

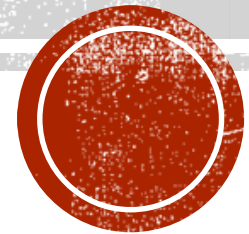
HOW NOT TO *HATE* YOUR EHR

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DISCLOSURES

- Nothing to disclose



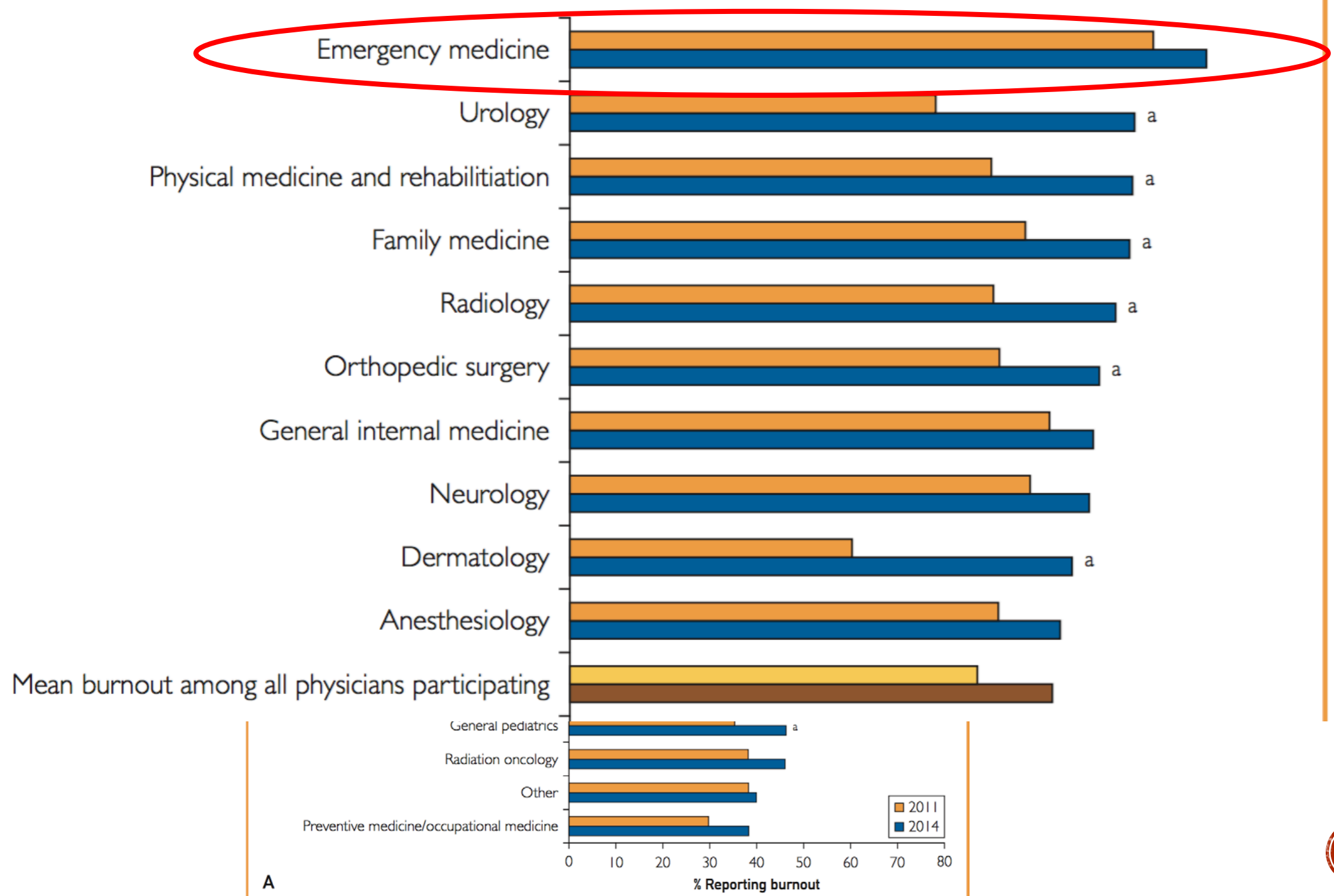
OBJECTIVES

- Group therapy session
- How did we get here?
- How not to *HATE* your EHR – Tips for your next shift



GROUP THERAPY





GROUP THERAPY

From prisoners to advocates. The failure of EHRs thus far to achieve the goals of improving health care productivity, outcomes, and clinician satisfaction is the result both of **immature technology** and the failure of their architects to fully respect the **complexity of converting the massive health care system from one way of doing work to another.** Today, one can see a path to turning the EHR into a well-designed and useful partner to clinicians and patients in the care process. To do this, **we must use AI, vastly improved data visualization, and modern interface design to improve usability.** When this has been accomplished, we believe that **clinicians will be converted from surly prisoners of poorly realized technology to advocates of the systems themselves and enthusiastic leaders of efforts to further improve them.**



HOW DID WE GET HERE?



HOW DID WE GET HERE?

- \$40B Health Information Technology for Economic and Clinical Health Act (HITECH) -- 2009
- “promote the adoption and meaningful use of health information technology”
 - In 2012 <50% of hospitals used EHR
 - In 2015 >75% of hospitals used EHR
 - In 2016 95% of hospitals used EHR and qualified for “Meaningful Use” payment incentives

Adler-Milstein, J., DesRoches, C. M., Kralovec, P., Foster, G., Worzala, C., Charles, D., . . . Jha, A. K. (2015). Electronic health record adoption in US hospitals: Progress continues, but challenges persist. *Health Affairs*, 34(12), 2174-2180J.
doi:<http://dx.doi.org.proxy.cc.uic.edu/10.1377/hlthaff.2015.0992>

<https://dashboard.healthit.gov/quickstats/quickstats.php>



HOW DID WE GET HERE?

Journal of the American Medical Informatics Association, 24(4), 2017, 769–775

doi: 10.1093/jamia/ocw185

Advance Access Publication Date: 19 February 2017

Research and Applications



Research

**Are informatics
EHRs? A**

Erica L Savag

In high-risk industries, such as aviation and health care, usability has been shown to be closely coupled to safety. It is therefore imperative that technology used in these industries meets the highest standards of usability in order to protect lives. Most high-risk industries have implemented federal usability guidance, policies, or standards to encourage the development of usable technology. The Federal

National Center for Human Factors in Healthcare, MedStar Health, Washington, DC, USA

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HOW DID WE GET HERE?

Table 1. Usability Analysis Review

Usability Standards	ONC	FAA	FDA
Rigor of design process used	<div><div></div><div>Requirement: Apply user-centered design process.³¹</div></div> <div><div></div><div>Compliance: Attestation evaluated by external group with no requirement of human factors and usability expertise.³¹</div></div>	<div><div></div><div>Requirement: Apply human-centered design principles.^{26,32}</div></div> <div><div></div><div>Compliance: Data-supported evaluation conducted by internal associates with human factors and usability expertise.^{20,21}</div></div>	<div><div></div><div>Requirement: Follow human factors considerations.²²</div></div> <div><div></div><div>Compliance: Data-supported evaluation conducted by internal associates with human factors and usability expertise.^{22,23,25}</div></div>
Availability of interface-level design specifications	<div><div></div><div>No interface-level design specifications.³¹</div></div>	<div><div></div><div>Interface-level design specifications (specific and applied across the industry).³³</div></div>	<div><div></div><div>Interface-level design specifications (general industry-wide, but specific to some device types).²³</div></div>
Certification and evaluation of final product	<div><div></div><div>Summative testing does not require representative end users or a realistic testing environment.³¹ Significant changes can be made post-certification.</div></div>	<div><div></div><div>Summative testing using representative end users in a realistic testing environment.²¹ Significant changes cannot be made post-certification.³³</div></div>	<div><div></div><div>Summative testing using representative end users in a realistic testing environment.^{22,23} Significant changes cannot be made post-certification, however customization does occur.²⁹</div></div>





HOW DID WE GET HERE?

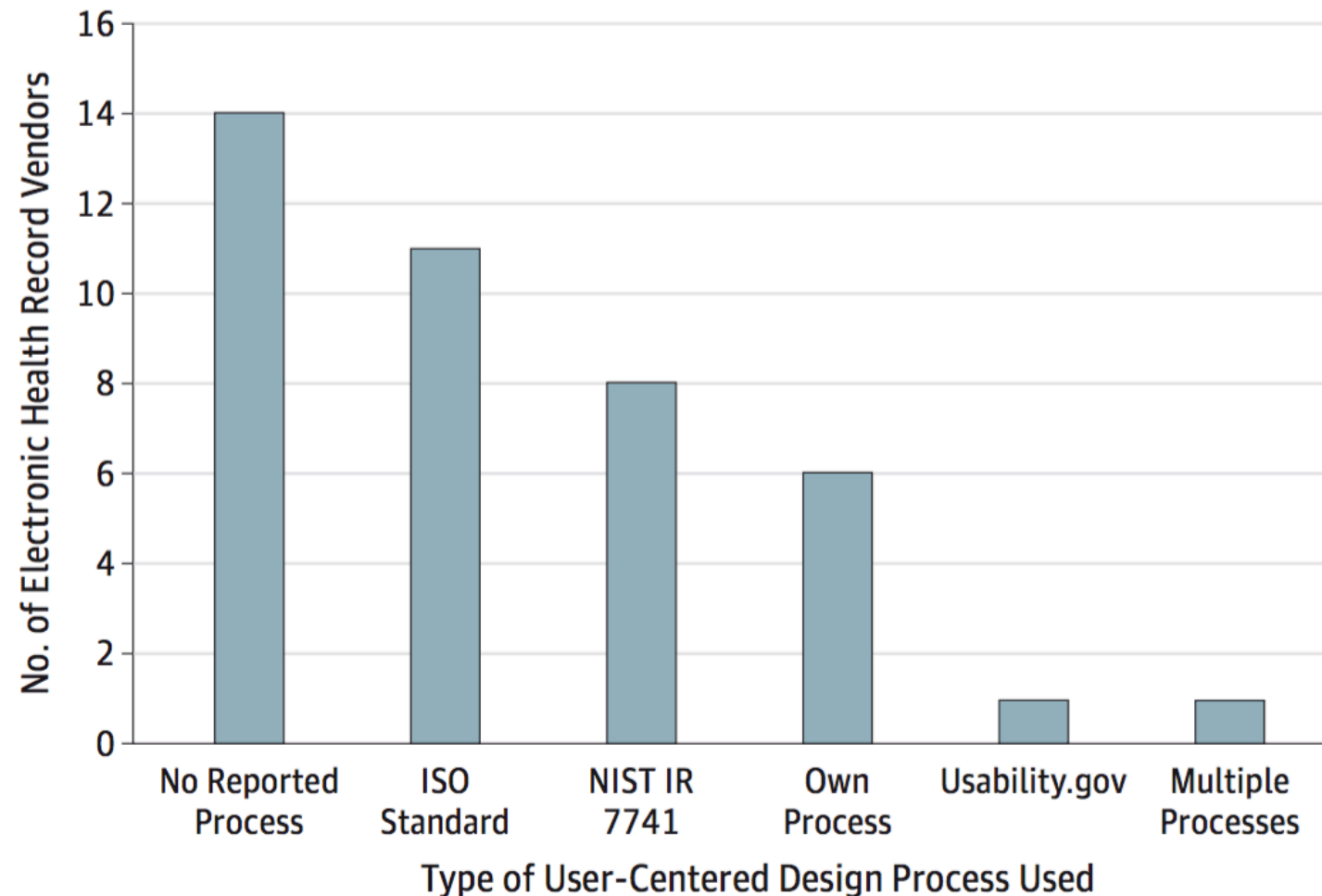
RESEARCH LETTER 1070 JAMA September 8, 2015 Volume 314, Number 10

Electronic Health Record Vendor Adherence to Usability Certification Requirements and Testing Standards



HOW DID WE GET HERE?

Figure 1. Type of User-Centered Design Process Used by Electronic Health Record Vendors

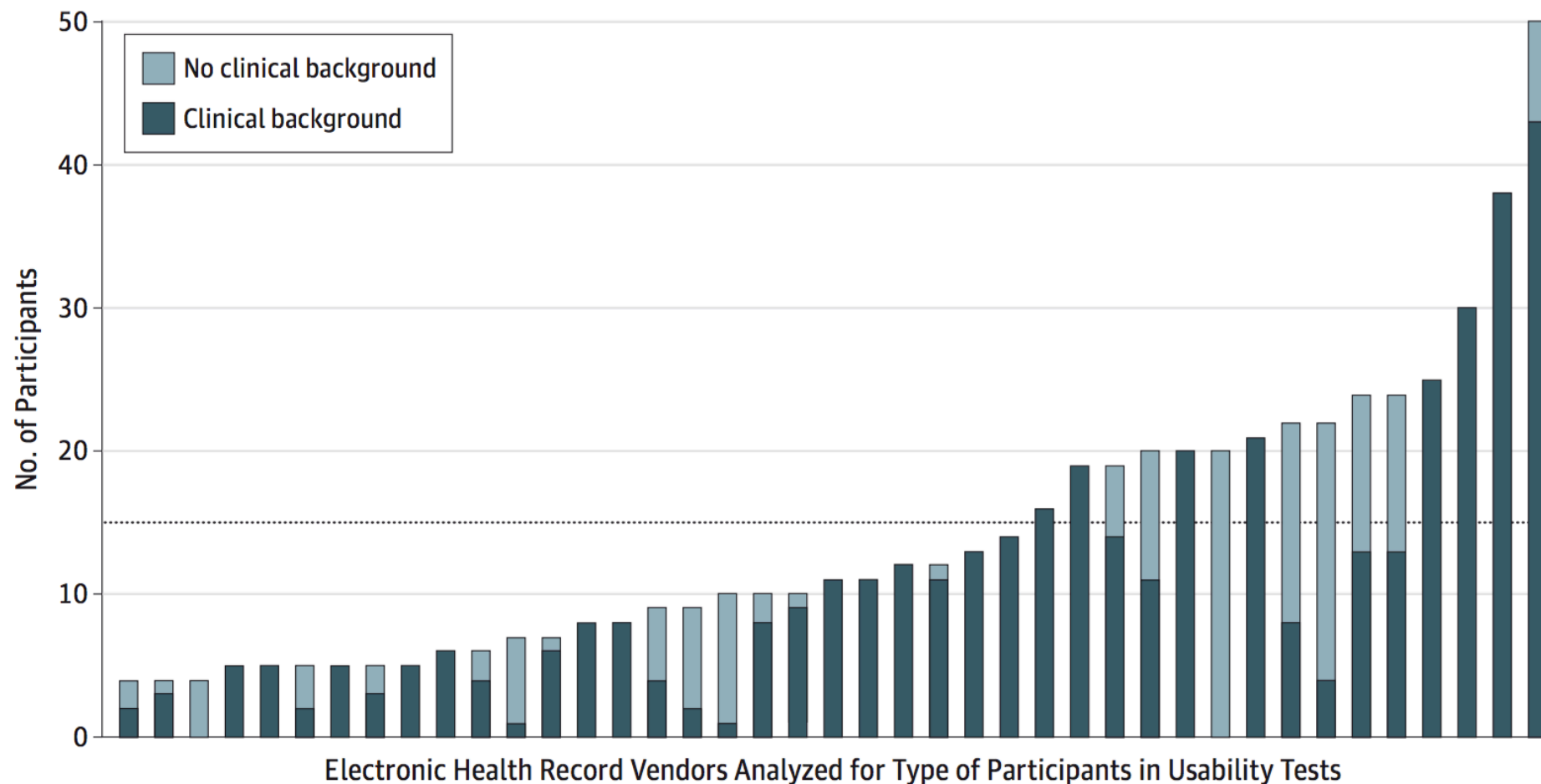


1/3 of ONC certified vendors had no reported process for User-Centered Design



HOW DID WE GET HERE?

Figure 2. Type of Participants Used by Electronic Health Record Vendors for Usability Tests



2/3 of ONC certified vendors had <15 participants for usability testing

1/5 used personnel with no clinical background

There is a 15-participant minimum (dotted line) recommended by the National Institute of Standards and Technology.

HOW NOT TO *HATE* YOUR EHR

- GET INVOLVED!



CUSTOMIZE WHAT YOU CAN

- Take the time to rearrange the buttons
- Try to hide the things you don't use
- Tracking board
 - Use “mine and none” to reduce clutter
 - Push for colorized abnormal vital signs
 - Push for colorized abnormal lab results



DOT PHRASES

Viral Pediatric

Pt is well appearing and non toxic. Pt is tolerating PO well in the emergency department. Vital signs reviewed and pt is afebrile, not tachycardic, not tachypnic, not hypotensive, and has a normal O2 saturation. Patient has no meningismus. Immunizations are up to date. I do not believe this patient has a bacterial infection. This patient does not require further imaging studies or lab testing. I believe symptoms are due to a viral process, and therefore does not require antibiotics. The above was explained to the patient/mother who agrees with the plan. Patient can take ibuprofen and tylenol as needed for symptomatic relief.

- <https://www.dropbox.com/sh/44v3jjmyk4m19bi/AAAMaIm0994YXfaxgZCi5XG-a?dl=0>
- Email d.chestek@gmail.com



USE TEMPLATES

- Be as generic as possible
 - Either make a male and a female or leave out GU ROS/PE
- Make sure you actually do all the things on your template every time
- Set up the macros to pull in lab values when possible
- Make pre-completed notes for common complaints
 - Low risk Chest Pain
 - Admitted Chest Pain
 - Viral URI
 - Pregnant Vaginal Bleeding





ORDER SETS

CONCLUSION

A critical first step in improving clinician behaviour is recognising that most decisions occur with little active deliberation. When making rapid choices, clinicians are being influenced by EHR design, defaults, diagnostic stimuli, emotion and social norms—whether that influence is purposeful or not. To improve, we must recognise these tendencies and use thoughtful design to capitalise on the powerful potential of the EHR to nudge our behaviour towards better patient care.



ORDER SETS

- Use evidence based order sets, engage hospital leadership and subject matter experts
 - Early discharge pathway for Chest Pain approved by Cardiology is powerful
- Less is more, if cluttered people won't use
- Good chief complaints to create order sets for as a start
 - Chest Pain
 - Abdominal Pain
 - Sepsis
 - Stroke



DICTATION

- I bought a non-medical version of Dragon
- Allows for more natural HPI
- I find it helps me think as I say things out loud



STAY TUNED AND BE PART OF THE SOLUTION

- Artificial Intelligence
 - HEART scores auto-populated based on combination of discrete data and NLP
 - Welles/PERC calculations embedded into CP order sets and d-dimer orders
- Private Industry is starting to get into the game
- Speech recognition in pt's room writes 90% of note
- Predictive and Prescriptive analytics
 - Machine Learning predicts admissions, reduces ED LOS/Boarding
 - Can pinpoint what piece of the process is slowing down ED
- Patient generated data from wearables integrated into EHR
- Data sharing and Health Information Exchange
- Block Chain

UPDATE
JANUARY 24, 2018

Apple announces effortless solution bringing health records to iPhone



Health Records Brings Together Hospitals, Clinics and the Existing Health App to Give a Fuller Snapshot of Health

I am available to talk more about Clinical Informatics Fellowships and how to get involved

