

EMERGENCY MEDICINE
ACEP  INFORMATICS
SECTION

Emergency Medicine Informatics Connection

A Newsletter of the Emergency Medicine Informatics Section – April 2018

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National Coordinator for Health Information Technology (and Emergency Physician) Donald Rucker, MD (left) addresses the Informatics Section at the Scientific Assembly in Washington, DC last fall (Jason Shapiro, MD, Former Section Chair, right)

Photo by Benjamin H. Slovis MD MA, ACEP Informatics Secretary, Director of Medical Informatics at Thomas Jefferson University



Nicholas Genes, MD, PhD

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Notes from the EMI Section meeting at the Scientific Assembly

At the Scientific Assembly in Washington, DC last fall, we were honored to have the National Coordinator for Health Information Technology (and Emergency Physician) Donald Rucker, MD, address our section.

Dr. Rucker spoke for nearly an hour, without slides or notes. He spoke about his current position, joking that “National Coordinator” kind of sounds like a party planner. But, halfway through his first year on the job, he saw his role as pushing for two things: 1) improving EHR usability, and 2) improving interoperability.

On the topic of EHR usability, he noted that most every other industry has successfully made this transition to computerized workflows, and healthcare will make it too. The roots of poor usability are multifactorial, but now that we have widespread EHR adoption, the time is right to change focus.

When it comes to interoperability, the fact of the matter is the public assumes it already exists, Congress wants patients accessing a unified record on their phone - and health IT is playing catch up. It’s still too hard to exchange data – and too many cases with deliberate obstacles. HHS takes information blocking very seriously, and Dr. Rucker promised the Office of the National Coordinator for Health IT (ONC) will be setting up a website for clinicians or patients to report information blocking, and the Office of the Inspector General will follow up and investigate complaints.

But Dr. Rucker sees three ways forward in achieving EHR operability: through open APIs (Application Programming Interface), through FHIR (Fast Health Information Resources), and through TEFCA (the Trusted Exchange Framework & Common Agreement). Open APIs were mandated in the 21st Century Cures act covered in a recent newsletter [link to Jason Shapiro’s piece: [https://www.acep.org/ Informatics-Section-Microsite/Landmark-21st-Century-Cures-Act/#sm.0000hbo7v0waicuurei2m4798wdnx](https://www.acep.org/Informatics-Section-Microsite/Landmark-21st-Century-Cures-Act/#sm.0000hbo7v0waicuurei2m4798wdnx)] and we’ve also given coverage to FHIR’s capabilities [link to James McClay’s FHIR article from last year: [https://www.acep.org/ Informatics-Section-Microsite/FHIR-Standards-for-ED-Information-Systems/#sm.0012j7tc7mhweqd10sb2q40x35zrq](https://www.acep.org/Informatics-Section-Microsite/FHIR-Standards-for-ED-Information-Systems/#sm.0012j7tc7mhweqd10sb2q40x35zrq)].

A few months after his talk, HHS released a draft of TEFCA, intended to provide an on-ramp for interoperability for all. It's now open for public comment [[link to https://www.healthit.gov/buzz-blog/interoperability/trusted-exchange-framework-common-agreement-common-sense-approach-achieving-health-information-interoperability/](https://www.healthit.gov/buzz-blog/interoperability/trusted-exchange-framework-common-agreement-common-sense-approach-achieving-health-information-interoperability/)].

Dr. Rucker went on to note that, while the 21st Century Cures Act sets the stage for modern API and simple access to EHR data, there's also provisions in the law (Title IV) for reducing provider burden. So much of our careers as informaticists has been about mitigating burden – but now we're in a rare position to help. It's always been a given, he said, that government requirements can't change – but that's not necessarily true now. He assured the audience that the government is reading what's written during public comment periods for new rules.

Our familiar documentation requirements for HPI, ROS and Physical Exam date back to 90's-era rules, at the time supported by the AMA and physicians because, in the paper era, it was superior than timestamping rules. But times have changed, and EHR has contributed to documentation bloat (US doctors' notes are about 4x longer than notes in other countries) – and there's concern about fraud and abuse. There's no obvious charting standard replacement waiting in the wings, and CMS is processing hundreds of millions of dollars of claims per hour – a switch is not going to be easy. But CMS is going on a listening tour and the government seems more willing than investigate alternatives. In the meantime, Dr. Rucker is directing the ONC to work to reduce cycle times.

He also gave out his email – Donald.rucker@hhs.gov – and invited us to reach out.

It sounds like a promising time to be involved in informatics and having an Emergency Physician at the helm of ONC is a great opportunity for involvement. Watch this space, and our revamped website, for more news and opportunities to learn and change policy.



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Interoperability Update

The 21st Century Cures Act passed at the end of 2015 (<https://www.congress.gov/bill/114th-congress/house-bill/34/text>) was a gift to the

informatics community. Section 4003 required interoperability of HIT and section 4004 penalized information blocking. These two sections along with other changes require EHR vendors to open their systems by publishing application program interfaces (APIs) and to avoid information blocking activities. Buried in the language is another requirement that regulators use “standards published by standards development organizations and voluntary consensus-based standards bodies.” Following this Act was the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), which changed physician incentive formulas to the new Merit Based Incentive Payments System (MIPS). The MIPS kept the Meaningful Use requirements but added other incentives for quality.

When the final CMS MIPS rules were published (<https://www.federalregister.gov/documents/2016/11/04/2016-25240/medicare-program-merit-based-incentive-payment-system-mips-and-alternative-payment-model-apm>), they called for providers to “attest” to not engaging in information blocking. Specifically, providers may attest to not engaging in information blocking and adhering to published standards, specifically "HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1—Introductory Material, Release 2.1” or CDA V2.1.

With the combination of APIs and the requirement that vendors adhere to the CDA v 2.1 care summary there is a set of patient level data available for use by third party apps and shared between systems. We’ve talked about the HL7 FHIR resources specifications before. Now, the vendors must also expose a set of common data elements.

Now what? We’re seeing organizations, projects and communities of interest springing up to make sense of these opportunities and advise the development community. HL7 works closely with the ONC to coordinate ideas. The Health Services Platform Consortium (HSPC) convenes a number of stakeholder groups. A new group, the Clinical Information Interoperability Council (CIIC) met at the beginning of January to hammer out a mission and charter. The HSPC SOLOR project seeks to harmonize the terminologies called for in the certification requirements.

The FHIR Community maintains an index of apps that take advantage of EHR APIs- the FHIR App Registry <http://www.fhir.org/implementations/registry>. This is a list of FHIR apps and related presentations.

The HSPC

Gallery <https://healthservices.atlassian.net/wiki/spaces/HSPC/pages/64585860/HSPC+Gallery> lists SMART on FHIR based apps. Ultimately, the developers need input from the end users, the clinicians, to help refine the tools, specifications and processes. The HL7 Clinicians on FHIR group has met for the past few years to test FHIR specs using real clinical scenarios (<http://clinfhir.com/>).

These are exciting times for the clinical informatics community. Keeping up requires joining this international community of technologists and clinicians reinventing health information technology. ACEP's commitment to engagement at HL7 is paying off as the requirements hammered out over the past years are beginning to bear fruit in your local EHR.



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EM PGY2

Resident perspectives ACEP/EMRA/Informatics

ACEP 2017 will forever hold a special place in my heart, as it was the first national professional conference I have ever attended. And as such, I had no idea of what to expect or (as I will soon reveal) what to do. Officially the conference ran for seven days, but my time in D.C. would be far shorter. My main motive for attending ACEP was to fulfill my duties as my residency's EMRA program representative. To that end, I arrived early on day three of the conference to man our table at the EMRA residency program fair. It never occurred to me, as a med student, to go to ACEP. I soon realized that many of the medical students I encountered were not spectators at the conference, they were active participants—presenting, running events, meeting in committee—just like the residents and faculty in attendance. Throughout the two-hour fair, I was taken aback by some of the truly amazing candidates that emergency medicine is attracting to the field. I came away with the sense that the future of EM is very bright.

My second day shifted focus from the future of emergency medicine to the future of EMRA. Another one of my duties as program representative is to participate in representative council a.k.a Rep Co. Residents from all over the nation come together to vote on topics as varied as the use of live animals in medical simulations to the public health effects of climate change. Not everything went perfectly, however. A glitch in online voting during the EMRA President-Elect position supplied the perfect amount of parliamentary procedure based drama. In the end, Omar Maniya, an Intern at my program, won the seat! I wish him the best as he embarks on his three-year posting. After Rep Co. I caught the tail end of the EMRA informatics Committee meeting. The committee is currently working on a product called EMRA Charts. The initiative hopes to supply every resident member with a database of charting shortcuts (i.e. procedure

notes, chief complaint templates, and workups.) The hope would then be to use community input to determine the best templates. Although in its early phase, the project shows a lot of promise for those looking for ways to save time documenting.

Day three continued with the informatics theme. The day started at noon with the ACEP Informatics section meeting. As a budding clinical Informaticist, it was refreshing to see a conference hall filled with future colleagues and forerunners. And forerunner is no exaggeration. Keynote speaker and informatics pioneer, Donald Rucker, has been working as an informatician since I was a child. He, of course, brought down the house, and I soaked up what I could. After the section meeting, I participated in the Informatics Section CEDR Grant Committee. CEDR is the Clinical Emergency Data Registry. The first national EM registry, with 57 EDs contributing data, it was formed in a direct response to the changing landscape of physician reimbursement. The committee is in the process of validating the CEDR measures. Stay tuned for updates later this year.

Alas, there was no day four. Although there were a few more events I had my eyes on, it's hard for a junior resident to cobble together more than 3 days off in a row. Ultimately, I left ACEP 2017 wishing I had more time to enjoy all the conference had to offer. Committee meetings are well and good, but next year I'll be sure to make it to more of the lectures, presentations, and wellness events. See you in San Diego!



Todd B. Taylor, MD, FACEP

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ACEP18: Fifty-Year Celebration (Informatics Section 26 Years)

Make plans now to join your informatics colleagues for ACEP18 in San Diego, October 1-4, 2018. The Section meeting will likely be Tuesday, October 2 (exact date pending) and will include a look back at the early days of Emergency Medicine Informatics (late 1980s to 2000).

The meeting will feature a panel of Emergency Physician informatics luminaries from this time period who will regale their exploits, successes, and disasters. There will also be a reprise of the landmark (20 minute) Emergency Department of the Future Video (1994).

Get more info about ACEP18: www.acep.org/sa/

Section Early Years' Tidbits (1985-1995):

- Where was the "Computer Section" first organizational meeting held?
 - o 1991 ACEP Scientific Assembly – Boston
- When was the first Section meeting?
 - o September 15, 1992 – Seattle
- Who was the Section's principle founder and first Chair?
 - o Ed Barthell, MD
- Who was the Section's first Secretary, Newsletter Editor & founding member?
 - o Todd B. Taylor, MD
- Who was the Section's first Staff Liaison?
 - o Stu Allison (ACEP IT Director)
- What was the (arguably) first functional EDIS?
 - o EdNet (circa 1986)
- What the peak number of "Best-in-Breed" EDIS offerings?
 - o About 25 in about 1998. Today, there are only a half dozen. For the last 10-15 years, the trend has been to transition "Best-in-Breed" EDIS to enterprise EMR ED modules.

Next Edition: What were some of the pivotal events in EM Informatics?

George Orwell "1984" - Texting of Patient Orders & Patient Information Among Healthcare Providers

By Todd B Taylor, MD, FACEP

A bit like texting and driving, we all know it is unsafe, but perhaps do it anyway. In its final directive for 2017 to the Survey and Certification Group, CMS chose to be

uncharacteristically clear on this issue. Here is the summary with full text at:
<https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-18-10.pdf>

Memorandum Summary: Texting of Patient Information among Healthcare Providers [Ref: S&C 18-10-ALL]

- Texting patient information among members of the health care team is permissible if accomplished through a secure platform.
- Texting of patient orders is prohibited regardless of the platform utilized.
- Computerized Provider Order Entry (CPOE) is the preferred method of order entry by a provider.

The thrust of this memo is focused on orders and CMS goes on to recognize “that the use of texting as a means of communication with other members of the healthcare team has become an essential and valuable means of communication among the team members.” Nevertheless, “all providers must utilize and maintain systems/platforms that are secure, encrypted, and minimize the risks to patient privacy and confidentiality as per HIPAA regulations and the CoPs or CfCs. It is expected that providers/organizations will implement procedures/processes that routinely assess the security and integrity of the texting systems/platforms that are being utilized, in order to avoid negative outcomes that could compromise the care of patients.”

So, what’s the big deal? Texting has replaced a substantial amount of face-to-face communication. And it leaves a verifiable electronic trail. Like most things in healthcare, it’s rarely a problem, until there is a problem. I have noted in the last few years in legal cases in which I have served as an expert that emails (and more recently text messages) have become part of the equation. Even if you delete your texts & emails on your device, the service provider may retain certain details & even the actual text for days, months or years. There is a current case before the US Supreme Court as to whether law enforcement can obtain certain cell phone data without a warrant under the federal “Stored Communications Act”. Point being, if a HIPAA complaint is investigated, the OIG may be able to obtain details of your texts without a warrant.

Like it or not, cell phones have become “voluntary” tracking and personal information repositories. Just be aware all that information may be subject to discovery in a legal action. Further, if your employer provides your cell phone or computer (especially if the email server is managed by the employer) they have a legal right to the data produced by it or contained within it.

Finally, everyone with a cell phone has a surreptitious body camera and recording device. Unless participants have been searched for cell phones, you should assume you are being recorded. In most states, it is legal to do so as long as one party to the conversation is aware it is being done. Just think a bit about certain conversations that

have occurred during your ED physician group meeting, phone conversations with on-call consultants, interactions with patients that are less than amicable, etc. Just do not say anything you would not want to be heard in court or on the local evening news. It's what I call the "Billy Bush Ambush". And it has already happened to at least one ED physician.

Have we become a society that even George Orwell failed to envision? In the end, it may not be "Big Brother" (government) that controls our every interaction, but rather "Little Brother" (ordinary people enabled by technology) that impacts our lives. Hummmm . . . kinda make CMS's latest proviso seem tame. Hope you feel better about that texting thing.

Microprocessor flaws threaten computer security worldwide

<https://www.nytimes.com/2018/01/03/business/computer-flaws.html>

Summary by Todd Taylor, MD, FACEP

With names that seem taken from a sci-fi thriller, two recently discovered microprocessor flaws could impact computers worldwide even if patched. Discovered last June by a security analyst at Google's security research group "Google Project Zero", they were kept under wraps to allow for a fix. To date, there is no evidence that hackers have exploited the vulnerability and Microsoft and Linux have already issue patches for one of the two.

Meltdown is specific to Intel microprocessors (90% of computer servers worldwide) and is operating system independent. The vulnerability is a particular issue for cloud computing services and has existed in microprocessor architectures for more than 20 years. Major cloud services providers have applied fixes, but these software patches could slow server performance by 20-30 percent. PC are also vulnerable, although a malware program would need to infect the local machine via a phishing email or other nefarious method.

Spectre is not so easy a fix and will likely require a microprocessor redesign of architecture that has been used for decades. While this flaw is more difficult to exploit, currently there is no known fix.



Karen Cosby, MD

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Bob Wears – A Tribute

How do you measure the substance of a man and how do you capture the essence of his life? It is all too easy to reduce the task to counting numbers: how many residents trained, how many articles published, how much grant money awarded during an academic career. By these measures, Bob excelled. Some things are harder to measure: just how many lives did he impact? How many ideas did he influence or change? How much wisdom did he infuse?

I am only one of many whose life was impacted by Bob, and my contact with him was trivial in terms of time, though profound in terms of significance. I first met Bob as a part of the SAEM Task Force on Patient Safety. He gave me opportunities, and encouraged me to network with people with whom I otherwise might never muster courage enough to approach. He loved to debate ideas, and would listen intently to your argument. He insisted that it was each individual's duty to contribute to the discussion, if for no other reason than to provide substance against which to argue! The opportunity to engage him in debate would leave me all the better..... more aware of the assumptions I made, the limitations of my logic, and a realization that different perspectives can reasonably come to different conclusions.

Bob seemed aware of his own mortality. He invested in people, saying that ultimately what you leave behind are others to carry the torch, particularly in patient safety. Could he have known this day would come and would we learn enough to preserve his expertise? As a mentor he drove a hard standard. While he served as editor of *Annals*, I would occasionally receive articles for peer review. Although I knew that the process was likely random, it felt very personal if I knew Bob was the editor. I imagined he would read my review, likely judge my skill, and know if I was progressing in my understanding of scientific merit; dare I disappoint! Each review was a mentoring opportunity for me to learn from a master.

One of my proudest achievements was the opportunity to write a book with Bob and 2 others (Pat Croskerry and Stephen Schenkel). We collaborated for....well, as these things tend to go, years. Bob would quietly watch from afar while others labored in their writing. Then when our ideas had settled and we were ready to congratulate ourselves, he would suddenly infuse new ideas with more nuance and insight. Dare I say, by the

end we had all grown; our writing more mature, our understanding fuller. Whether or not anyone ever read the product, the experience for me was deeply satisfying.

Bob had a keen intellect with an unquenchable thirst for knowledge. He was educated in Medicine at Johns Hopkins, but also held a Masters degree in Computer Science and a PhD in Industrial Safety. He was a prolific writer with a marvelous command of language that imbued nuance and deep understanding.

I suggest that you can best get a sense of him by reading his work. A few lessons I've learned from Bob, in his own words, follow.

When it comes to patient safety, “a fundamental rethinking of our premises and hidden assumptions is desperately needed if we are to move forward...a sea change of this sort is not likely to come from within the present patient safety movement” (in *Why Do We Love to Hate Ourselves*¹). In diagnosis, “people (patients and doctors) do not always make rational choices” (in *Risk, Radiation, and Rationality*²). In terms of human performance and error, he wrote “Human error is not a cause of anything...rather, it is a symptom of trouble deeper inside the system; to explain failure, you must find how people’s assessment and actions made sense at the time”, and, “Our systems of care are intrinsically hazardous, not the least because they embody fundamentally irreconcilable conflicts among goals that must be pursued simultaneously...frontline workers dynamically create safety by resolving these conflicts ‘on the fly’” (in *The Error of Counting Errors*³). He was an early leader in Team Training for healthcare, embraced human factors engineering, and recognized the potential of resilience engineering. He promoted the concept of “Safeware”, that is the design, operation, and maintenance of information technology necessary to safely implement new systems, and argued that “Technology is never introduced into complex systems without unanticipated consequences” (in *Forcing Functions: The Need for Restraint*⁴), but acknowledged that *Design Trumps Training*⁵. In understanding system contributions to harm, he wrote: “Workarounds signal design flaws, not irresponsible people” (*In Reply. The Tragedy of Adaptability*⁶).

He warned us that “just because nothing went wrong isn’t evidence that everything is alright” (in *Getting Better at Being Worse*⁷), and cautioned that “Safety problems in healthcare are problems of psychology and engineering, not problems of medicine” (in *Envisioning Patient Safety in the Year 2025*⁸). He held out hope, but with realism in *Keep the Celebrations Short*⁹ where he stated that “the level of safety in an organization is the result of constantly renegotiated tradeoffs”, and “The most one can hope for is a sort of success without victory”.

Bob was a deep thinker, humble, even wise, but he was also witty. My favorite article is a Change of Shift feature from *Annals*, *Worn Out by Fatigue Training*¹⁰, where he describes a nightmare of endless institutional training requirements chasing him like Zombies! A few of the pithy aphorisms attributed to him include:

- A number of small planning and technology errors are to be preferred over a single monolithic carefully planned, and well-executed catastrophe.
- We know 2 things about unexpected events. First, they always occur. Second, when they do occur, they are unexpected.
- Trying to increase usability on something that is not fit for purpose is an exercise in futility.
- What hits the fan will not be evenly distributed.

In 2007 Bob delivered an address at the SAEM annual meeting on “The Future of Patient Safety”. He suggested that patient safety as a movement might well follow a trajectory: the 7 good years of cult-following as people became aware and embraced the movement, likely to be followed by 7 lean years when we realize how difficult change might be and likely to be disillusioned. But he likened our predicament to that of the monks and nuns in the Dark Ages; how would they preserve civilization? They kept the truth alive, created new and innovative works, and developed progeny who later spread the truth and gave birth to the Renaissance.

Among his many quotes and aphorisms, Bob used a quote he credited to Balfour: "Nothing matters very much, and very few things matter at all."

But that is not so, Bob. You mattered. Your life inspires us. We aim to keep the hope alive and remember your wisdom.

1. Wears RL. Why do we love to hate ourselves? *BMJ Qual Saf.* 2017;26:167-8.
2. Wears RL. Risk, Radiation, and Rationality. *Ann Emerg Med.* 2011;58(1):9-11.
3. Wears RL. The Error of Counting “Errors”. *Ann Emerg Med.* 2008;52(5):502-3.
4. Bisantz AM, Wear RL. Forcing Functions: The Need for Restraint. *Ann Emerg Med.* 2009;53(4):477-9.
5. Wears RL, Fairbanks RJ. Design Trumps Training. *Ann Emerg Med.* 2016;26(3):316-7.
6. Wears RL, Hettinger Z. In Reply. The Tragedy of Adaptability. *Ann Emerg Med.* 2014;63(5):651.
7. Wears RL, Cook RI. Getting Better at Being Worse. *Ann Emerg Med.* 2010;56(5):465-7.
8. Henriksen K, et al. Envisioning Patient Safety in the Year 2025: Eight Perspectives. In Henriksen K, Battles JB, Keyes MA, et al, editors. *Advances in Patient Safety: New Directions and Alternative Approaches. Vol 1: Assessment.* Rockville (MD): Agency for Healthcare Research and Quality, 2008 Aug.
9. Wears RL. Keep the celebrations short. *Qual Saf Health Care.* 2005;14:154.
10. Wears RL. Worn Out by Fatigue Training. *Ann Emerg Med.* 2015;66(3):334-5.

Bon Mots from Bob Wears

- Contributed by Don Kamens

- You can only be young once, but you can be immature forever.
- Accuracy is the result of compensating mistakes.

- If they don't want to come, you can't stop them.
- Half of what I know is no longer true. I just don't know which half.
- You have the right to remain silent. Anything you say will be misquoted and used against you.
- Just because you're necessary doesn't mean you're important.
- Call it a hunch... –Quasimodo
- No wonder there's air pollution. So much of it has passed through saxophones.
- You never know what is enough unless you know what is more than enough. - William Blake
- If you always do what you've always done, you'll always get what you always got.
- This space intentionally left blank.
- It gets late early this time of year.
- Shakespeare didn't write the plays -- it was someone else with the same name.
- "Earth first! We'll destroy the other planets later."
- "The first thing to do is decide what to do first."
- "All my means are sane, my motives and object mad." - Ahab
- "Nothing matters very much, and very few things matter at all." - Balfour
- "Even in the valley of the shadow of death, two and two do not make six." - L Tolstoy
- "The kind of thinking got us into these problems is not likely to be the kind of thinking that gets us out.' - Einstein

Here is another insight into his unparalleled mind:

We were discussing language tokens for a "Proposed semantic model of meaning for life, the universe and everything"

I wrote: "One of the problems with current natural language is that there is not always this shared concept--the same token may have > > concept associated (e.g. "sick", "irritable" or "lethargic")."

He wrote back: "It's even worse than this. Tokens in languages typically don't have single meanings (and if fact, many of the things we commonly call a single 'token' as native English speakers, in fact, are families of somewhat related tokens -- we have learned to interpret them as a single thing). More generally, language is inherently a distributed system -- a linguistic sign derives much if not most of its meaning from the signs that surround it."

He always got you thinking.



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Informatics Fellowship Application Process

I started thinking about informatics fellowship during my first year of residency. I was drawn to how informatics could help us improve patient outcomes by harnessing technology and synthesizing big data. At this point informatics is still a specialty that you can "Grandfather" into, meaning you can take the specialty boards without doing a formal fellowship. This is known as the "Practice Pathway" and is an option for board certified physicians through 2022. At that time all informatics board certified physicians will be required to complete an ACGME fellowship. I considered the option of doing the practice pathway, however, I felt that I wanted the structure that a fellowship would provide. In the future, I will be competing for positions with fellowship trained informaticists.

I started considering programs in the summer of my last year. I used American Medical Informatics Association's (AMIA) website to explore which informatics programs are in existence. I chose programs primarily based on geographic location. It is difficult to directly compare programs as there is a lot of heterogeneity. Many programs offer master's degree programs. Some of these are required, whereas others are optional and can be adjusted to suit your specific interests. I emailed the programs I was interested in around the time I was applying in July/August with general questions such as the requirements, application deadlines and I found that many programs were very responsive. I only considered ACGME approved programs all of which used ERAS in order to apply. The application fees are a few hundred dollars and usually include the first 10-12 programs for a set rate. I applied to approximately 8 programs and went on 6 interviews. Interviews are approximately 6-8 hours. They usually include an interview with the program director, the CMIO or person in a similar position, current fellows, and additional informatics faculty. I found that most of the interviewers made me feel relaxed. They were interested in the work I did as a resident and how I could apply that as a fellow. Many programs ask where you envision your future informatics: as the CMIO, aka informaticist within the general hospital, the informaticist within your department, or a researcher with a focus in informatics. Each program has their strengths and weaknesses in these areas and they are usually transparent in how they can help you accomplish your goals. I gravitated towards programs that were strong in all three as I do not know exactly what pathway I will take.

Because of complexity of matching for positions (e.g., some programs have positions that might be limited to certain specialties, such as VA-based positions not being able to take pediatricians), there is a “pseudo-match” process. In this process, programs call and/or email applicants on the day of the match and extend offers. Applicants can view a Google Doc that shows how many positions each program can offer and what positions are filled. Applicants have approximately 1 hour to respond to offers on the match day before the programs move onto the next applicants on their list.

In addition to the formal structure, fellowship also provides the opportunity to have more protected time to invest in informatics as you are paid a salary for fellowship and usually required to commit approximately 20% of your time to clinical work. Any additional time over this is considered "moonlighting" and can supplement your fellowship salary. For many emergency medicine providers this equates to approximately 2-3 required shifts a month with most emergency medicine providers averaging an additional 2-3 "moonlighting" shifts for a total of 4-6 shifts a month. All the programs I interviewed at highlight that clinically fellows function as attendings. Usually fellows work at the hospital affiliated with their fellowship program however there is often flexibility to work elsewhere. As a new attending with limited clinical time I'm looking for the opportunity to work with residents as I anticipate a future in academia, but I also look forward to working without residents in order to maintain my clinical skills.

Overall the field of clinical informatics is rapidly evolving, and each year will be different for applicants as new programs are added, there is increased interests in informatics, and the practice pathway is phased out. AMIA has a central hub for clinical informatics fellows that brings together fellows throughout the country. I feel programs will continue to strengthen as they rely upon the strength of this inter-connectivity.



Pawan Goyal, MD, MHA, PMP, MS, FHIMSS, CPHIMS
Associate Executive Director, Quality
American College of Emergency Physicians

New ACEP Informatics Fellowship combined with Quality, Policy and Administration

Announcing a new, innovative fellowship in Administration, Quality, Informatics and Policy. The American College of Emergency Physicians (ACEP) has partnered with Integrated Emergency Services (IES) to develop an exciting new fellowship training

experience. This is a 2-year non-ACGME accredited fellowship. The first year will provide mentored experience in the 4 domains of administration, quality, informatics and policy. Fellows will select one of these domains for a focus for the second year. A third year is optional if the fellow wished to complete an MBA or MPH. The fellow will work on projects associated with ACEPs Clinical Emergency Department Registry, develop national quality measures, and/or develop national policy for Emergency Medicine. With IES, the fellow will be involved on the departmental quality projects and administrative issues in the network of IES hospitals. This fellowship is unique in providing exposure to both national and local issues, and providing the opportunity for projects along the continuum of the four domains. Fellow can use time in the program toward the practice track for Clinical Informatics. Interested applicants should contact Dr. Pawan Goyal at Pgoyal@acep.org.

- [CEDR](#) • [E-Qual](#) •
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ACEP and the American Medical Informatics Association (AMIA) training course: 10x10

We've discussed the need for ongoing training of an informatics workforce to understand and implement HIT. Before the HITECH Act, AMIA saw a need for increased workforce training and proposed an introductory course in biomedical and health informatics.

The resulting attempt to train 10,000 health care providers in informatics by 2010 was called the 10x10 ("ten by ten") program. While 2010 has come and gone, interest in the 10x10 program continues.

In 2008, the SEMI leadership foresaw the need for additional informatics training, so Dr. McClay and Dr. Neilson teamed up with AMIA, ACEP and Dr. William Hersh of Oregon Health & Science University to create an emergency medicine-focused offering of the 10x10 course.

The AMIA-ACEP 10x10 course is entering its 10th year. Over 200 emergency physicians have taken the course with many of them going on to obtain recognition through the Clinical Informatics Subspecialty boards.

While the content has evolved from the basics of EHRs to HITECH implementation issues, and now the use of data analytics, quality improvement, and standards and interoperability, the intent has not changed. We are creating a community of knowledgeable practitioners who can lead the ongoing development of HIT to improve patient care.

This becomes more important with the new 21st century cures act, the new MIPS requirements and the rise of a FHIR-fueled revolution in HIT.

This year's course will begin June 13th and culminate with a face to face meeting at the ACEP Scientific Assembly in San Diego at the beginning of October 2018.

Click to Reserve your spot in the class: [AMIA and ACEP 10 x 10](#)



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Scribes and Informatics

Scribes have been a source of discussion for some time. Last November, the topic made its way to our informatics listserv. Although the question posed was about the existence of an “informatics opinion on the use of scribes” the discussion brought to light many salient points. As we look to the future of electronic health records, it is important to understand the current role of a scribe and why it exists.

Current electronic health records stemmed from a need for improved documentation of billing information and care orders. While this was greatly accelerated by the federal mandate, the digitalization of medical records was inevitable. That effort brought to market systems that supplied some, but not all of the features providers would come to need in the digital era. In addition, it brought changes to the clinical workflow of every type of staff member interacting with the system. As the burden of data entry grew, so did the realization that provider time (both physician and advanced practice provider) is a valuable commodity. Add to that the increase in hospital certifications (chest pain, trauma, atrial fibrillation, primary and comprehensive stroke centers, etc.) requiring even more documentation from providers plus the growing list of CMS metrics, and we have a perfect storm of interests vying for provider time at the cost of our patients.

So, we did what we do best, find workarounds. Scribes were born. Today, the role encompasses more than the name suggests. A scribe certainly transcribes the content of a physician-patient encounter into the electronic record. However, the role has expanded to include duties related to physician workflow. For example: scribes coalesce information from non-integrated systems like radiology reports or dictations, ekg databases, and lab results and present them to the physician; scribes monitor the completion of tests and alert physicians when a patient is ready for re-evaluation;

scribes prompt physicians for documentation items like critical care time and procedures; scribes assist physicians with communication with different staff and more. They become a personal assistant to the physician.

Given that job description, what should be the Informatics perspective? Some say workarounds are simply people resisting change, but I disagree. Instead, we should view the scribe role as a living example of what the electronic health record of the future should do for the physician. All of the tasks scribes perform stem from a lack of interoperability of systems, a lack of understanding of a physician's workflow, or the unintended consequences of increasing documentation burdens. All of them can be remedied by improved design with user needs in focus. That does not make the task easy, but it does stress the importance of something we all know: if you are designing something for a user, you need to spend time with that user understanding what they do and how.

As we look to future development, some of the system functions necessary to replace a scribe include:

Smarter alerts built around workflow:

- Your ED patient has labs and radiology testing completed. The system alerts the nurse for a "recheck" of status and vitals. Then, once the nursing component is complete, it alerts the physician that a disposition is due.
- A patient has severe hypokalemia with a K⁺ of 2.8. The system alerts you and asks if you would like to initiate treatment, perhaps a hypokalemia protocol?

Communication:

- The radiologist notes an abnormality that is concerning. She clicks a button which generates an alert to the ordering physician in the ED and includes a copy of the dictation.
- Your patient requests a work note, a bus ticket, and some Tylenol for their arthritis. You are placing the order for the Tylenol but can't find the nurse. You click a button and send a communication text to the patient nurse "discharging now, needs Tylenol, work note and bus ticket" which is sent to a mobile device the nurse is carrying.
- You paged a specialist and stepped into a room to see a patient. Your mobile alerts that a pharmacy is calling and on hold, which you ignore to continue examining your patient. Your next alert is the specialist holding, for which you excuse yourself and take the call. No more intrusive overhead pages.
- You want to alert a local physician of a patient you discharged from the ED who will need follow up. You click the "PCP" button and it auto populates the primary care physician's name and allows for a free text message with the chart attached.

Mobile functionality:

- Your same conversation with the specialist results in admission and that surgeon wants patient information. But, he has no pen or paper since he is driving. Instead, the clerk “tags” the surgeon to the patient with one button click which places the patient on the surgeon’s worklist with the identifier “new” and alerts the surgeon on their mobile with relevant details.

Situational Awareness:

- You are a physician at work seeing patients. Your computer detects that you are dictating a note and waits until you are done, then it presents an alert “Mr Johnson in room 12 has a critical K of 6.5, would you like to initiate the standard adult hyperkalemia protocol or modify?”
- You are a nurse at work treating patients when your computer detects you are with a patient answering a call bell. When you are done and have stepped out of the room, your device prompts you with “Dr X has altered the heparin order for room 25, to be completed in the next 30 min”.
- The system alerts for abnormal labs are intelligent so that “critical” results interrupt now, “important” alerts wait until you are in front of a computer and finished with your dictation, and “routine” alerts wait until you are next in the patient’s chart.

Data Integration:

- The patient completes a chief complaint which populates a matching chart, for example “vaginal bleeding”. This not only triggers the template, but also provides a clinical decision tool by the same name prompting “Questions to ask: LMP, hx of ectopic, hx of tubal ligation or OCP or IUD, hx of STD...”. We know the questions and we ask them every time. What if the prompt came before walking in the room? No more “I forgot to ask” moments.
- Clicking a patient’s medication list automatically populates prior meds based on what they have filled in pharmacies locally, not based on a hospital visit 2 years ago. No need to click through multiple systems, state databases, or other repositories.
- Patients have a documentation and history tab that populates visits from local providers, even ones not affiliated with your hospital. A regional information exchange is integrated and information is trackable.

There are so many examples we could all suggest based on what we do every day in the emergency department. These are the tasks that our personal assistants are currently completing. Scribes are not a failure of current systems. We should embrace the role because of its positive effects on physician workflow and the subsequent improvement in patient flow, patient safety, and physician job satisfaction and retention.

We should also be diligently improving our systems to make the role obsolete in the future.

ACEP Informatics Section website

While our section website got a face lift last year, ACEP has bigger plans to migrate to a new content management system in the coming months. This should help with more frequent updates - and better engagement with the membership.

As informaticists, however, ACEP is looking specifically to us for help – particularly with testing the search functions. Be on the lookout for specific requests from ACEP Communications to our section on how the new site functions.

[Informatics Section Home](#) (under construction)



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ACEP Board Update:

Greetings from the ACEP Board!

As this newsletter testifies, we continue to live in interesting times. The essential nature of clinical informatics remains clear, whether discussing the important growth of clinical informatics training and fellowships, the continuing challenges related to interoperability, or the seemingly ever increasing regulatory burden we all face. Thanks again to Carrie Baker and the section's leadership for their outstanding efforts to produce your newsletter- as you can see, your dynamic Emergency Medicine Informatics Section leadership and members have been busy with many important activities. Unfortunately, the newsletter also includes a wonderful testimony to the loss of one of the pioneers in informatics and patient safety- Dr. Bob Wears. His influence was, and remains, significant.

ACEP17 in Washington, DC seems like it was just last month, but we are already looking forward to our 50th Anniversary assembly in San Diego, California. ACEP18 should be an exceptional event at which to network, learn about important clinical and informatics issues and just have an awesome time! It's not too early to start planning your trip to California for the first week in October.

Recently, I had the opportunity to testify at a Ways and Means Health Subcommittee Roundtable focused on red tape and regulatory burdens. It was a wonderful opportunity to express our concerns about many of the regulatory challenges with which we are faced. Among the list of burdens raised by various professional organization, a clear message was sent related to the inordinate time spent on EHR documentation in various clinical settings along with the ever increasing reporting requirements. The Subcommittee heard our message and there are plans to have further dialogue related to regulatory burdens.

As your liaison to the ACEP Board of Directors, it is my pleasure to work with you and your section leadership in order to help you further develop and grow your interests and activities. Please do not hesitate to contact me if there is anything that I can do.

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Submit your article or Ideas for Future Issues to:

ccbaker2015@gmail.com

Subject line: "Informatics Newsletter"

We look forward to hearing from you!



Carrie Baker, DO

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