school day and they are afebrile and improving, they should be allowed to return to school.

Grab your thermos and head for the bus, buttercup!

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1. Schwartz RH, Kim D, Martin M, et al. A reappraisal of the minimum duration of antibiotic treatment before approval of return to school for children with streptococcal pharyngitis. *Pediatr Infect Dis J.* 2015;34(12):1302-1304.

DR. KLAUER is an ACEP Board member; chief medical officer–emergency medicine, chief risk officer, and executive director–patient safety organization at TeamHealth; *ACEP Now* medical Editor in Chief; and clinical assistant professor, University of Tennessee and Michigan State University College of Osteopathic Medicine.

COUNCIL CANDIDATES

CONTINUED FROM PAGE 17

University, Columbus
Internships and Residency: emergency medicine residency, Summa Health System, Akron, Ohio; emergency medicine internship, Summa Health System
Medical Degree: MD, Medical College of Ohio (1998)

Response

Council officers play an essential role that both mirrors and diverges from that of the Board. Both must create unifying messages and strengthen our ACEP. While this might be easier in times of consensus, it is during times of disparity the Council officers must apply their unique skills, facilitating dialogue to create action where agreement can be fashioned.

Creating harmony in times of conflict requires assurance that the majority's will is followed while the minority's rights remain protected. Resolution of these competing forces is founded in parliamentary procedure, a skill I have studied and applied. I served as Speaker, while Chair of the American Medical Association (AMA) Young Physicians Section and chaired the AMA's finance and governance committee, where I ran assemblies like our ACEP Council.

However, fairness and justice must be exhibited by more than employing parliamentary procedure. The traits of fostering dialogue must be exhibited year-round, assuring that membership voices are developed with broad participation. Such opportunities exist in growing social communities where peers share insight, experiences, frustrations, and solutions to our challenges. No longer are we limited to interacting infrequently. Through ongoing discourse, we can reach beyond facile understanding and create critical solutions that carry a national input and support.

I was privileged to serve two terms as Ohio ACEP President. During these terms, I employed these communication principles to lead our chapter's growing education and advocacy missions. This has yielded sustained increases in member engagement. This philosophy of outreach reflects what we would also desire in a Board member.

Our Council remains the best channel to strengthen the voice of ACEP's membership and further the cause of emergency medicine. The duties of the Council officers carry unique requirements to achieve success. I'm happy to bring expertise that will marry Board of Directors and Speaker skills to be a strong voice for you.

IN THE NEWS

UPDATES AND ALERTS

Still Too Many CT Scans for Pediatric Nontraumatic Abdominal Pain

by WILL BOGGS, MD

NEW YORK (Reuters Health) - Emergency department CT imaging rates for children with nontraumatic abdominal pain have changed little since 2007, although pediatric emergency departments (EDs) are more likely than general EDs to use the recommended ultrasound as a first imaging procedure.

"I believe that the dissemination of pediatric radiology protocols used in pediatric EDs to general EDs may help minimize radiation exposure in children," Dr. Joanna S. Cohen from George Washington University, Washington, DC, told Reuters Health by email. "These protocols generally emphasize a stepwise approach to management, with ultrasound first and CT only if the diagnosis remains unclear after the ultrasound."

Between 1999 and 2017, the use of CT for children presenting to EDs with nontraumatic abdominal pain increased from 2 percent to 16 percent, even though ultrasound-first paradigms are most cost-effective for imaging pediatric appendicitis.

Dr. Cohen's team used the ED data set from the National Hospital Ambulatory Medical Care Survey, covering 2007 through 2014, to investigate national trends in CT and ultrasound imaging for the evaluation of nontraumatic abdominal pain among children presenting to general and pediatric EDs.

ED visit rates for these patients did not change significantly during the study period, according to the September 15 Pediatrics online report.

Among the 5,036 ED visits included in the study, 14.6 percent prompted only a CT scan, 10.9 percent only an ultrasound, and 1.9 percent both tests, resulting in a final diagnosis of appendicitis in 3.7 percent of the patients. The overall rates of CT and ultrasound use for these patients did not change significantly between 2007 and 2014.

Pediatric EDs were 66 percent less likely than general EDs to use CT and 2.14-fold more likely than general EDs to use ultrasound.

Pediatric and general EDs did not differ in their use of both CT and ultrasound or in their use of any imaging to assess pediatric nontraumatic abdominal pain.

"I think it's most interesting that while we have seen a plateau in CT imaging for children with abdominal pain, it is still more likely that a child with abdominal pain evaluated in a general ED will receive a CT compared to a similar patient seen in a pediatric-specific ED," Dr. Cohen said. "There is still more work to be done to standardize care of pediatric patients among EDs."

"The majority of children receive emergency care in general EDs," she said, "so optimizing radiation exposure in children really depends on collaboration with our general emergency medicine colleagues."

Dr. Ralph Wang from University of California, San Francisco, who also recently reported a plateau in CT imaging of children with emergency visits for abdominal pain, told Reuters Health by email, "Several initiatives have been implemented to decrease inappropriate advanced imaging use, including payment reform (deficit reduction act), dissemination of research findings linking radiation from CT use to cancer, educational campaigns such as Imaging Gently/Choosing Wisely, clinical decision support in electronic health records, etc. Perhaps all of these efforts have resulted in a slowdown in imaging."

"Despite the slowdown, inappropriate use of CT and other advanced imaging is likely to be considerable," he said. "More evidence is needed to provide rational imaging guidelines for other clinical conditions, and these guidelines should be implemented."

Acute Chest Syndrome in Pediatric Sickle-Cell Disease: Antibiotic Guidelines Matter

by REUTERS STAFF

NEW YORK (Reuters Health) - Adhering to guidelines for antibiotic treatment of acute chest syndrome in children with sickle cell disease (SCD) is associated with reduced readmission rates, according to a retrospective cohort study.

Acute chest syndrome is a leading cause of hospitalization and death in children and adults with SCD. Guidelines recommend empiric antibiotic therapy, typically with an intravenous cephalosporin and an oral macrolide antibiotic, although convincing data are lacking.

Dr. David G. Bundy from Medical University of South Carolina, in Charleston, and colleagues used data from the Children's Hospital Association Pediatric Health Information System to determine whether adherence to such guidelines was associated with lower readmission rates for acute chest syndrome and overall.

Of 14,480 hospitalizations (for 7,178 children with acute chest syndrome), 73.6 percent involved provision of guideline-adherent antibiotics (macrolide plus cephalosporin). Cephalosporins alone were used in 11.6 percent of hospitalizations and macrolides alone in 8.3 percent; the remaining 6.6 percent of hospitalizations involved neither antibiotic (including 4.4 percent with no antibiotics).

Use of guideline-adherent antibiotics varied from about 24 percent to 90 percent across the 41 hospitals included in the study, according to the September 11 JAMA Pediatrics online report.

Readmissions for acute chest syndrome and all-cause readmissions at 7 and 30 days after hospitalization were lowest in the guideline-adherent antibiotic group, second lowest in the group that received parenteral cephalosporins without macrolides, and highest (except for 7-day readmissions for acute chest syndrome) after hospitalizations involving neither antibiotic.

After adjustment for other variables, hospitalizations involving provision of both cephalosporins and macrolides were 29 percent lower for readmissions related to acute chest syndrome and 50 percent lower for all-cause readmissions, compared with hospitalizations involving no antibiotics.

FEDS DECLARE EMERGENCY PHYSICIANS INCAPABLE OF PERFORMING THE *MSE* ON PSYCHIATRIC PATIENTS

Largest monetary penalty in EMTALA history imposed on South Carolina hospital

by ROBERT A. BITTERMAN, MD, JD, FACEP

There is no EMTALA issue in emergency medicine more difficult, more confusing, or more risk-prone than managing psychiatric patients in the emergency department. The AnMed Health case is the quintessential example and should greatly concern emergency physicians.

AnMed Health, a hospital system based in Anderson, South Carolina, recently settled with the Office of Inspector General (OIG) for $1.295 million for allegedly failing to appropriately screen and stabilize psychiatric patients presenting to the hospital's emergency department.

The Centers for Medicare and Medicaid Services (CMS) and the OIG, the agencies within the Department of Health and Human Services (HHS) charged with enforcing EMTALA, claimed that AnMed Health:

1. Should have required its on-call psychiatrist to come to the emergency department to personally examine all patients with psychiatric symptoms and participate in the screening and stabilizing of each patient, irrespective of whether the emergency physician needed or requested the services of the on-call psychiatrist—asserting in effect that emergency physicians are incapable of screening or stabilizing psychiatric patients under EMTALA;
2. Should have admitted involuntary committed (IVC) patients to its inpatient psychiatric unit instead of boarding them in its emergency department for many days until they could be transferred to the nearby state psychiatric hospital, despite the fact that for more than 30 years by written policy and actual practice the hospital only admitted "voluntary" patients to its psychiatric unit; and
3. Emergency physicians inappropriately transferred the patients in an unstable condition when patients were transported in the back of a locked secure police car for approximately 11–12 minutes to the nearby state psychiatric hospital.[1,2]

Who Can Screen and Stabilize Psychiatric Patients?

The sole purpose of EMTALA's mandated medical screening exam (MSE) is *to determine whether or not an emergency medical condition exists*, and the hospital must designate who is "qualified" to perform the MSE on its behalf (emphasis added).[3,4] Virtually all hospitals designate their emergency physicians, as did AnMed Health.

Accordingly, if the emergency physician determines the patient has an emergency medical condition (EMC), such as acute psychosis or suicidal intent, the MSE is finished, and there is no legal requirement that the hospital's on-call psychiatrist be summoned to the emergency department to confirm that the patient has an EMC.

The psychiatrists who serve on the hospital's on-call list are available to the emergency department to assist in screening patients for psychiatric emergency conditions *when necessary to determine whether or not an emergency medical condition exists*.[3,5]

If the emergency physician is able to determine whether an EMC exists, an on-call physician is not needed to help make that determination. It is only when the emergency physician needs the assistance and expertise of an on-call physician to determine if an EMC exists that the hospital is required to utilize the services of the on-call physician in screening the patient, and this is true regardless of whether the medical condition is a medical problem, surgical problem, pediatric problem, neurosurgical problem, or psychiatric or behavioral health problem.

In the 36 cases cited by CMS in its statement of deficiencies against AnMed Health, it was not at all difficult for the emergency physician to ascertain whether the patient suffered from an EMC. Many were well-known chronic psychiatric patients with obvious emergency conditions such as acute psychosis, suicidal intent, or behavior that threatened others. Many, just hours before, had encountered the state mental health system and had been sent to the emergency department by a psychiatrist via law enforcement, already on involuntary commitment papers for the emergency department to hold them until a bed became available in the state hospital. Others, through an appropriate history and physical examination, were readily determined to have an EMC without requiring the expertise of an on-call psychiatrist to make that determination. It's not difficult for an emergency physician to determine that a 50-year-old man who tried to blow his head off with a 45-caliber revolver is actively suicidal.

The logic and the law are the same with respect to stabilizing patients with emergency conditions. If the services of an on-call physician/psychiatrist are not *necessary or required* to stabilize the individual, then the hospital has no duty under the law to mandate its on-call physicians/psychiatrists to present to the emergency department to provide stabilizing services.

So when is a psychiatric patient stabilized? CMS has specifically defined psychiatric patients to be stable "when they are protected and prevented from injuring or harming themselves or others."[6]

Thus, once the hospital emergency department utilizes its usual interventions to "protect and prevent psychiatric patients from injuring or harming themselves or others" (medical clearance, searched, secured, removal of means and opportunity to harm self or others), the patients with psychiatric emergencies have been "stabilized," as that term is defined by EMTALA, and the on-call physicians need not be involved to stabilize the patient.

Moreover, once stability is achieved, the law ends, and once the patient is stable, any further treatment, such as the care provided while the patient is boarded in the emergency department, psychiatric consultations, or any discharge or transfer, is not governed by EMTALA. As stated by CMS:

"After stabilizing the individual, the hospital no longer has an EMTALA obligation. The physician may discharge the individual home, admit him/her to the hospital, or transfer the individual to another hospital depending on his/her needs."[6]

If the government does interpret EMTALA to mean that emergency physicians are incapable of providing psychiatric screening and stabilization, it is duty-bound to issue formal written guidance/opinion explicitly stating that interpretation and to include specific citations to supporting statutory or regulatory authority. As one can imagine, such an interpretation would be contrary to almost universal existing practice in the United States and incite serious concerns within the hospital community and emergency medicine residency programs, particularly since HHS funds, through the Medicare program, 167 EM residencies, all of which have the diagno-

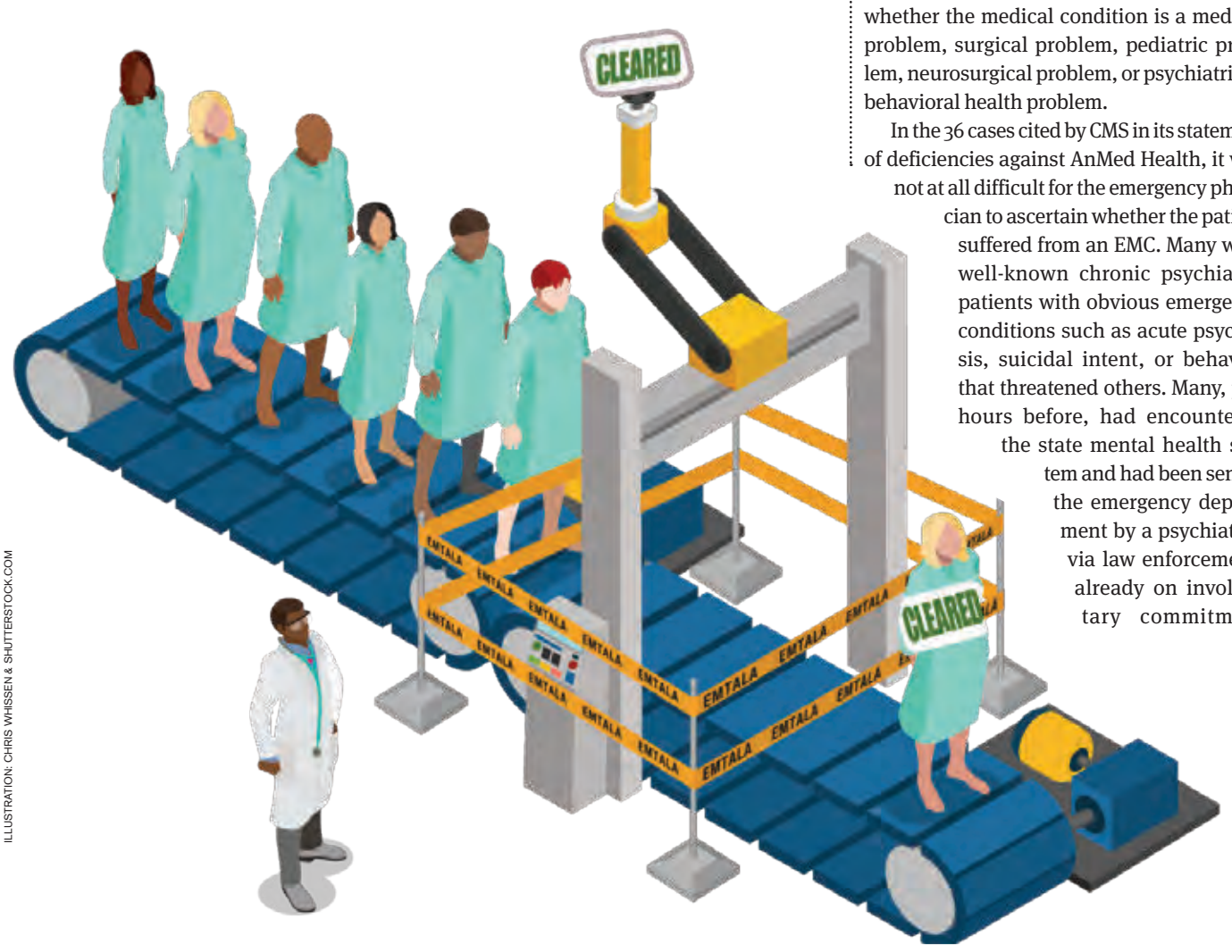

ILLUSTRATION: CHRIS WHISSEN & SHUTTERSTOCK.COM

sis and treatment of psycho-behavioral disorders as one of their major core-curriculum disciplines and core-competencies necessary for board certification in the specialty of emergency medicine.

Do Hospitals No Longer Have the Right to Define Their Scope of Services?

CMS forced AnMed Health to admit patients involuntary committed under the state's civil commitment law to its inpatient behavioral health unit, despite the fact that for more than 30 years the hospital had a written board-approved policy of only admitting "voluntary" patients for confidential short-term psychiatric care. The IVC patients were previously always transferred to the nearby state psychiatric hospital about six miles away.[1]

Historically, Medicare-participating hospitals have been allowed to define their service capability/capacity (scope of services), and as long as they provide that capability/capacity uniformly to all comers on a nondiscriminatory basis, they comply with EMTALA.

In response to a commenter's EMTALA question regarding whether a hospital was required to treat emergency psychiatric disorders regardless of a hospital's capabilities, CMS stated long ago:

> "Neither the [EMTALA] statute nor the regulations mandate that hospitals expand their resources or offer more services. Rather, they focus on the hospital's existing capabilities. The thrust of the statute is that a hospital that offers emergency services to some members of a community who need their emergency services (for example, those that can pay) cannot deny such services to other members of the community with a similar need."[5]

The inpatient management of IVC patients requires substantially greater resources and capabilities than the care of voluntary patients, as the hospital discovered after it started admitting IVC patients.[7] This included structural changes to the unit, enhanced physical plant security measures, greater security staff presence, enhanced security training of all staff members, additional staffing (and increased staff turnover due to the "difficulties" in managing this patient population), additional training of staff related to involuntary commitments under state law, increased liability insurance issues, additional legal expertise and availability for holding formal court sessions related to the IVC processes once a week, and the implementation of telepsychiatry to meet the additional services burden on the psychiatrists.

Does this OIG ruling mean that hospitals with inpatient psychiatric units may not transfer psychiatric patients for economic reasons, either unfunded patients to a state psychiatric hospital or managed care patients repatriated to a contracted hospital?

Does this mean any hospital that now only admits voluntary patients for confidential short-term inpatient psychiatric care must also admit involuntary patients or close its inpatient unit? Must they now also admit "forensic" patients from jails or prisons even if law enforcement refuses to provide 24-7 security? What about violent patients? Where does the government draw the line? In essence, CMS and the OIG have usurped a hospital's ability to define its own scope of services.

The settlement agreement between AnMed Health and the OIG hints but does not specifically delineate that the hospital may have utilized some form of admission financial triage, which justified the monetary penalty.[8] However, a hospital representative categorically denied that the hospital had engaged in any financial screening and reported that the involuntary patients had about the same payer mix as the voluntary admissions.[9]

When Is a Psychiatric Patient Stable for Transfer to a State Psychiatric Hospital?

CMS asserted that each of the 20 boarded IVC patients AnMed Health's emergency department transferred to the state psychiatric hospital was unstable at the time of transfer. The sole rationale provided for the government's assertion was that "the patient still required psychiatric evaluation and treatment" or that "the patient required further evaluation and care."[1]

EMTALA statutorily defines "stabilized" to mean "with respect to an emergency medical condition ... that no material deterioration of the condition is likely, within reasonable medical probability, to *result from or occur during the transfer* of the individual from a facility [emphasis added]."[10]

Therefore, whether the patient still needed "further psychiatric evaluation and treatment" is not the correct standard to apply when determining whether the patient is stabilized under the law.

The proper standard to follow is the statutory definition, in which case the government is claiming that transport of a docile suicidal patient in the back of a locked, secure law enforcement vehicle for about six miles, or approximately 11–12 minutes, was *likely, within reasonable medical probability, to result in material deterioration of the patient's emergency condition*. Does CMS, its physician reviewer, the OIG, or any experienced emergency physician really believe that to be true? In point of fact, it's extremely unlikely, and certainly not reasonably probable, that such a transfer will cause *any* deterioration, let alone *material* deterioration in a patient's psychiatric condition, especially after the patient has been in the emergency department for many days waiting for a bed at the state hospital.

Neither CMS nor its physician reviewer claimed that any problem, complication, or deterioration whatsoever arose during transfer or as a result of the transfer in any of the 20 patients AnMed Health transferred to the state hospital.[1] Whether the patient still needed "further psychiatric evaluation and treatment" may be a quality-of-care or standard-of-care issue, but it is certainly not an EMTALA issue.

Additional Questions

Why didn't the OIG seek to impose monetary penalties on the emergency physicians? It was the emergency physicians who failed to consult the on-call psychiatrist to screen and stabilize the psychiatric patients, it was the emergency physicians who allegedly failed to stabilize the patients in the emergency department, and it was the emergency physicians who allegedly inappropriately transferred the patients in an unstable condition. Perhaps the OIG didn't really think the physicians' actions violated the statute and it was just angry that the hospital boarded the patients for days on end instead of admitting them or arranging prompt transfer to an inpatient psychiatric hospital. It may have been easier to settle with the impersonal bricks-and-mortar instead of making it personal with a named emergency physician who would have been much more willing to challenge the OIG in court to protect both reputation and pocketbook. Maybe there is more to the story that is damaging to the hospital than has been published to date, which led it to settle with the OIG for such an outlandish amount?

Summary

Dealing with government agencies with respect to psychiatric services in the emergency department can be extremely difficult, terribly frustrating, and very expensive. The expectations and compliance enforcement of CMS and the OIG often clash with clinical practice in the real world and may exceed what is actually required by the EMTALA statute. Emergency physicians and hospitals need to critically and urgently reassess their compliance with EMTALA with respect to the care of psychiatric patients in the emergency department.

LEARN MORE AT ACEP17

At the ACEP17 in Washington, D.C., on Oct. 29 at 12:30–1:20 p.m., a panel of senior officials from CMS and the OIG will discuss the AnMed Health case and answer questions regarding the EMTALA requirements related to screening, stabilizing, and transferring psychiatric patients in the emergency department. Come and learn the government's rationale!

acep Scientific Assembly WASHINGTON, DC 2017

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3. Examination and treatment for emergency medical conditions and women in labor, 42 USC §1395dd(a) (2010).
4. CMS interpretive guidelines on special responsibilities of Medicare hospitals in emergency cases, §489.24(a)(1)(i) (2010).
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DR. BITTERMAN is president of Bitterman Health Law Consulting Group, Inc. in Harbor Springs, Michigan.

2017–2018 COMPENSATION REPORT FOR EMERGENCY PHYSICIANS

Salaries remain steady, but consolidation and disappearing smaller groups may soon change that trend

by BARB KATZ

In the past 10 years, emergency physician salaries have increased 31 percent while the average clinical hours worked have gone down 12 percent. Currently, the national norm remains $200 an hour. However, nothing about emergency physician compensation is normal due to the supply-and-demand market. The disparity of incomes from state to state and region to region is vast and constantly changing. The more popular the lifestyle or location, the lower the income. The question arises, How sustainable are these gains? Small democratic groups that historically led income levels are disappearing as hospitals and health care companies seek to save money in their emergency departments by bringing in larger national groups or bringing the physicians in house as employees. In my opinion, it may be time to at least start a dialogue about creating some semblance of consistency with emergency physician compensation.

Trends for this year include:

- Big sign-on bonuses are back, particularly in geographically undesirable areas; $50,000 to $100,000 is not unusual.
- Small democratic group buy-ins are dwindling. New physicians won't accept them.
- There is a significant drop in compensation inclusion in job ads, especially in states such as Maryland, Oklahoma, Maine, and Rhode Island.
- Low salaries in high-cost-of-living areas, such as New York City and San Francisco, remain an issue for emergency physicians.

There has been very little change in regional income levels, with some areas up 3 percent and others down 3 percent. The numbers are based on 1,632 hours per year and include incentive bonuses and relative value unit compensation where applicable. Annual package numbers include basic benefits valued at $30,000. Sign-on bonuses, loan assistance, and other perks are not included. Rankings are based on state averages, not the sporadic highs. (See Figure 1 for the top 10 and bottom 10 states in terms of overall compensation.)

THE SOUTHEAST continues to lead the country, with an average hourly/annual salary of $231/$406,000, and 40 percent of jobs available are open to primary care (PC) boarded physicians.

ALABAMA: Average: $224/hr., $395,000 ann.; 44% PC boards; high of $500,000 ann.; *up 9%*

ARKANSAS: Average: $225/hr., $397,000 ann.; 73% PC boards; high of $479,000 ann.; *down 10%*

FLORIDA: Average: $225/hr., $397,000 ann.; 11% PC boards; high of $300/hr.; *up 3%*

GEORGIA: Average: $224/hr., $395,000 ann.; 44% PC boards; high of $300/hr.; *down 8%*

LOUISIANA: Average: $240/hr., $422,000 ann.; 50% PC boards; no highs; *up 11%*

MISSISSIPPI: Average: $258/hr., $451,000 ann.; 63% PC boards; high of $335/hr. (nights); *no change*

NORTH CAROLINA: Average: $211/hr., $385,000 ann.; 13% PC boards; high of $450,000 ann.; *no change*

SOUTH CAROLINA: Average: $235/hr., $444,000 ann.; 29% PC boards; high of $500,000 ann.; *up 7%*

TENNESSEE: Average: $234/hr., $412,000 ann.; 40% PC boards; high of $520,000 ann.; *no change*

THE MIDWEST has dipped just 3 percent, with an hourly/annual average of $210/$373,000, and 54 percent of jobs available are open to PC boards. Note the 16 percent raise in Kentucky incomes.

ILLINOIS: Average: $222/hr., $392,000 ann.; 20% PC boards; high of $350/hr.; *down 8%*

INDIANA: Average: $229/hr., $404,000 ann.; 53% PC boards; high of $480,000 ann.; *up 8%*

IOWA: Average: $184/hr., $332,000 ann.; 83% PC boards; high of $463,000 ann.; *down 8%*

KANSAS: Average: $236/hr., $415,000 ann.; 25% PC boards; high of $450,000 ann.; *up 7%*

KENTUCKY: Average: $237/hr., $418,000 ann.; 69% PC boards; high of $503,000 ann.; *up 16%*

MICHIGAN: Average: $175/hr., $315,000 ann.; 60% PC boards; high of $275/hr. (locums); *down 10%*

MINNESOTA: Average: $178/hr., $320,000 ann.; 70% PC boards; no highs; *up 9%*

NEBRASKA: One employer offering $300/hr. (not factored into regional stats)

NORTH DAKOTA: Average: $230/hr., $404,000 ann.; no PC boards; no highs; *down 14%*

OHIO: Average: $198/hr., $353,000 ann.; 57% PC boards; high of $300/hr. (locums); *down 10%*

SOUTH DAKOTA: No information

WISCONSIN: Average: $213/hr., $377,000 ann.; 50% PC boards; high of $520,000 ann.; *down 6%*

THE SOUTHWEST/WEST remains a wild ride, with an hourly/annual average of $208/$375,000, and 40 percent of jobs available are open to PC boards. It includes the state with the top compensation, Texas, and three of the lowest compensation states as well. Note, none of the highs are in major cities except in Texas.

ARIZONA: Average: $226/hr., $369,000 ann.*; 81% PC boards; no highs; *no change*

CALIFORNIA: Average: $223/hr., $393,000 ann.*; 27% PC boards; high of $500,000 ann.; *down 8%*

COLORADO: Average: $163/hr., $295,000 ann.; no PC boards; high of $200/hr.; *up 8%*

HAWAII: Average: $170/hr., $307,000 ann.; no PC boards; no highs; *no change*

NEVADA: Average: $170/hr., $307,000 ann.; 28% PC boards; high of $300 hr. (locums); *down 15%*

NEW MEXICO: Average: $234/hr., $412,000 ann.; 27% PC boards; no highs; *up 4%*

OKLAHOMA: Average: $193/hr., $346,000 ann.; 41% PC boards; high of $520,000 ann.; *down 5%*

TEXAS: Average: $260/hr., $454,000 ann.; 34% PC boards; high of $325/hr.; *up 4%*

UTAH: No job openings

** major city averages considerably lower*

THE MIDDLE Atlantic has no change from last year, with an hourly/annual average of $190/$340,000, and 24 percent of jobs available are open to PC boards.

DELAWARE: Only locum jobs averaging $240/hr.

DISTRICT OF COLUMBIA: Average: $141/hr., $260,000 ann.; no PC boards; no highs; *down 11%*

MARYLAND: Average: $166/hr., $300,000 ann.; 11% PC boards; $75,000 sign-on; *no change*

NEW JERSEY: Average: $186/hr., $333,000 ann.; 11% PC boards; no highs; *down 8%*

PENNSYLVANIA: Average: $222/hr., $392,000 ann.; 23% PC boards; high of $515,000 ann.; *up 3%*

VIRGINIA: Average: $230/hr., $405,000 ann.; 27% PC boards; high of $480,000 ann.; *up 4%*

WEST VIRGINIA: Average: $195/hr., $349,000 ann.; 50% PC boards; no highs; *up 3%*

As usual, the PACIFIC NORTHWEST remains on the low side, with an hourly/annual average of $182/$326,000, but note the significant drops in Montana and Washington.

ALASKA: No information or jobs

IDAHO: No information

MONTANA: Average: $165/hr., $300,000 ann.; no PC boards; no highs; *down 25%*

OREGON: Average: $180/hr., $325,000 ann.; 30% PC boards; no highs; *down 5%*

WASHINGTON: Average: $151/hr., $275,000 ann.; 50% PC boards; no highs; *down 35%*

WYOMING: Average: $230/hr., $405,000 ann.; 66% PC boards; $250,000 loan payback; *down 4%*

THE NORTHEAST also has little change, with an hourly/annual average of $176/$317,000. However, it has the lowest rate of PC board acceptance at only 8 percent.

CONNECTICUT: Average: $179/hr., $322,000 ann.; no PC boards; no highs; *down 3%*

MAINE: : Average: $179/hr., $322,000 ann.; 22% PC boards; no highs; *no change*

MASSACHUSETTS: Average: $180/hr., $323,000 ann.; no PC boards; high of $400,000 (Cape Cod); *down 3%*

NEW HAMPSHIRE: Average: $170/hr., $307,000 ann.; 14% PC boards; high of $200/hr.; *down 10%*

NEW YORK: Average: $156/hr., $285,000 ann.; 14% PC boards; high of $275/hr. (locums); *down 9%*

RHODE ISLAND: No information

VERMONT: Average: $191/hr., $341,000 ann.; no PC boards; no highs; *no change*

Figure 1. States Offering the Most and Least Compensation

TOP 10 STATES FOR COMPENSATION

1. Texas
2. Mississippi
3. Louisiana
4. Kentucky
5. Kansas
6. South Carolina
7. New Mexico
8. Tennessee
9. North Dakota
10. Virginia

BOTTOM 10 STATES FOR COMPENSATION

1. Washington, DC
2. New York
3. Washington
4. Colorado
5. Montana
6. Maryland
7. New Hampshire
8. Hawaii
9. Nevada
10. Michigan

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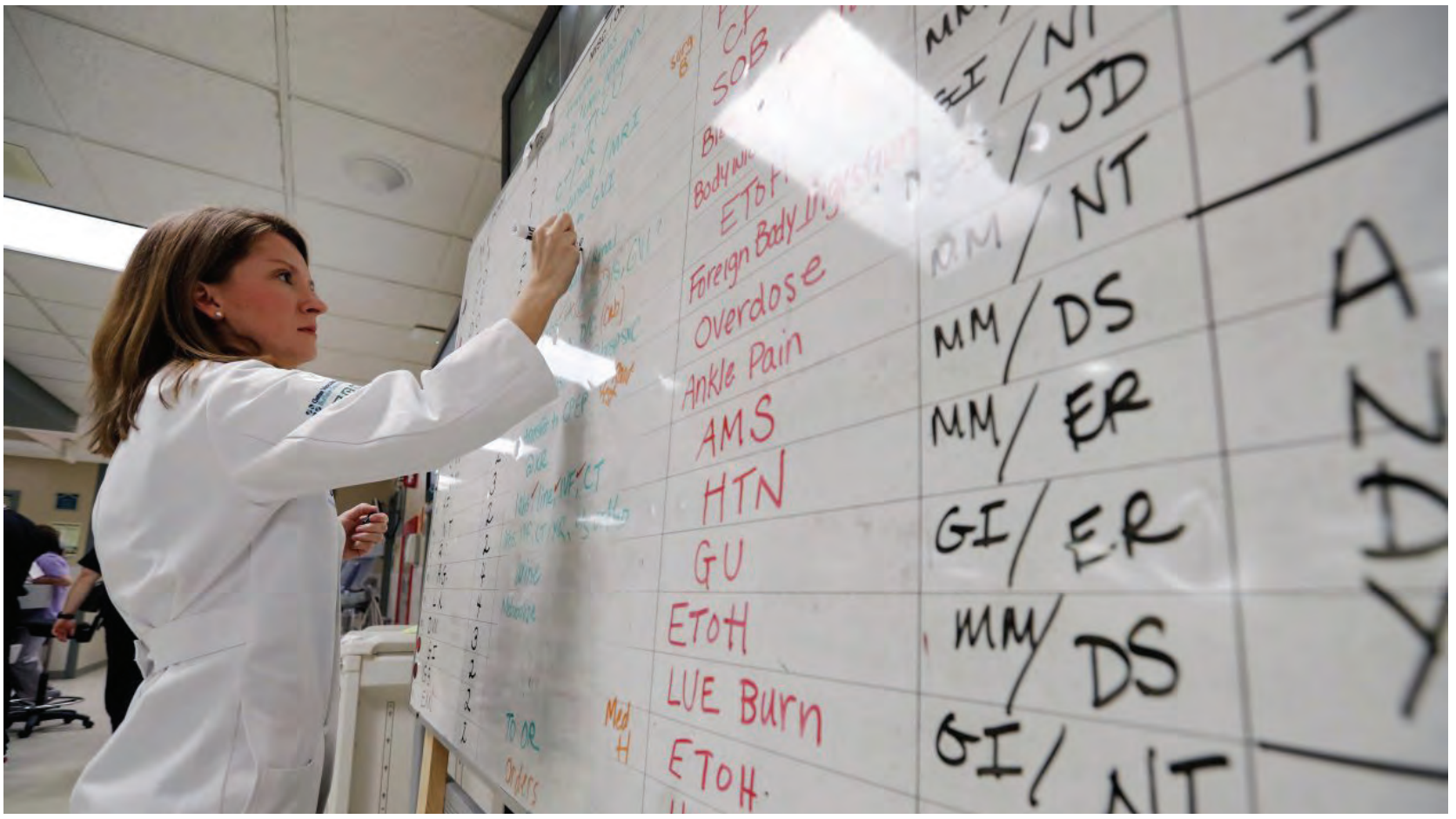

PHOTO: MARK MULVILLE/THE BUFFALO NEWS

Dr. Jennifer Pugh writes on the ECMC emergency department's white board—the same board used during the cyber attack.

server. Once they had the administrator password, they encrypted vast amounts of hospital data, rendering it unreadable.

The overnight information technology staff quickly recognized the attack and made the decision to shut down the entire computer network to stem the spread of infection. By 5:30 a.m., all computer screens went dark in the emergency department and the entire hospital. It was quickly clear that this unscheduled complete system downtime could have disastrous effects on patient care.

More than 6,000 computers were affected by this devastating ransomware.[4] Cybersecurity experts from a multitude of companies including Microsoft, Cisco, Symantec, and Meditech worked around-the-clock to mitigate the impact of this sophisticated attack. It was difficult to understand the magnitude of the attack and the length of time it would take for our entire electronic medical record (EMR) system to be operational again.

Our hospital and department had a plan in place for internal disasters and EMR downtime; we never went on diversion. Our "low-tech" procedures ensured continuity of operations while maintaining high patient care standards. Each emergency department must develop a downtime plan that works for them and requires no computer access.

1. Communication: Keep Your Staff Informed

Hospital internet and email systems were shut down after the attack. We used alternate forms of communication, such as personal emails, that were available prior to the attack. Daily emails were sent to providers during the early stages of the prolonged downtime to inform them of changes in operations. We sought feedback to continuously improve our processes. The hospital also used a HIPAA secure messaging platform that enabled communication between administration and providers. Communication with hospital leadership was key to our success throughout this event. Our CEO and CMOs made rounds through the emergency department several times a day to ensure we were being provided with all the resources we needed.

2. Patient Records: Participate in Health Information Exchanges

ECMC providers lost access to all patient records when the system was shut down. We are fortunate, however, to have an electronic clinical information exchange in western New York, called HEALTHeLINk, to access our patients' historical data. All ECMC records, including charts, ECGs, laboratory studies, and radiology studies prior to April 9, had been uploaded into this database. We borrowed laptops and wireless cards to access this site during the first few hours of the attack, which made a challenging circumstance more manageable.

3. Provider Order Entry: Focus on Tasks to Increase Provider Productivity

We brought out binders full of paper copies of our order sets and made these available to providers. We also made specific order packets for our traumas that included lab, blood blank, X-ray, and CT requisition forms. All consent and other forms are also maintained in a paper format and were readily available once the system was shut down.

4. Imaging: Save Your Old Light Boxes

During traditional EMR downtime, we are still able to access our imaging picture archiving and communication system on the computer workstations. Since we did not have access to computers, we initially viewed all X-ray films directly on the machines. After several days, we realized that we would run out of storage space to archive the images. We had to start printing our X-rays so the radiology department could later retrieve the films. Both ED providers and radiologists could provide preliminary interpretations on paper. At least one radiologist was present 24 hours a day by the CT scanner to provide reads directly from the imaging equipment.

5. Schedule: Increase Your Staffing Levels During Peak Volumes

A significant IT disruption can have negative effects on provider efficiency. As a large academic group, we had the capability of increasing our staffing at ECMC during peak hours with the assistance of our colleagues at other hospitals. The hospital provided additional nursing staff, techs, and clerical staff. Administrative staff from other departments with computer-dependent jobs were deployed by the hospital to help run lab results. Patient advocates helped keep patients informed of delays.

6. Electronic Prescribing: Stockpile Your Old Prescription Pads and Stampers

Since March 2016, practitioners in New York state (NYS) have been mandated to prescribe both controlled and noncontrolled substances electronically. With a lack of computers and internet, we were no longer able to send prescriptions electronically during the attack. Senior providers brought in their unused paper prescription pads from home, but many others no longer had prescription pads or name stampers. The hospital only had a limited supply of official NYS prescriptions. The NYS Department of Health sent a courier with prescription pads on the second day of our downtime. Our ED pharmacists proved invaluable by contacting pharmacies and notifying them of the issues in the emergency department.

7. Resident Education: Use Downtime as an Educational Experience

Our residents did an excellent job during this stressful time and quickly adapted to the downtime procedures. Many of our residents had never used paper order forms or written on paper charts. Our attendings spent additional time teaching our residents the importance of appropriate documentation, without prompts and macros, and writing paper orders and prescriptions.

8. Morale: Keep Your Staff Engaged

This was a challenging time for all staff involved. We ensured that our staff was supported in their jobs during our six-week digital downtime.

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A FRESH START AT SUMMA

WITH A NEW CHAIRMAN, SUMMA HEALTH'S DEPARTMENT OF EMERGENCY MEDICINE LOOKS TO BUILD A POSITIVE REPUTATION

My long-term goal is to use what we're developing at Summa as a potential model within USACS to develop more academic emergency departments. I think this is a potential model that could have some real validity in helping grow emergency medicine in the future.

The transition of Summa Health's emergency department contract generated much discussion in the emergency medicine community. *ACEP Now* brought you exclusive interviews in January, getting the facts and perspectives from the groups involved: Summa Emergency Associates (SEA), US Acute Care Solutions (USACS), and Summa Health. Without revisiting the unfortunate consequences of the failed negotiation and the associated challenges and negative impact that transpired, most agree that, for a variety of reasons, the transition was far less than optimal.

Providing a forum for the discussion of important issues in emergency medicine, *ACEP Now* has kept its collective finger on the pulse of this situation and will update our readership with timely and relevant information as we receive it. Below is a continuation of our discussion on this very important topic. There has been a leadership change in Summa Health's department of emergency medicine aimed at rebuilding the department's reputation internally and with the community and, perhaps most important, rebuilding the reputation of the emergency medicine residency training program.

ACEP Now's Medical Editor in Chief Kevin Klauer, DO, EJD, FACEP, recently sat down with David Seaberg, MD, CPE, FACEP, chairman of the department of emergency medicine at Summa Health in Akron, Ohio, and executive vice president of academic emergency departments for USACS in Canton, Ohio, to discuss the future of Summa Health's emergency medicine program. Here are some highlights from their conversation, edited for length and clarity.

KK: Tell us about your background and experience.

DS: I was originally chair of the University of Florida in 2000. I left to be the inaugural dean of the University of Tennessee College of Medicine in Chattanooga, and then we started a department and residency the next year. I stepped down as dean in 2015 and continued as chair until I left for Summa on July 31, 2017. Also during that time, I was a senior vice president for the Erlanger Health System in charge of physician integration for three years. Formerly, I served as President of ACEP from 2011 to 2012.

KK: Compared to the other five programs you've started, how does this challenge stack up to the others? Do you think this will be relatively light work for a guy with your pedigree, or is this the challenge of a lifetime?

DS: I think it's definitely going to be challenging. Starting a residency program is always difficult. There's still some sensitivity in the community about emergency medicine, and currently, the institution is on probation. I think there will be some certain challenges to get over some of the stigma from closing a program. There will certainly be some challenges in recruiting here, but I'm confident that with my experience of doing this and my ability, I hope to attract good faculty here. With the supportive environment at Summa Health and within USACS, I think this is very doable. Our goal is to get our program information form done by this next summer so we can be in the match for July 2019.

KK: Does the Accreditation Council for Graduate Medical Education and the Residency Review Committee know that this is in the works?

DS: I don't know if they know or not. We do have to wait for our institutional survey report, which will come out in October. Certainly, the timeline could get delayed if there are some restrictions put in there, but again, I've been in this business for 30 years, and with my experience, I can tell you there is an extremely supportive environment at Summa Health. I think it's as good as any environment that I helped start.

KK: What do you think the biggest challenges will be and the biggest opportunities?

DS: I think first, Kevin, we need to restore and enhance the reputation of Summa Emergency Medicine and improve the care for our patients. I'm looking at it from three areas.

The first is recruitment. We need to continue to recruit a stable workforce that lives in the Akron area and is committed to Summa and Summa Emergency Medicine. Akron is a beautiful area of the country but not, as you know, necessarily the easiest to recruit to. Even in my seven weeks here, we've signed seven physicians already.

Second, we need to look at improving our patient care metrics. Our "left without being seen" rates were too high. We implemented a physician-in-triage program, and now our "left without being seen" is about 0.5 percent. Our length of stay is decreasing. We're working on several different areas, including point-of-care testing, but we need to improve our patient care metrics.

Lastly, we need to enhance our community engagement. We're going to have an open house in October for the medical staff to meet our physicians since a lot of them are new. We are reinstituting our emergency medical services training and going out and meeting the EMS agencies. We're meeting with other physician groups in town, other hospitals, other community resources; we need to reestablish ourselves within the community. The group previously had been here 30-plus years. It's going to take some time. From an academic standpoint, we already talked about restarting the residency program. I'm going to have to bring in a program director and a research director.

KK: What is the opportunity for you, and what you think you can create?

DS: I think taking a program such as Summa EM and rebuilding that and making it an outstanding residency program will be a nice part of my legacy, but my long-term goal is to use what we're developing at Summa as a potential model within USACS to develop more academic emergency departments. I think this is a potential model that could

have some real validity in helping grow emergency medicine in the future.

KK: Can you clarify your relationship with Summa compared to your relationship with USACS? Do you work for both?

DS: I'm actually employed by USACS. There is a contract that USACS has with Summa to support these programs, and there are some funds from Summa to help support the academic environment, which all hospitals do that want to develop residency programs. I am a direct employee of USACS and appointed as chair at Summa. I had to go to the medical staff leadership, through a search committee, and then be appointed by the board.

KK: The emergency department transition that occurred recently between SEA and USACS has been discussed a lot. This had to weigh heavily on you when you were making your decision to develop a relationship with USACS.

DS: I was like other people reading about this in *ACEP Now*. It was a lose, lose, lose, lose for almost everyone involved, and the greater tragedy is that a residency was shut down because of that. An institution, a very fine institution, was put on probation. I felt I had the skills to come in here to help rebuild that. I'm not dwelling, and we're not dwelling on the past. It really was, in my opinion, a contract situation that went very poorly. The hospital leadership that negotiated that are no longer here. Obviously, SEA is not here. Obviously, the residency is not here. It certainly has been costly from USACS's perspective to take over a program with such short notice. I think this will be a win-win for the community, for Summa, and for emergency medicine in the long run.

It was pretty remarkable that USACS could come in on short notice and keep the emergency department open. Obviously, we're not exactly where we need to be. We need to start integrating with the community and get a stable workforce that learns the Summa processes.

KK: Are you considering or having conversations about bringing anyone from SEA back?

DS: Well, you hope that time heals all wounds. I'm not convinced there's been enough time yet, but yes, I am reaching out. I've reached out to several members. Like you said, there's some very outstanding people in that group. They ran a great residency program; I would certainly look at them.

KK: I think it's very wise on Summa's part and USACS's part to bring in a leader like you and somebody who wasn't involved with the contract acquisition.

DS: They needed a proven academic leader to come in here, and I think my experience fits that bill. I think it will really help them move forward now. It's a reset for Summa EM.

KK: With respect to all that disruption, has there been any positivity from those who are viewing this from the outside or potential skepticism about you coming in?

DS: I think initially there's some distrust with some of the other specialties that frankly have good friends within the old group and other departments. They want EM to succeed but weren't exactly sure about who I was. And there's still some sensitivity around USACS taking over this contract, but I think we've shown them that we are moving in the right direction. I've been warmly embraced after maybe some initial skepticism. It was pretty remarkable that USACS could come in on short notice and keep the emergency department open. Obviously, we're not exactly where we need to be. We need to start integrating with the community and get a stable workforce that learns the Summa processes. As you go to any new hospital, how that system operates is always one of the hardest things to learn. It takes time, but I think we are getting there.

KK: You said earlier that a lot of the relationships have changed and the individuals who negotiated or attempted to negotiate that contract are no longer here. What has changed at Summa or in other relationships from a leadership standpoint?

DS: The leaders of the organization and the CEO are now gone. There's a new CEO and other administrative team, and I think they really did learn a lot in this process. I think, as we move forward, even as a company, that if we do more academic contracts, we're going to have to include some specific language that should you lose the contract, which is a possibility, that there are protections in place for the residency program: noncompetes for the emergency physicians, a six-months-out period, somewhere where there can be a transition so that residency programs don't get shut down because that just should never happen. We are working through legal to get some language that everybody's comfortable with in order to protect future residency programs.

KK: Are the director of medical education and the CMO still in their roles, or did those transition also?

DS: The CMO has transitioned. The head of graduate medical education is still here and, I think, doing an excellent job. The president of the organization is Dave Custodio, who is an emergency physician, and they've actually gotten rid of the system CMO role, and now at Summa they have basically a chief medical officer of medical services and the CMO of surgical services.

KK: One final question I have for you is, How have they embraced your style and swagger at Summa Health—in particular, your extensive collection of pocket squares and matching ties? Whatever you build needs to have your DNA in it, which includes a pocket square.

DS: I think you have one of my pocket squares. When I left the ACEP Board, I gave you one of my pocket squares.

KK: You did, and for a period of about three to four months, I had custody of one of your favorites that showed up in multiple cities and in multiple people's pockets. Dave, you are known for your academic excellence, outstanding leadership, and, of course, your commitment to the pocket square/tie combination. Long live the pocket square! I wish you all the best. Good luck with your new roles.

Disclosure: *Dr. Klauer was formerly employed by EMP from 1999 to 2014. He has no current financial or other relationship with EMP and has no current or former relationship with USACS.*

FROM TOP TO BOTTOM: Dr. Klauer sports Dr. Seaberg's pocket square. ACEP President Rebecca Parker, MD, FACEP, lunches with Dr. Seaberg's pocket square. ACEP Past President Jay Kaplan, MD, FACEP, with a pocket square mask.

Doc and her mother, Maisha, talk about Doc's jack-in-the-box patient, Little Jack.

ROLE MODEL *for* TOMORROW'S PHYSICIANS

DR. MYIESHA TAYLOR WORKS WITH DISNEY JR. DEMYSTIFYING MEDICINE FOR CHILDREN AND PROMOTING DIVERSITY

PHOTOS: MYIESHA TAYLOR

Myiesha Taylor, MD, knows how rare it is to see a black female physician on television. As a black female emergency physician herself, she is frequently the only woman or person of color in her group. That's why she was so excited to discover the Disney program *Doc McStuffins* when browsing shows for her 4-year-old daughter. Dottie, the show's 6-year-old title character, emulates her physician mother by providing medical care to her toys. In fact, the show inspired Dr. Taylor to collect photographs of black female physicians into a collage titled "We Are Doc McStuffins"—an effort that eventually drew the attention of Disney executives.

Dr. Taylor, an emergency physician with Texas Health Resources and EmCare in Texas, recently sat down with *ACEP Now*'s Medical Editor in Chief Kevin Klauer, DO, EJD, FACEP, to discuss her relationship to *Doc McStuffins* and what she's doing to raise the profile of women of color in medicine. Here are some highlights from their conversation.

KK: Tell us about this great show. I'm going to act like I don't know about *Doc McStuffins*. I know nothing about it because I will never admit that I know it's on the Disney Channel.

MT: It's this doctor show on Disney, and the little main character is a brown girl aspiring to be a doctor. I'm like, "Wow, that's kind of cool!" You have this brown kid on TV, and she's not singing or dancing or playing a sport. She's actually this intellectual person that's trying to do exactly what I am. This show—in addition to demystifying the whole physician visit and providing information to children about what it's like to go to the doctor and little tidbits about health information like dehydration, getting enough sleep, or nutrition—allowed this generation to see that it's not weird to have a brown girl as a doctor. I don't have to be the nurse. I don't have to be the chef or the janitor. I can be the physician. I can be the team leader. Now, it's like I'm present. I'm there, and the kids start singing the song, which validates the whole thing. So I reached out to Disney because I appreciated the image. People underestimate the power of an image. I decided with some of my friends on Facebook that we would take pictures or I would snap pictures off their Facebook page, put them on a collage, send it to Disney, and tweet it out.

CONTINUED *on page 29*

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DR. LEVITAN is an adjunct professor of emergency medicine at Dartmouth College's Geisel School of Medicine in Hanover, New Hampshire.

DR. BELLOLIO is an emergency physician at the Mayo Clinic in Rochester, Minnesota.

NO DESAT—Os Up the Nose!

It's been five years since a landmark article changed the world of emergency airway management

by M. FERNANDA BELLOLIO, MD; AND RICHARD M. LEVITAN, MD

It was a simple idea that actually has a long-standing history in medicine: Oxygen insufflated into the lungs can prevent desaturation, even without ventilation. This phenomenon, proven by M. Jack Frumin, MD, as early as 1959, is a product of the difference in gas solubility between oxygen and carbon dioxide. During apnea, CO_2 diffuses passively out from the lungs at only 10 mL/minute, but the engine of hemoglobin absorption across the capillary bed absorbs oxygen at 250 mL/minute, assuming sufficient open alveoli, an oxygen gradient, and adequate hemoglobin are all present.

Even before apneic oxygenation was physiologically studied, Chevalier Jackson, MD, used oxygen insufflation in bronchoscopic surgery in the early 1900s (see Figure 1). Apneic oxygenation via a bronchoscope remains a standard practice during modern lung surgery. In the 1940s, the Boyle Davis gag (a tongue retractor used for tonsillectomy that inspired Robert Macintosh, MD, to invent the Macintosh blade) had an oxygen port (see Figure 2). In the 1980s, the pediatric Oxiport insufflated oxygen via a small port on a straight laryngoscope blade (see Figure 3).

The first use of nasal oxygen to prolong safe apnea during intubation was by Lynn E. Teller, MD, in 1988, using 3 L via a nasopharyngeal catheter. He demonstrated safe apnea for a period of 10 minutes after the use of muscle relaxants.

History of NO DESAT

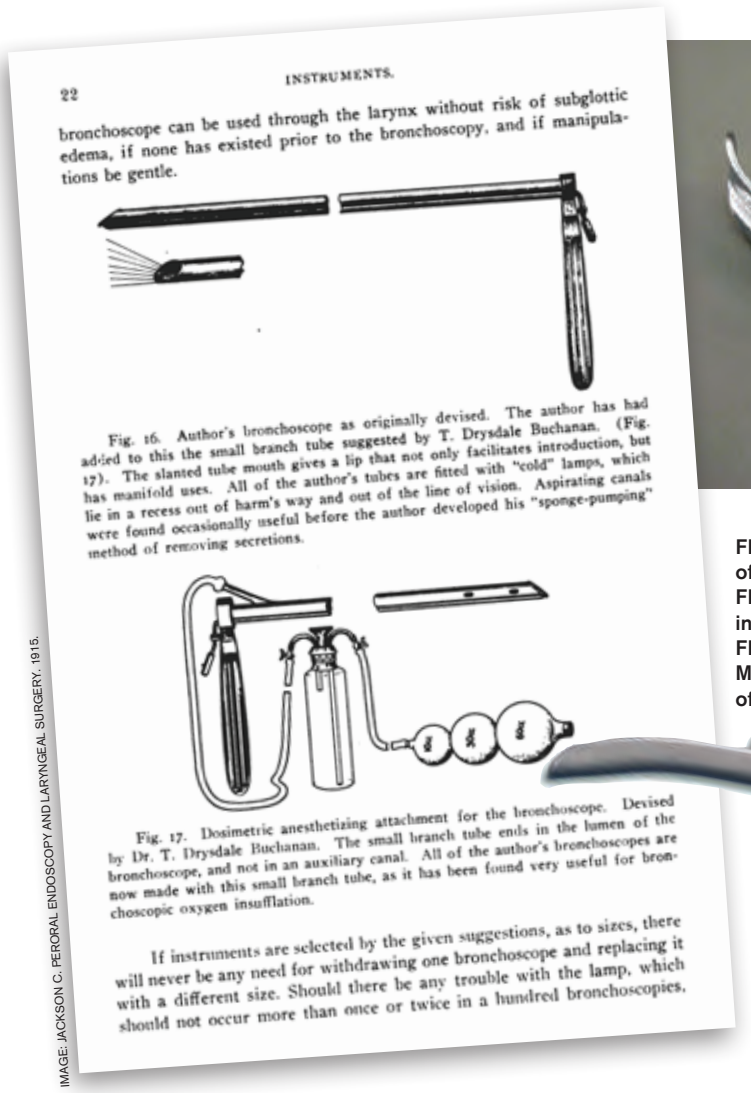
I [Dr. Levitan] attended a meeting of the Society for Airway Management in October 2011, and I heard a lecture describing nasal cannula use to prolong safe apnea during intubation in the morbidly obese. A few days after my return to Philadelphia, I had a patient who was profoundly hypoxic and required rapid sequence intubation (RSI). I put on a nasal cannula, used a bag-valve mask for preoxygenation, and, during the RSI, opened up the nasal cannula. During very prolonged attempts at intubation, the nurse described something that completely amazed me: "Pulse ox 94 ... no, 96 ... now up to 100 percent!" The readings were increasing despite apnea!

The emergency medicine residents at Thomas Jefferson University in Philadelphia were eager to adopt this new technique, as they quickly realized it meant they were not getting pushed out by the attending during repeat intubation attempts. I also noticed a secondary benefit. When the pulse oximeter was not going down, everyone performed better at intubation.

I was eager to share this idea with others in emergency medicine and had just been introduced to Scott Weingart, MD. I came up with an acronym to describe the technique—NO DESAT for "nasal oxygen during efforts securing a tube"—and using the rapidly developing platform of social media, it became one of the first things to go viral. Although Scott was initially reluctant to write an article (believing it was an antiquated way to share knowledge), I convinced him otherwise, and soon thereafter, we published an article in the *Annals of Emergency Medicine* that became one of the most commonly downloaded articles for the next few years.[1]

Now we are five years down the road. Multiple articles and systematic reviews have been published regarding the utility of apneic oxygenation (ApOx) during intubation, and while many emergency physicians changed their practice, much skepticism remains. Here is a review of some of the literature on NO DESAT (ApOx).

- Denton and Howard performed a "shortcut review" and found four trials, concluding that there is emerging evidence that the use of ApOx decreases the incidence of critical desaturation during endotracheal intubation.[2]
- Silva et al performed a comprehensive search of medical databases and gray literature. The authors included 14 studies for qualitative analysis and eight studies (1,837 patients) for the quantitative analysis (meta-analysis). The authors reported that ApOx was associated with decreased hypoxemia (odds ratio [OR], 0.66), increased first-pass success rate (OR, 1.59,) and increased lowest peri-intubation SpO2 (mean difference 2.2 percent).[3]
- Pavlov et al included eight studies and 1,953 patients and reported absolute risk of clinically significant hypoxemia of 27.6 percent in the usual care group and 19.1 percent in the ApOx group, plus reduced relative risk of hypoxemia by 30 percent in the ApOx group.[4]
- Binks et al included six trials and 1,822 cases of ApOx during ED and retrieval intubations. The authors reported reductions in desaturation (relative risk [RR], 0.76) and critical desaturation (RR, 0.51), plus improvement in first-pass intubation success rate (RR, 1.09) when ApOx was implemented.[5]


22 INSTRUMENTS.

bronchoscope can be used through the larynx without risk of subglottic edema, if none has existed prior to the bronchoscopy, and if manipulations be gentle.

Fig. 16. Author's bronchoscope as originally devised. The author has had added to this the small branch tube suggested by T. Drysdale Buchanan. (Fig. 17). The slanted tube mouth gives a lip that not only facilitates introduction, but has manifold uses. All of the author's tubes are fitted with "cold" lamps, which lie in a recess out of harm's way and out of the line of vision. Aspirating canals were found occasionally useful before the author developed his "sponge-pumping" method of removing secretions.

Fig. 17. Dosimetric anesthetizing attachment for the bronchoscope. Devised by Dr. T. Drysdale Buchanan. The small branch tube ends in the lumen of the bronchoscope, and not in an auxiliary canal. All of the author's bronchoscopes are now made with this small branch tube, as it has been found very useful for bronchoscopic oxygen insufflation.

If instruments are selected by the given suggestions, as to sizes, there will never be any need for withdrawing one bronchoscope and replacing it with a different size. Should there be any trouble with the lamp, which should not occur more than once or twice in a hundred bronchoscopies.

IMAGE: JACKSON C. PERORAL ENDOSCOPY AND LARYNGEAL SURGERY. 1915.

PHOTO: COURTESY OF MELBOURNE MUSEUM.

PHOTO: ALIMED

FIGURE 1 (LEFT): Dr. Chevalier Jackson's drawings of his 1915 bronchoscope.
FIGURE 2 (ABOVE): The Boyle Davis gag, which inspired the Macintosh blade.
FIGURE 3 (BELOW): Pediatric Oxiport. A small Miller blade for oxygenating during laryngoscopy of infants.

So Does It Work?

Probably. The effect is small; we are very good at intubations in the emergency department, and hypoxemia is uncommon. That is why systematic reviews with more than 1,000 patients are needed to prove efficacy. Smaller studies with better preoxygenation techniques and few hypoxemic events have not demonstrated a difference in the effect.[6]

While there are different ways of providing ApOx, the most common and cheapest is to use a nasal cannula with oxygen up to the maximum flow (providing more than 50 L/min). High-flow nasal cannula or positive-pressure ventilation provide preoxygenation, but they are less available and more expensive.

What all ApOx techniques have in common is that there is a focus on better peri-intubation techniques and better preoxygenation. ApOx in adult patients requiring emergency intubation is a low-cost, universally available technique that can reduce the incidence of hypoxemia and increase first-pass intubation rates. No adverse effects have been reported.

This topic has also been nicely discussed by:

- **Salim Rezaie, MD,** on Rebel EM: rebelem.com/endao-trial-apneic-oxygenation-futile-intervention-ed-rsi and rebelem.com/apneic-oxygenation-apox-review-evidence-critical-care-emergency-medicine.
- **Rory Spiegel, MD,** on EMNerd: emcrit.org/emnerd/emnerd-case-elemental-truancy.
- **John C. Sakles, MD,** in the editorial "Maintenance of oxygenation during rapid sequence intubation in the emergency department."[7]

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TAYLOR Q&A | CONTINUED FROM PAGE 26

I asked, "Oh, can I use this picture of you?" They were like, "Fine. If I put it on Facebook, then I'm good with it being shared." So I took the pictures, made a collage, tweeted it, and sent it to Disney. Then more of my friends would see the picture, and they would say, "Well, I want to be on the picture. I'm a brown girl doctor." Then people would reach out and ask, "Does Indian count as brown?" Then other people would say, "I'm Latino brown. I'm kind of beige brown. I'm biracial brown." Then medical students started reaching out like, "I'm going to be a doctor next week." It just got bigger and bigger. Finally, Disney's vice president of PR or marketing contacted me, and I just knew that he was going to say, "This is our image. I don't know what you're doing. You need to take this down. You know we didn't give you permission to do this, right?"

KK: So you were expecting a cease-and-desist email.

MT: Yes, exactly! I didn't even want to open it. They didn't do that though. They liked it. They thanked me, and they flew me out to Los Angeles to meet the creators. I got to meet [*Doc McStuffins* creator Chris Nee], talk to her, and have lunch. The creator and I became better friends because she told me the impetus behind her creating the show. Her child had been sick, and initially, the girl was a little white girl. Then the Disney vice president said, "Would you mind making her black?" She said, "Absolutely not. That's totally fine." When I was talking to Chris Nee at the lunch table, I asked her about the show and asked, "What's the mom's name? The kid is cute, but the kid is not a real doctor, right? She plays with stuffed animals. The mom is a cartoon real doctor."

When I was talking to Chris, I said, "Wow, you should name the mom Myiesha!" I went into what the meaning of Myiesha is. It's Arabic, and it means "life's blessing." I was totally joking with her. Some months later, she called me and said, "You'll never guess what happened." I asked, "What? What happened?" She said, "You'll see tomorrow on the press release." They named her Maisha because she didn't have a name before then. So now Doc McStuffins' mom's name is Maisha McStuffins. So that's kind of cool.

KK: That is way cool.

MT: The reason why she did this was because I said to her, "When you're a doctor, you are just doing your job, and you don't really feel like it's that big of a deal. Nobody really knows what you're doing because unless you're in public health or you're elected, you're just going into patients' rooms one by one and you leave. You may or may not remember, and they may not remember you. You just go on about your day."

When this happened, I told her, "Wow, this is a great honor." She said, "Myiesha, until I met you, I just wrote children's cartoons, and that's not really that significant. You helped put into perspective exactly what I was trying to do, working with me, showing me that the work that I do does change minds. It does set up a society to do better, starting with the children." She said, "That was the hat tip. That's why I named her after you."

KK: What's the Artemis Medical Society?

MT: Some people I knew from medical school or residency and a few that I had met along the way when I was doing the collages recruited me, and we formed this nonprofit organization. We got it all organized, added members, and came up with bylaws. This was a big deal because we're doctors. We don't know anything about nonprofits: how to run them, how to deal with the taxes, what we needed, etc. It seemed like overnight we had 5,000 people in this Facebook group.

KK: What is the mission of the Artemis Medical Society?

MT: What we aim to do is nurture and support a global community of women of color, wherever they are. It's not really "sciency;" it's more touchy-feely. We had a conference where we brought in people to talk about work-life balance and about not feeling alone.

In my group, I'm always the only black person. I might be one of two women, and then everybody else is a white guy. Maybe there are some Asian men, but there are not many women. There are not any black people. In our professional life, you are typically the only one, and when you're the only one, you're very isolated.

I'm big on education now because I homeschool my kids. You want them to be able to dream. With Artemis, we have a pilot program in the Fort Worth unified schools in the gifted and talented pullout where we have our women go and talk about what it's like to be a doctor. The image of seeing somebody that looks like you or somebody that doesn't look like you in the role changes perceptions. The work we are doing is great. Other schools around the country have been contacting us, but this is still a pilot program.

KK: That sounds exciting. I am honored to have you as a colleague and see the wonderful things that you're doing, not just within emergency medicine and to advance emergency medicine but with a much larger social agenda that is important for all of us.

NEW COLUMN

BREAKING DOWN ORTHO

CASTED

DR. SAYAL is a staff physician in the emergency department and fracture clinic at North York General Hospital in Toronto, Ontario; creator and director of CASTED ‚Hands-On' Orthopedic Courses; and associate professor in the department of family and community medicine at the University of Toronto.

Buckle Up

Pearls and pitfalls with pediatric distal radius fractures

by ARUN SAYAL, MD, CCFP(EM)

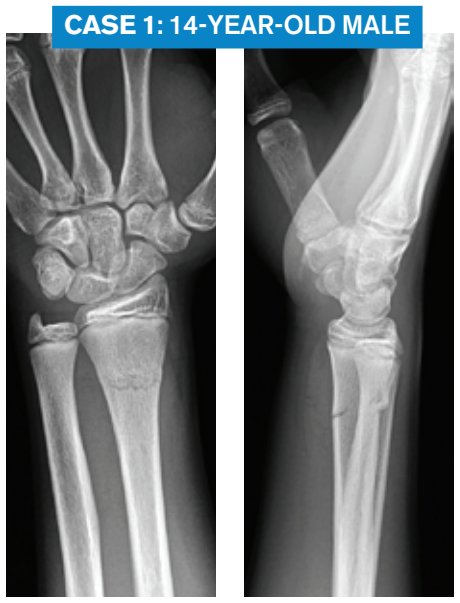
Written from the perspective of an emergency physician who also runs a weekly minor fracture clinic, this column will highlight a few key teaching points for commonly missed and commonly mismanaged ED orthopedic cases. This debut column will deal with pediatric distal radius fractures.

The Cases

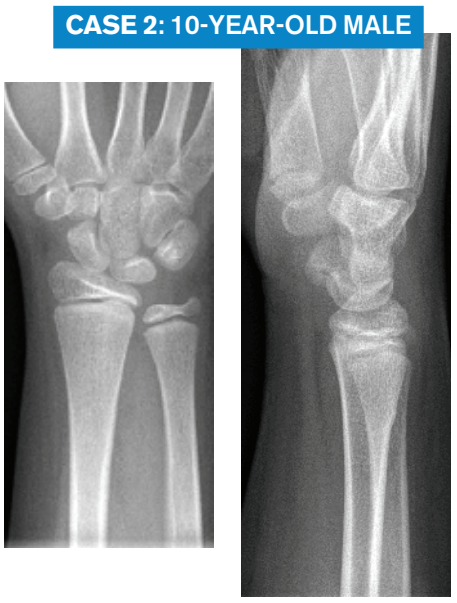
Here are X-rays of four pediatric patients with isolated wrist injuries after a fall. Each is mildly swollen and tender at the distal radius, closed, neurovascularly intact, and without scaphoid (or other carpal) tenderness.

What is your diagnosis, emergency department treatment, and follow-up plan for each?

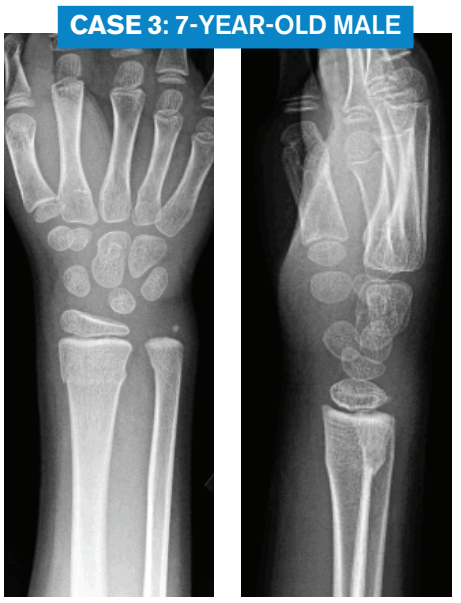
CASE 1: 14-YEAR-OLD MALE



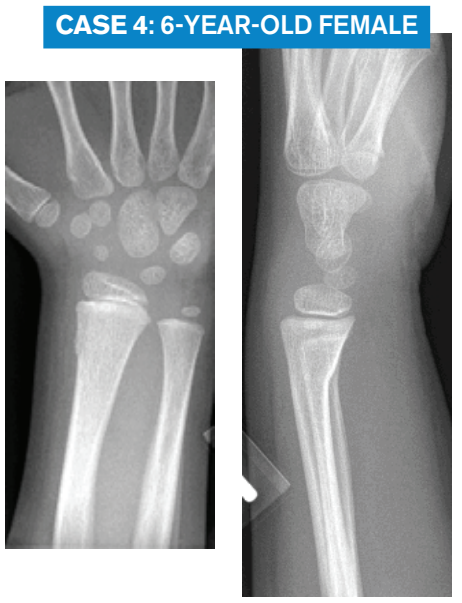
CASE 2: 10-YEAR-OLD MALE



CASE 3: 7-YEAR-OLD MALE



CASE 4: 6-YEAR-OLD FEMALE



The Challenge

Of the above four cases, the radiology report for each may read, "buckle fracture of the distal radius." One case is a simple buckle fracture, and it tends to be overtreated in the emergency department. For the other three cases, they require well-molded immobilization in the emergency department. However, two of the cases should be molded in flexion; the third case, in extension. Optimal ED management requires us to recognize the subtle differences between these pediatric distal radius fractures.

The Clinical Pearls: Pediatric Distal Radius Fractures

- **Simple dorsal buckle fractures** are stable. Treat for comfort and protection. Removable splints are fine.

- **Transverse fractures** (also called complete or bicortical fractures) can be subtle on X-ray. If the dorsal buckle fracture extends to the volar side or if the distal fragment is dorsally angulated, then it is not a simple dorsal buckle fracture. For these fractures, the distal fragment tends to shift dorsally; the fractures should be *molded in flexion*.

- **Volar buckle fractures** are less common, more difficult for emergency physicians to appreciate, and more likely to be mismanaged; these should be *molded in extension*.

- **Don't solely rely on the radiologist's report.** It may not offer enough detail. It may be wrong. Make sure you see the X-rays, not just the report!

Introduction

If you see kids in your emergency department, then you're managing pediatric fractures. Distal radius fractures are the most common.

Fractures can be stable or unstable. Stable fractures will not shift with activities of daily living. They need comfort and protection while healing. A simple dorsal buckle fracture of the distal radius is a good example (as in Case 2 above).

Unstable fractures have a tendency to shift. Some kids with distal radius fractures need a reduction (not covered in this article). Those cases are more impressive, and it is more intuitive that those fractures have a tendency to shift back to their pre-reduction position and should be molded in the opposite direction to prevent that possible shift.

However, unstable fractures are not always so obvious. As in three of the above cases, recognizing the instability of some fractures can be quite subtle.

The ED challenge in managing pediatric distal radius fractures lies not so much with the common simple dorsal buckle fracture since it does not require specific immobilization or with the significantly angulated fracture that clearly needs reduction. Rather, the challenge lies in recognizing the subtle fractures that may shift, identifying the direction they may shift, and ensuring proper ED immobilization and follow-up.

About 10 percent of injuries diagnosed by emergency physicians as simple buckle fractures of the distal radius are subtle examples of more complex injuries.[1] Subtle radiologic abnormalities result in significantly different ED management. Recognition requires astute radiographic interpretation.

Injury Patterns

Simple dorsal buckle fractures of the distal radius are very common. They are caused by a compression-type force applied to relatively soft, immature bone. The child falls on the outstretched hand. The volar aspect of the distal radius impacts the ground, and the force results in the commonly seen buckle fracture on the opposite compressed dorsal aspect of the distal radius.

Simple dorsal buckle fractures can be subtle on the lateral view—but the fracture line does not extend to the volar cortex and there is no angulation (the planes of the proximal and distal fragments are parallel/anatomic). Case 2 is such an example. Simple dorsal buckle fractures are stable injuries that require treatment for comfort and protection. Numerous studies have shown simple buckle fractures do well with removable splints or soft bandages.[2–9] Treating with a circumferential cast is no better for patients and often less preferred by them.[5–9] Practically speaking, in our emergency department, treatment would either be a removable premade Velcro forearm splint or a removable slab. (Fiberglass is preferred over plaster since it's lighter and molding is not required for simple dorsal buckle fractures.) Follow-up should be arranged for proper guidance and return-to-sports advice. Typically, that would take place in the fracture clinic in a week or two. Depending on practice location and referral patterns, primary care physicians can certainly be an option for the follow-up of simple dorsal buckle fractures of the distal radius.[1,10]

Occasionally, a buckle is seen, but on closer inspection, the X-ray reveals a more significant fracture type. If a greater force is applied to the volar side (ie, fall at greater speed or from height, like monkey bars), then a more significant fracture may occur, one that extends across both the dorsal and volar cortices (see Case 1). In some cases, the fracture line may not clearly extend to the volar side, but the distal fragment is mildly angulated dorsally (see Case 3). These are *not* simple dorsal buckle fractures. They are **transverse fractures (complete or bicortical).**

Part of the confusion with this fracture pattern is the various terms used to describe these fractures. In addition to transverse, complete, and bicortical, some clinicians may call them non-buckle fractures. Some orthopedic surgeons and radiologists might call these greenstick fractures, while others would argue that is incorrect since a greenstick fracture breaks on the convex/distracted side but these fractures occur on the con-

cave/compressed side.

While it's easy to understand the confusion, it is important to recognize that, whatever the label, these fractures can be subtle on X-ray, are more likely to shift, and require well-molded immobilization. Fractures tend to shift in the direction the original force was applied. When falling on an outstretched arm, the force is applied to the distal fragment in a volar-to-dorsal direction, so the fracture tends to drift dorsally. To discourage this tendency, molding should be in the opposite direction in flexion. Since molding is important, plaster is preferred over fiberglass. Plaster has inherently better molding properties (reference: pretty much every orthopedic textbook!). A radial gutter splint (with connected plaster on both the dorsal and volar sides of the radius) that is properly applied and molded in flexion works very well. Follow-up should be arranged within a week with orthopedics since X-rays often will be repeated to check alignment for these potentially unstable fractures.

Finally, the last case (Case 4) involves the most common ED molding mistake seen in our fracture clinic: failure to recognize the **volar buckle fracture.** In these cases, the distal radius fracture tends to shift volarly. A helpful tip: When looking at the lateral wrist X-ray, always identify the thumb first as this defines the volar side of the forearm. If a buckle is seen on the volar cortex, the force must have come in the dorsal-to-volar direction, and when asked, patients often report a fall on the back of their hand, not on their outstretched arm. If such fractures shift, they shift volarly, so molding must be in the opposite direction in extension.

A safe approach for pediatric volar-based buckle fractures of the distal radius, particularly if there is any volar angulation of the distal fragment, is to mold them into extension. Again, if molding is important, plaster is preferred over fiberglass. A well-molded radial gutter splint molded in extension (optional to extend above the elbow) with orthopedic follow-up within a week is recommended.

A Final Point

The radiology report of each of the above four cases may read, "buckle fracture of the distal radius." Radiologists are not necessarily aware of these subtle yet clinically relevant X-ray differences. Errors will occur if we, as emergency physicians, rely solely on the radiologist's report. We must review the images ourselves, not just read the report!

See the box at right for a review of our four cases.

I hope this helps you manage your pediatric patients with distal radius fractures. A special thanks to ACEP and Dr. Kevin Klauer for the opportunity to contribute. The goal is to highlight ED patients with commonly missed/mismanaged musculoskeletal injuries and offer strategies to help on your next shift. Comments on this column and suggestions for future ones are most welcome.

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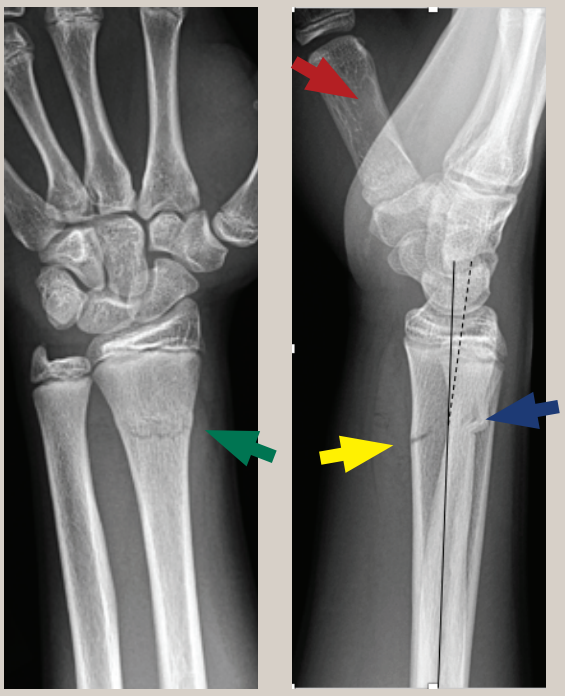
NEXT ISSUE

ACEP NOW **TALKS WITH SCOTT DAVID LIFCHEZ, MD, DIRECTOR OF HAND SURGERY SERVICE AT JOHNS HOPKINS BAYVIEW MEDICAL CENTER IN BALTIMORE, TO GET HIS ADVICE ON WHEN TO CALL A HAND SURGERY SPECIALIST.**

CASES 1 AND 3: Subtle transverse (complete or bicortical) fractures that require molding in flexion and close follow-up.



PATIENT 1: 14-YEAR-OLD MALE

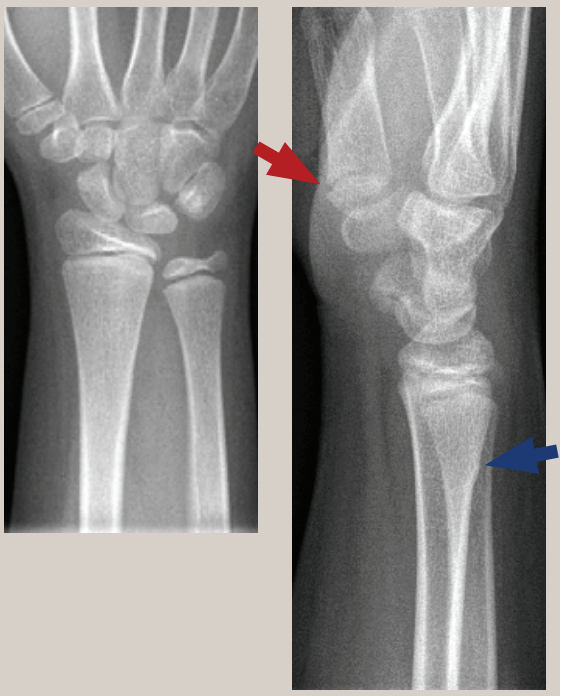
Red arrow identifies the 5th metacarpal (thumb, volar side). Blue arrow shows the dorsal buckle, but the fracture line does extend to the volar cortex (yellow arrow).

The solid black line is along the axis of the proximal fragment of the radius and extended beyond the fracture, the dashed black line is along the axis of the distal fragment, and they are ***not*** parallel. There is mild angulation of the distal fragment dorsally.

This is ***not*** a simple dorsal buckle fracture of the distal radius. This is a transverse (complete or bicortical) fracture, which is unstable with a tendency to shift dorsally. It needs to be molded in flexion.

Of note, on the posteroanterior view, the green arrow also shows the fracture across the distal radius.

CASE 2: Simple buckle fracture of distal radius, stable.



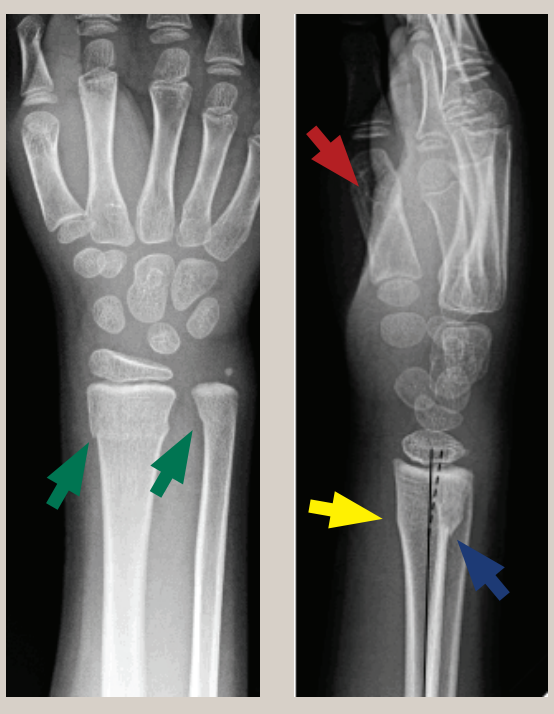
PATIENT 2: 10-YEAR-OLD MALE

Red arrow identifies the 5th metacarpal (thumb, volar side). Blue arrow shows the subtle buckle.

The fracture line does not extend to the volar cortex; there is no angulation.

This is a simple dorsal buckle fracture of the distal radius, stable, and well-managed in a removable splint for comfort and protection.

CASE 4: Volar-based fracture of the distal radius with mild angulation that requires molding in extension and close follow-up.

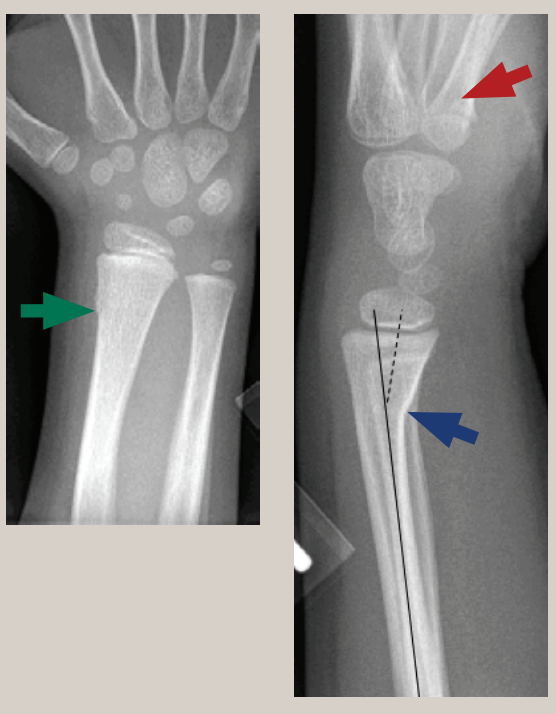


PATIENT 3: 7-YEAR-OLD MALE

Red arrow identifies the 5th metacarpal (thumb, volar side). Blue arrow shows the dorsal buckle. On the volar side, the yellow arrow does not show a cortical break, but there is a minor change in angulation of the cortex, suggesting the fracture line extends to that point. The solid black line is along the axis of the proximal fragment of the radius and extended beyond the fracture, the dashed black line is along the axis of the distal fragment, and the lines are ***not*** parallel, so there is very mild angulation of the distal fragment dorsally.

This case is quite subtle, but this is ***not*** a simple dorsal buckle fracture of the distal radius. This is potentially unstable with a tendency to shift dorsally, so like Case 1, it's best to be molded in flexion.

Of note, on the posteroanterior view, the green arrows show the fracture across the distal radius and a subtle buckle fracture of distal ulna.



PATIENT 4: 6-YEAR-OLD FEMALE

Red arrow identifies the 5th metacarpal (thumb, volar side)—a little confusing because it overlaps with the 5th metacarpal. Blue arrow shows the buckle, but it is on the volar side.

The solid black line is along the axis of the proximal fragment of the radius and extended beyond the fracture, the dashed black line is along the axis of the distal fragment, and the lines are not parallel. There is mild angulation of the distal fragment volarly.

This case is also subtle, and if we don't recognize the thumb/volar side, this will be incorrectly molded in flexion, which will increase the angulation, not help to correct it. So again, this is ***not*** a simple buckle fracture of the distal radius. However, this is unstable with a tendency to shift volarly and needs to be molded in extension.

Of note, on the posteroanterior view, the green arrow also shows the fracture of the distal radius.

Q&A ABOUT OUR LITTLEST PATIENTS

KIDS KORNER

DR. JONES is assistant professor of pediatric emergency medicine at the University of Kentucky in Lexington.

DR. CANTOR is professor of emergency medicine and pediatrics, director of the pediatric emergency department, and medical director of the Central New York Poison Control Center at Upstate Medical University in Syracuse, New York.

by LANDON JONES, MD, AND RICHARD M. CANTOR, MD, FAAP, FACEP

The best questions often stem from the inquisitive learner. As educators, we love, and are always humbled by, those moments when we get to say, "I don't know." For some of these questions, you may already know the answers. For others, you may never have thought to ask the question. For all, questions, comments, concerns, and critiques are encouraged. Welcome to the Kids Korner.

Does Ondansetron Mask Nausea in Head Injury?

Question 1: In children with a closed head injury and no head imaging in the emergency department, will ondansetron mask a significant intracranial injury?

While we commonly see closed head injuries and concussions, there are very few data addressing this question. We found two articles evaluating ondansetron administration and closed head injury, and neither thoroughly address giving ondansetron as a discharge prescription. The first article by Kinnaman et al is a survey of emergency medicine providers, of which 90 percent (238 of 265 total respondents) treated only children in their practice environment.[1] The response rate of the survey was noted to be 29 percent. This study addresses practitioner management of concussion only, finding that 142 of 265 (54 percent) of surveyed practitioners treat concussion with ondansetron. There is no mention of whether this is an ED dose only, home prescription, or combination of the two. While this study is a survey and subject to a number of biases, one conclusion that may be drawn is that it is not uncommon to treat concussion with ondansetron.

The other study is a retrospective study of two tertiary emergency departments over the course of eight years (n=28,271 total patients) by Sturm et al.[2] The primary outcome was evaluating for return visits within 72 hours in children (6 months to 18 years of age) who received a head CT in the pediatric emergency department (PED) and who did and did not receive ondansetron in the PED. The secondary outcome evaluated bounce backs in children who got admitted (within 72 hours) who did *not* receive a head CT in the PED initially and assessed whether ondansetron masked any "missed cases," defined as skull fracture or intracranial hemorrhage. This secondary outcome analysis best addressed our clinical question.

During this eight-year period, there were 21,595 children seen in the PED for head injury who did *not* receive a head CT. For these discharged children without head CT, 433 of 21,595 (2 percent) received ondansetron during their PED stay, of which 12 patients (2.8 percent) returned within 72 hours. For children who did *not* get a head CT and did *not* get ondansetron during their PED visit, 1.8 percent (385 of 21,162) returned within 72 hours. There was no statistically significant difference between these two groups (P=0.105). After controlling for acuity and demographics, ondansetron had no significant effect on return rates (odds ratio 1.15; 95% CI, 0.56–2.36). Of the 433 patients in the non–head CT group who received ondansetron in the PED at initial presentation, there were no missed diagnoses (0 of 433). In the non–head CT group who did *not* receive ondansetron, there were seven missed diagnoses (7 of 21,162 patients; P=0.36), and this finding was not statistically significant. The authors do not mention or address how many children in the non–head CT group got a home prescription for ondansetron, so no definitive conclusions can be drawn based on the current literature.

What does all this mean? While extremely limited data exist, they suggest that giving ondansetron in the PED to a child with a head injury without head CT imaging is potentially safe and probably does not mask any significant intracranial injuries.

ILLUSTRATION: CHRIS WHISSEN & SHUTTERSTOCK.COM

Summary

A single, large retrospective study suggests that giving ondansetron in the PED for a child with a head injury, even when you're not imaging the brain, probably does not mask a significant intracranial injury. With regard to giving a home prescription for ondansetron and masking significant intracranial injuries, we found no current literature on that topic.

PHOTO: SHUTTERSTOCK.COM

Antibiotics for Parotitis

Question 2: For parotitis in children, should antibiotic therapy be considered, and if so, what bacterial coverage should be provided?

Most studies addressing this topic include both adult and pediatric patients. We could not identify any prospective studies. We are only addressing what's considered suppurative parotitis and not mumps, a common cause of viral parotitis.

The first study is a six-year retrospective study by Cohen et al from 1984 to 1989 (n=11) that looked at cases of recurrent parotitis in children.[3] Please note we're talking about recurrent parotitis, meaning patients who have had parotitis previously. The ages ranged from 1 to 7 years, and they mention that "most" (no specific number or percentage was provided) had either viridans streptococci or *Haemophilus influenzae*.

The second article is a 25-year retrospective study that only looked at bacterial suppurative sialadenitis (n=47) and included both children and adults (n=7 children).[4] The author didn't differentiate between primary and recurrent parotitis and evaluated all salivary gland infections. The predominance (32 of 47; 68 percent) were from the parotid gland. In those 32 cases, the author found anaerobes (94 percent), *Staphylococcus aureus* (31 percent), *H. influenzae* (12 percent), and viridans streptococci (12 percent) to be the biggest culprits. It appears a majority of these were polymicrobial, meaning we should consider covering anaerobes, *S. aureus*, viridans streptococci, and *H. influenzae*. A separate 35-year retrospective study by Laskawi et al included 21 pediatric patients with parotitis and found both *S. aureus* (50 percent) and group A strep (50 percent) as the infectious bacterial agent.[5]

Conclusion

Although the majority of parotitis cases are viral, suspected bacterial causes (ie, *S. aureus*, Strep species, *H. influenzae*, and anaerobes) warrant antibiotic coverage.

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EM PICS WORTH A THOUSAND WORD

IMAGES IN EM

DR. THOMAS is an emergency medicine resident at Highland Hospital in Oakland, California.

A Deeper Fear

Domestic violence an important social agenda for emergency medicine

by BENJAMIN THOMAS, MD

I recently spent a month rotating on the trauma service at my hospital. One day early in my rotation, my team and I got called down to manage a pedestrian who was struck by a car. As soon as the paramedics arrived at the emergency department, I knew that this case would be more complicated than I initially anticipated. As the senior resident, I was charged with managing her initial resuscitation. I went through her primary survey as expeditiously as possible, and amid the chaos of the crowded trauma bay, I distinctly remember locking eyes with her. I struggled with finding the right words to say to console her as tears rolled down her face. Behind that gaze, I could see a deep fear and anguish that seemed different from other trauma victims I have taken care of. She had been run over by a car multiple times and was severely injured, with road rash covering half of her body, flesh hanging off of her extremities, and two broken legs that potentially needed amputation. She soon was intubated and started on a massive transfusion protocol. She was rushed to the operating room for further exploration.

I bewilderedly stepped out of the trauma bay. How? Why?

I then overheard officers nearby saying that "her boyfriend is still at large, another typical DV case."

Another typical domestic violence (DV) case? I could not help but feel a sense of disgust and anger that this was considered typical. Nothing about almost losing your life at the hands of a loved one should be typical. This patient would ultimately survive her injuries, but the physical, mental, and emotional disabilities would be permanent.

RESOURCES FOR DOMESTIC VIOLENCE CASES

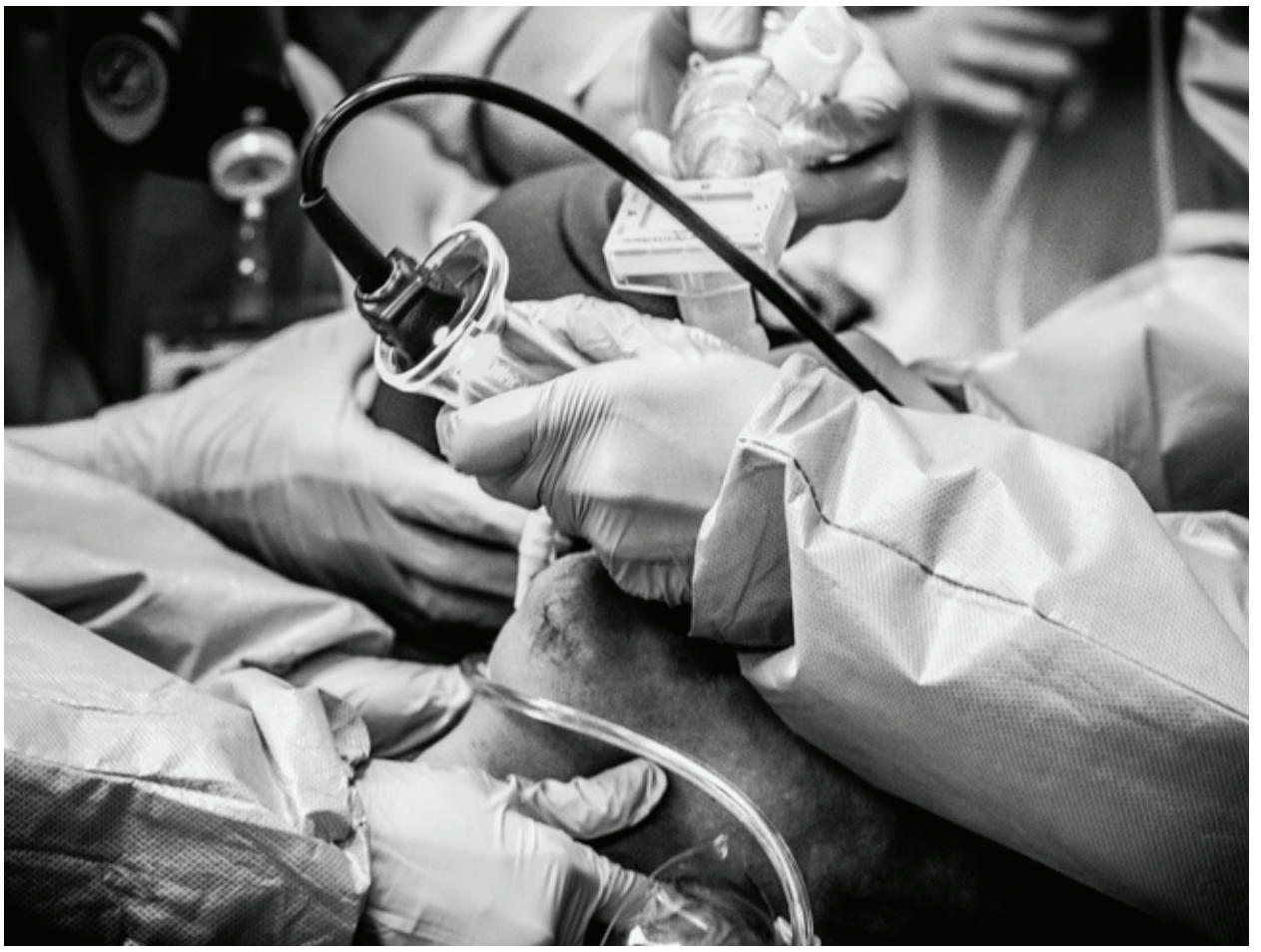
- **Family Justice Center Alliance:** www.familyjusticecenter.org
- **The National Domestic Violence Hotline:** www.thehotline.org
- **National Center on Domestic and Sexual Violence:** www.ncdsv.org

An Urgent Problem with No Easy Solution

In the Untied States, roughly 7 million women and 6 million men are victims of rape, physical abuse, or stalking by an intimate partner. Since the Violence Against Women Act was passed in 1994, DV rates have steadily declined. Yet, despite declining rates, the United States still has the highest rate of DV homicide of any industrialized country. On average, three women are murdered daily by intimate partners.[1,2] Literature shows that 79.2 percent of DV-related homicides were perpetrated by current intimate partners and 14.3 percent by former intimate partners. Approximately one in 10 victims experienced some form of violence in the month preceding their death.[3]

Emergency departments are often the first point of care for victims of DV. It is estimated that 14 percent of women treated in the emergency department are there for DV-related conditions, and DV accounts for at least 1.4 million ED visits annually.[4] Data suggest that simply treating the patient's acute symptomatology has no effect on future occurrences of domestic violence.[5] It has also been shown that when treatment for acute injuries is paired with direct handoffs to a victim advocacy agency, DV victims are more likely to use and follow up with interventions, resulting in reduced repeat victimization rates.[6]

One of the reasons I chose emergency medicine is that within this field we have an incredible opportunity to enact change and alter people's lives during times of calamity. These are not the patients who we can simply treat and street. These are high-risk patients who, in many cases, may not even make it back to the hospital. As providers, we should arm ourselves with the knowledge and resources to empower our patients to no longer endure the torment of being victims of domestic violence.



PHOTOS: BENJAMIN THOMAS

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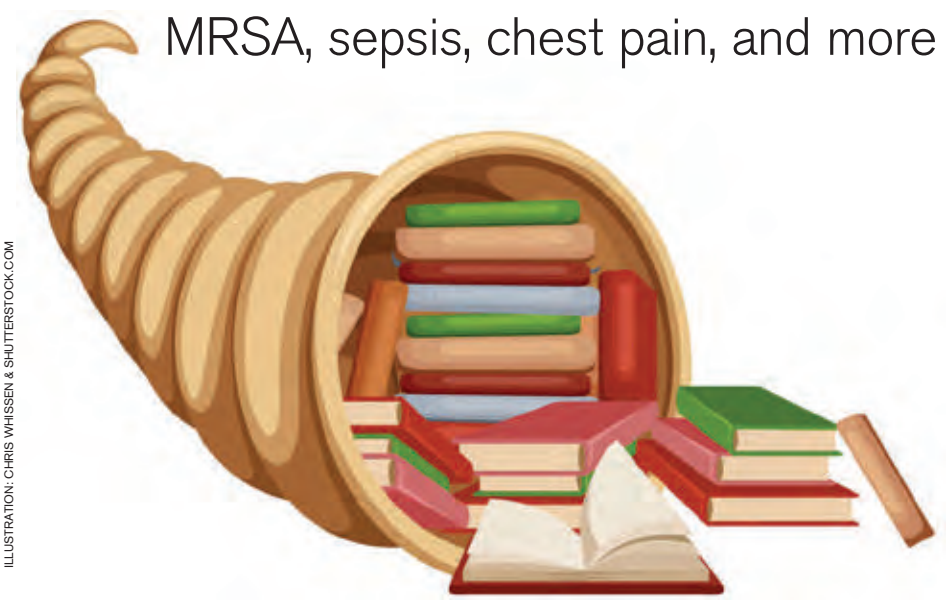
EM LITERATURE OF NOTE

PEARLS FROM THE MEDICAL LITERATURE

DR. RADECKI is assistant professor of emergency medicine at The University of Texas Medical School at Houston. He blogs at Emergency Medicine Literature of Note (emlitofnote.com) and can be found on Twitter @emlitofnote.

The Annual Literature Highlights Episode: Part 1

MRSA, sepsis, chest pain, and more



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by RYAN PATRICK RADECKI, MD, MS

Twelve months ago, I highlighted some of the most impactful, talked-about, or interesting articles published across the spectrum of medical journals rolling into 2016. Another year has passed, and it's time to revisit our ever-growing list before the literature cup runneth over. As always, it is impossible to cover every important article or to cover them in the detail they deserve. Let this serve as a jumping-off point into the maelstrom, but I always encourage you to visit the primary source before making changes to your practice.

Clinical Trial: Comparative Effectiveness of Cephalexin Plus Trimethoprim-Sulfamethoxazole Versus Cephalexin Alone for Treatment of Uncomplicated Cellulitis: A Randomized Controlled Trial[1]

It's been fairly common practice in the age of community-associated methicillin-resistant *Staphylococcus aureus* to treat non-purulent cellulitis with two antibiotics in order to cover the full range of possible pathogens. This fairly straightforward clinical trial tested the combination of cephalexin plus trimethoprim-sulfamethoxazole (TMP-SMX) versus cephalexin monotherapy. No differences were observed with regard to treatment cure rates, and no specific clinical features predicted failure.

A Placebo-Controlled Trial of Antibiotics for Smaller Skin Abscesses[2]

Curative treatment for large skin abscesses, those greater than 5 cm in diameter, has been shown to benefit from adjunctive antibiotic coverage. This trial found some of these benefits extend to smaller skin abscesses, although even these "smaller" abscesses still averaged 3 cm in diameter, with surrounding cellulitis of 6 cm. Clindamycin displayed slightly better efficacy than TMP-SMX but also a greater number of adverse events.

Women with Symptoms of a Urinary Tract Infection but a Negative Urine Culture: PCR-Based Quantification of *Escherichia Coli* Suggests Infection in Most Cases[3]

The default mode of action in primary care is to treat the symptoms of cystitis as a urinary tract infection, typically without a urinalysis or a urine culture. However, this practice has been called into question because 20 percent to 30 percent of symptomatic patients ultimately have a negative urine culture. These authors performed a polymerase chain reaction–based analysis for uropathogens and found most of these negative urine cultures are false negatives, and we should treat those with symptoms regardless.

Time to Treatment and Mortality During Mandated Emergency Care for Sepsis[4]

New York state requires hospitals to report data regarding the outcomes of patients with severe sepsis and septic shock. A retrospective evaluation of these data shows an apparent small mortality benefit relating to timeliness of administration of antibiotics and completion of a three-hour sepsis bundle (odds ratio 1.04 per hour for mortality). While any effect on mortality is important, the small magnitude of benefit in even these sickest patients suggests diminishing returns for the resources expended to aggressively seek out and empirically treat potential sepsis candidates.

Hydrocortisone, Vitamin C, and Thiamine for the Treatment of Severe Sepsis and Septic Shock[5]

This is supposedly the next great thing in sepsis, virtually a combination of over-the-counter supplements administered intravenously to those with severe sepsis and septic shock. Mortality in the untreated group was 40.4 percent compared with 8.5 percent in the treatment group. Unfortunately, this is only a before-and-after case series, and the evidence is not strong enough to change practice. Prospective, controlled trials are eagerly anticipated.

Safety of Computer Interpretations of Normal Triage Electrocardiograms[6]

The electrocardiogram (ECG) is a prime culprit behind physician interruptions in the emer-

CONTINUED *on page 36*

gency department. Virtually every chief complaint, from chest pain to pelvic pain, seems to be an indication for a triage ECG. About a quarter of these are unequivocally normal, with good agreement between physicians and the automated computer algorithms. Physicians should ultimately interpret each ECG in the context of patient care, but there is no value in interrupting a physician simply to review an ECG if it's read by the computer as normal.

Cardiovascular Testing and Clinical Outcomes in Emergency Department Patients with Chest Pain[7]

This is another piece of evidence showing the pendulum swing for the management of patients with chest pain. A decade ago, patients with chest pain absolutely needed to have provocative testing immediately, if possible, lest they bounce back dead from myocardial infarction. This review evaluates the effect on downstream outcomes between those who fortuitously (or not) received urgent stress testing after being seen in the emergency department and those who did not. No mortality benefit was identified. Prospective trials testing the utility of routine stress testing are planned.

Be sure to read next month's issue for Part 2 of our literature highlights.

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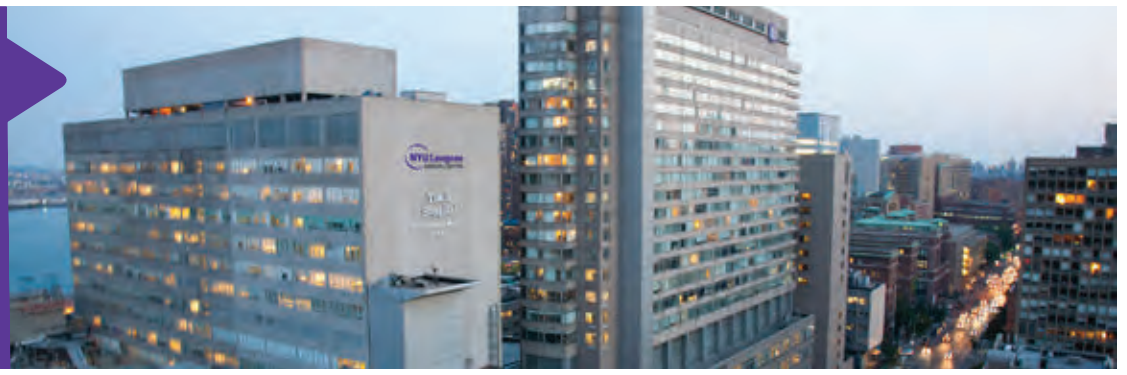

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The University of Chicago's Department of Medicine, Section of Emergency Medicine, is seeking full-time faculty members to serve as Emergency Physicians as we prepare to open a new adult emergency department and establish an adult Level 1 Trauma Center. Academic rank is dependent on qualifications. Applicants are required to be board certified or board eligible in emergency medicine and to be eligible for Illinois licensure by the start of appointment. Responsibilities will include teaching in the educational programs sponsored by the Section and participation in scholarly activity. We seek candidates looking to develop an academic niche that builds upon our faculty expertise in basic and translational research, health equity and bioethics research, geriatric emergency care, global emergency medicine, medical education, prehospital medicine, aero-medical transport, and ultrasound. We host one of the oldest Emergency Medicine Residency programs in the country and serve as a STEMI receiving hospital, a Comprehensive Stroke Center, a Burn Center, and a Chicago South EMS regional resource hospital. The Adult ED has an annual volume of 65,000 and our Pediatric ED cares for 30,000 patients per year, including 1,000 level 1 trauma patients.

This position provides competitive compensation and an excellent benefits package. Those interested must apply by uploading a cover letter and current CV online at academiccareers.uchicago.edu/applicants/Central?quickFind=55160. Review of applications will continue until all available positions are filled.

The University of Chicago is an Affirmative Action/Equal Opportunity/Disabled/Veterans Employer and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national or ethnic origin, age, status as an individual with a disability, protected veteran status, genetic information, or other protected classes under the law. For additional information please see the University's Notice of Nondiscrimination at http://www.uchicago.edu/about/non_discrimination_statement/. Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-0287 or email ACOppAdministrator@uchicago.edu with their request.

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Register today for the second annual USACS Women's Dialogue Series! If you're interested in women's issues in emergency medicine, don't miss this amazing, FREE event! Register today at usacs.com/event

Monday, October 30, 2017
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