Can Technology Improve Physician Burnout?

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Disclosures

Founder & CEO of TrekIT Health Inc, d/b/a CareAlign

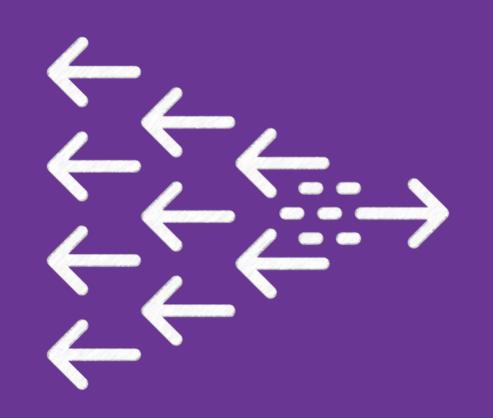
A Few Take Home Points

- Technology impacts almost all aspects of care
- Technology is a tool, to help us accomplish a task
- Technology is great!

...when designed well

Technology should work for US

How we've always done it

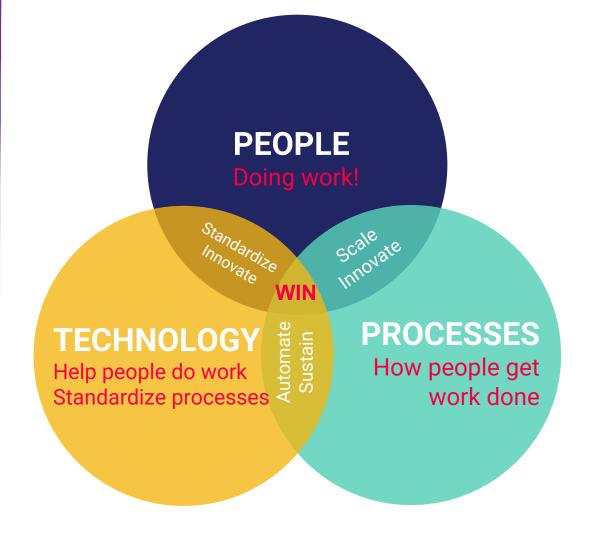


Change



Process Improvement

takes all three!



Rapid Cycle Iteration





A Multiyear Survey Evaluating Clinician Electronic Health Record Satisfaction

Pamela M. Garabedian¹ Angela Rui² Lynn A. Volk¹ Bridget A. Neville² Stuart R. Lipsitz^{2,3} Michael J. Healey^{2,4} David W. Bates^{2,4,5} Appl Clin Inform. 2023 Aug;14(4):632-643

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Clinicians <u>disagreed</u> the most with

"The EHR helps me focus on patient care rather than the computer"

&

"The EHR allows me to complete tasks efficiently."



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Electronic Health Record Effects on Work-Life Balance and Burnout Within the I³ Population Collaborative J Grad Med Educ. 2017 Aug; 9(4): 479–484.

Sandy L. Robertson, PharmD Mark D. Robinson, MD Alfred Reid, MA

ABSTRACT Background Physician burnout is a problem that often is attributed to the use of the electronic health record (EHR). Objective To estimate the prevalence of burnout and work-life balance satisfaction in primary care residents and teaching physicians, and to examine the relationship between these outcomes, EHR use, and other practice and individual factors. Methods Residents and faculty in 19 primary care programs were anonymously surveyed about burnout, work-life balance satisfaction, and EHR use. Additional items included practice size, specialty, EHR characteristics, and demographics. A logistic regression model identified in (75%) attributed burnout to the EHR Results In total, 585 of 866 oms of burnout, with 162 (75%) attributing burnout to the EHR. A total of 310 of 585 (53%) reported dissatisfaction with work-life lents who spent more than 6 bali (85%) indicated that use of the EHR affected their likely to report burnout and 3.9 hou CI 0.22-0.49) as likely to report tim work-life balance -life balance satisfaction to the wo EHR. Conclusions More after-hours time spent on the EHR was associated with burnout and less work-life satisfaction in primary care residents and faculty.



MAYO CLINIC PROCEEDINGS: INNOVATIONS, QUALITY & OUTCOMES

Answers broken down by feeling

urnout

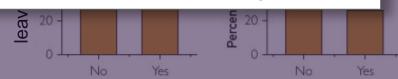
haulel

1 in 3 physicians, APPs, RNs Plan to reduce work

> 1 in 5 physicians 2 in 5 nurses

Plan to *leave* medicine within 2 years

is protective











The NEW ENGLAND JOURNAL of MEDICINE



33.3 M admissions/yr

333,000 serious, preventable, errors/yr

912 events/day 2 fully loaded 747 jets

adverse event

pati





The Joint Commission

2022 Sentinel Event Report

Top Preventable Errors:Patient Falls

Leading Contributor to all errors:

Communication Breakdowns (70%)

This has not gotten better since the 1990s

\$110 Billion / yr due to errors¹

In terms of outcomes, 20% of reported sentinel events were associated with patient death, 44% with severe temporary harm, and 13% with unexpected additional care/extended stay, such as additional treatments or procedures required following the event. When analyzing the root cause of sentinel events, communication breakdowns (e.g., not establishing a shared understanding or mental model across care team members, or no or inadequate staff-to-staff communication of critical information) continue to be the leading factor contributing to sentinel events.



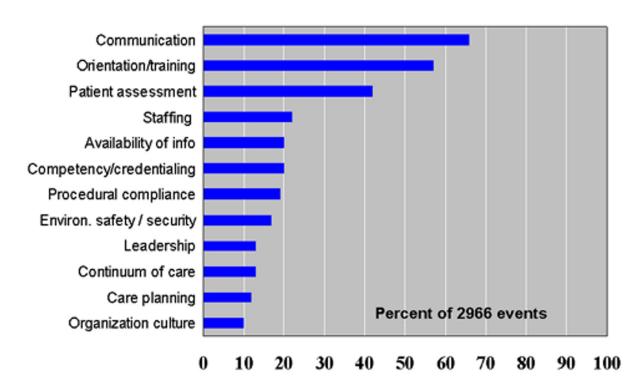






Root Causes of All Sentinel Events

1995-2004









com·mu·ni·ca·tion

/kə myoonə kāSH(ə)n/

noun

- the imparting or <u>exchanging</u> of information or news.
 "at the moment I am in communication with London"
- 2. means of sending or receiving information, such as phone lines or computers. "satellite communications"

Real-time

Asynchronous

col·lab·o·ra·tion

/kəˌlabəˈrāSH(ə)n/

noun

the action of working with someone to produce or create something.
 "he wrote on art and architecture in collaboration with John Betjeman"

co·or·di·na·tion

/kō,ôrdn'āSH(ə)n/

noun

1. the organization of the different elements of a complex body or activity so as to enable them to work together effectively.





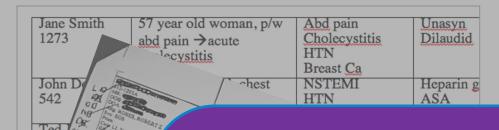
Clinical Data

Right time Right place Right format



Teamwork

Cross discipline
Cross specialty
Cross setting

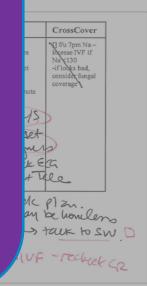


Soft diet

Signout/Handoff/Reports volume at 1 Health System:

23 pages per patient per day 14.67 Million/Year

→ Information fragmentation ←





Paper is static. Care is not!

Printed documents out of date within 3.3 hours (day shift), 6 hours (night shift)
Rosenbluth et al, BMJ Qual Saf 2015

Average list in hands = 9-12 hours old (3pm cross-sectional evaluation at UPenn)

Paper is not collaborative

Too Much Information in the EHR

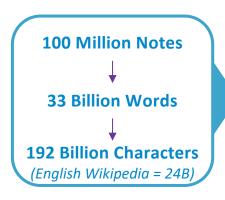




Original Investigation | Health Informatics

Prevalence and Sources of Duplicate Information in the Electronic Medical Record

Jackson Steinkamp, MD; Jacob J. Kantrowitz, MD, PhD; Subha Airan-Javia, MD



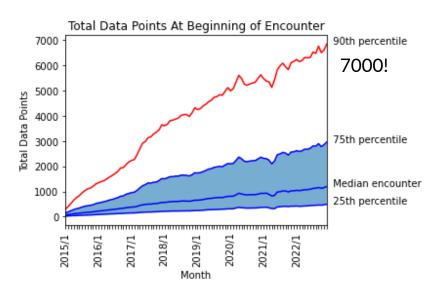
4,285 words per chart

VS



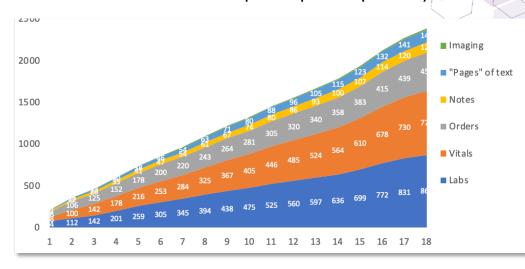
Can clinicians be responsible for 2 copies of Hamlet every day?

More than just notes...vitals, labs, imaging...



1000 data points at the start of encounter

~120 new data points per hospital day



^{*}Data points = Vitals, Labs, Orders, Problems, Imaging, Notes Does NOT include: Media tab, Care Everywhere, Medications



Clinical Data

Right time Right place Right format

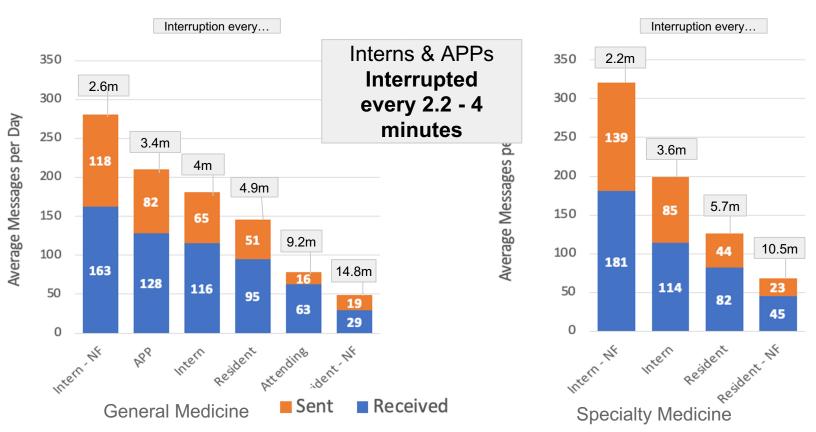


Teamwork

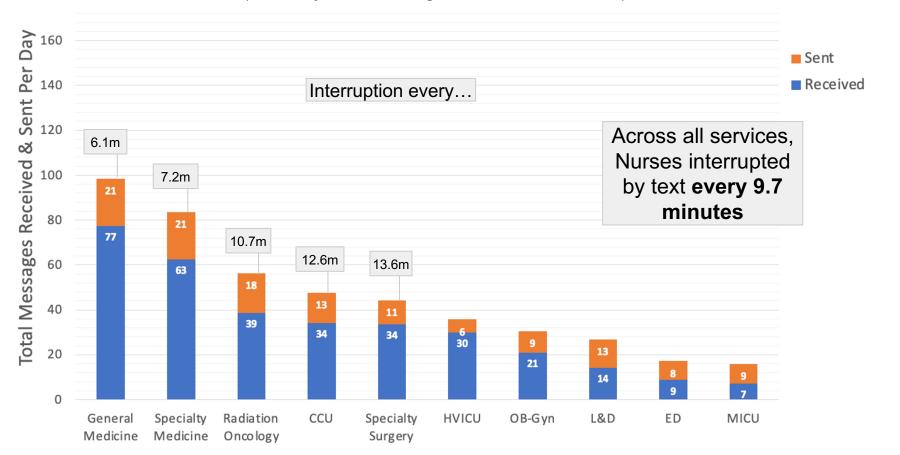
Cross discipline
Cross specialty
Cross setting



Average <u>Daily</u> Interruptions from Messages on Non-ICU General & Subspecialty Medicine Services (Weekdays, assumes 12 hr shift)

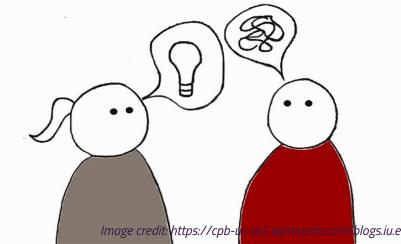


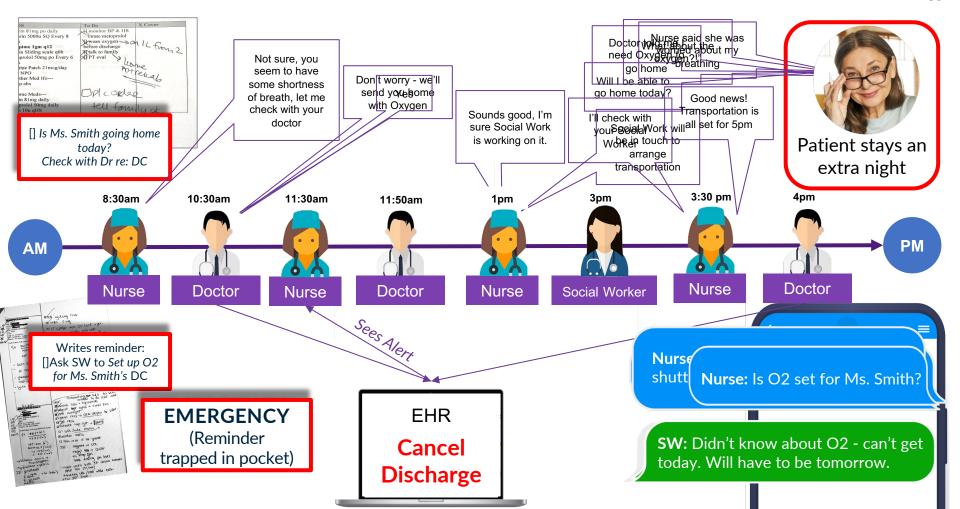
Average **Daily** Interruptions for **nurses** due to messages on all services (Weekdays and weeknights, assumes 10 hr shift)



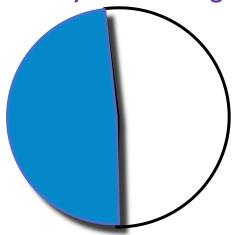
"The single biggest problem in communication is the illusion that it has taken place."

- George Bernard Shaw





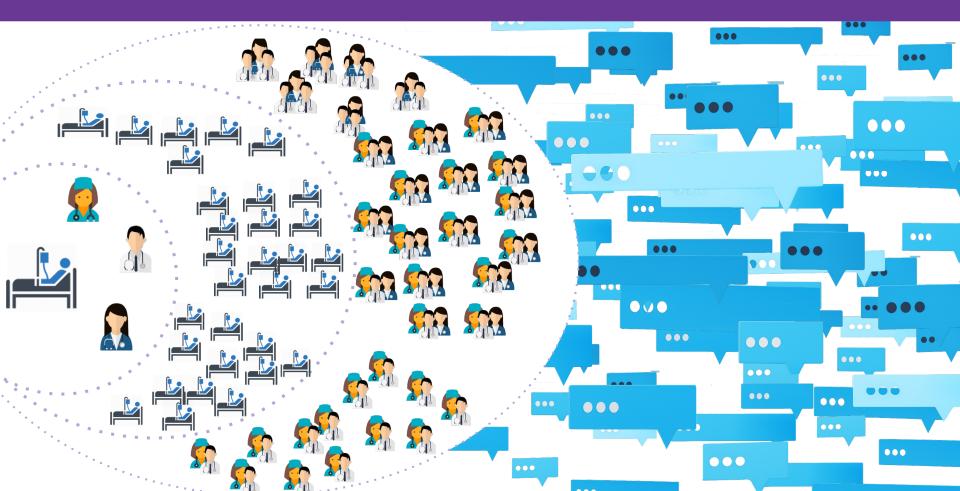
48%
Of patients experience delays in discharge







Broken Teamwork



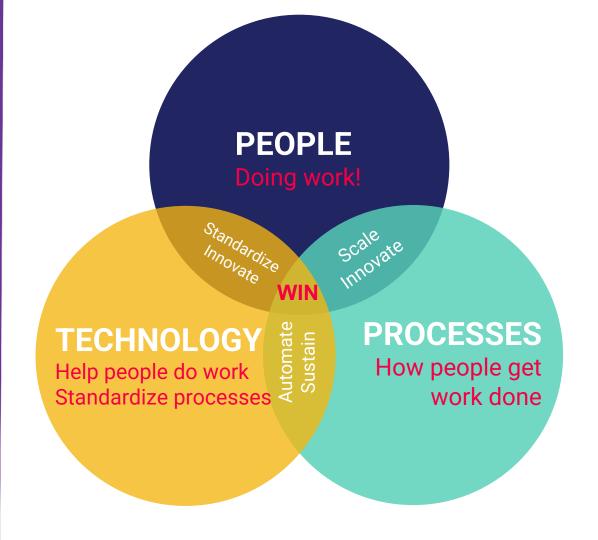


"IF YOU THINK GOOD DESIGN IS EXPENSIVE YOU SHOULD LOOK AT THE COST OF BAD DESIGN."

n DR RALF SPETH, CEO JAGUAR



Integrate technology design into CEQI work from Step 1



Pt Info	НРІ	Prob List	MEDS	To Do	CrossCover
Smith, John Bob F14 1465A MR: 34520984 DOB: 11/3/38 DOA: 11/2/06 Allergies: NKDA Code: FULL Access: RIJ 3L (11/4) Cx: >101.4 Precautions: MRSA Contact: Wife Mary 215- 777-7777	Age, Gender, CC (on DOA): short of breath CC (after dx): aspiration pna Race, pertinent PMH, presentation to ED, HPIrelevant ROS -relevant ED issues (vitals, meds given) -relevant things done o/n -important events during hospitalizaton 11/20 – desat last night improved after diuresis H3 – 14 – 22 – DATA: 11/3 CXR: LLL pna 11/5 Chest CT: LLL consolidation	**Asp Pna – on cefepime, still borderline **ARF on CKD: Cr 0.8 → 2.5, likely 2/2 dehydration. Getting volume **CAD – EF 10%, on coumadin for low EF **DM – on insulin **HTN **Diarrhea – possibly CDIff, ex pending -Prostate ca – resected, cured LE Swell PMHhyperlipidemia -PTSD -chronic anemia	Cefepime 1gm IV q12 Colace 100mg po bid Docusate 5mg po daily Furosemide 20mg po daily Metoprolol 50mg po bid Metronidazole 500mg po bid Warfarin 5mg po qHS Diet: Cardiac, mech grnd, NS @ 150Other Med Info Flagyl 500mg q12 11/2-4	D/C Info PMD Dr. Jones 444-2244 [] needs gi apptTo Do [] f/u xxx test [] daily pulm note [] LUE YS [] Zud Set enzymn [] recliect E [] Start Te	le
	41 30 122 210	- 5	settré slut Eline. Ist set enzyes ry		PIZM. be howlen tack to Sv Tacket



THINK OUTSIDE

THE EHR



THINK OUTSIDE

MEDICINE





Clinical Data

Right time Right place Right format



Teamwork

Cross discipline
Cross specialty
Cross setting

Project Management Software















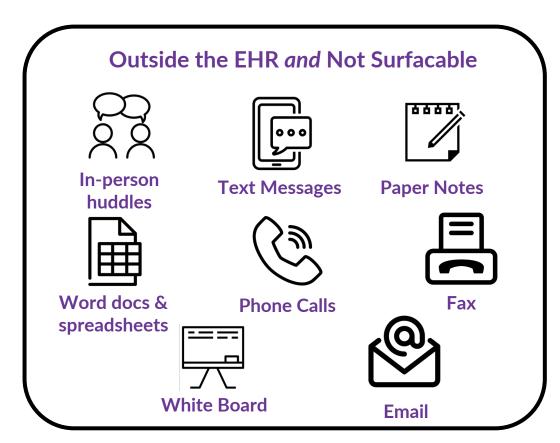


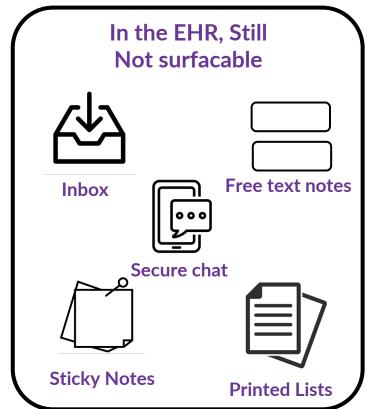
Streamlined views of relevant data

+

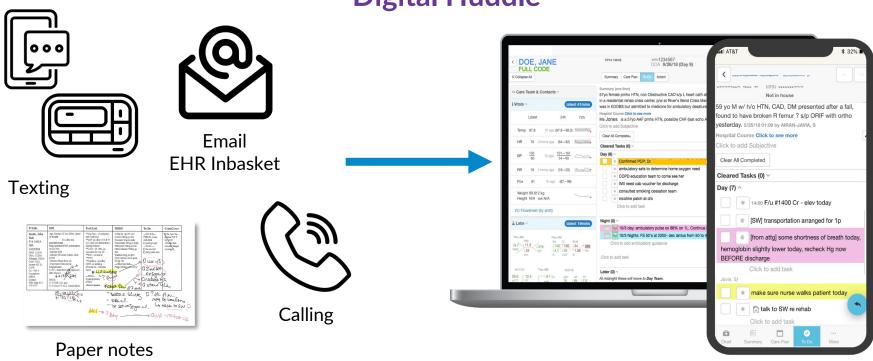
Keep teams on the same page about who is doing what, when where, and what is next?

Fragmented, Static, Siloed, Hidden Information





Patient-Centric Team Collaboration Platform "Digital Huddle"



Disorganized + unstructured → Structured, Searchable + Actionable

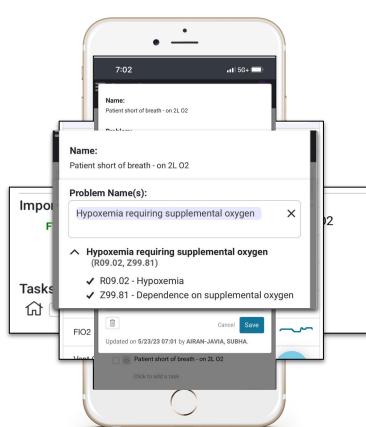
Patient-Centric Team Collaboration Platform "Digital Huddle"



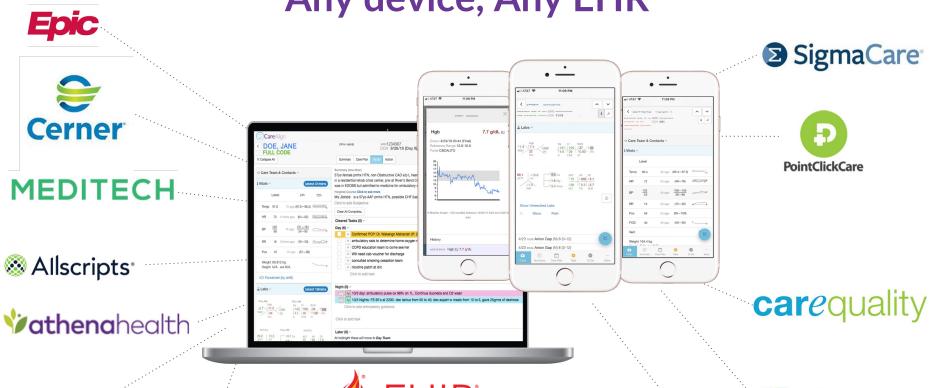
Interdisciplinary Task Management

Data Visualization

Diagnosis Capture



Any device, Any EHR



SECURE MESSAGING PLATFORM

REMOTE PATIENT MONITORING



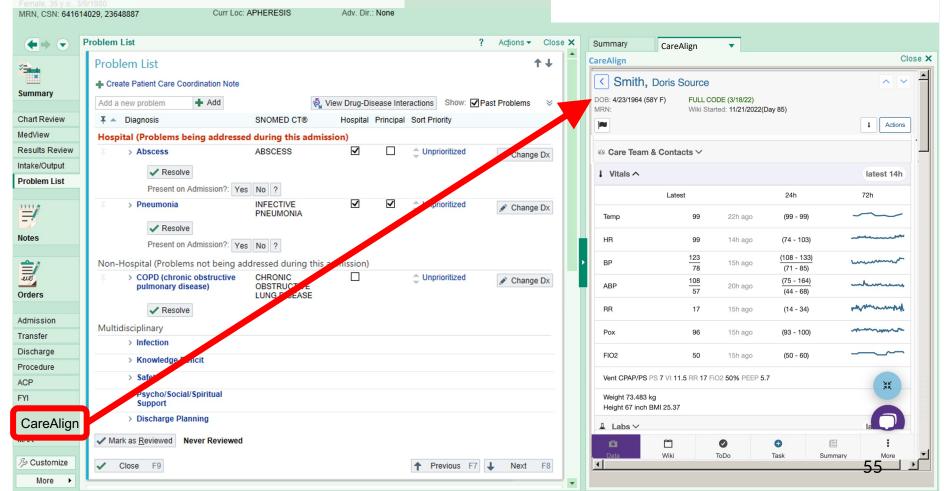
HL7, CCDA...





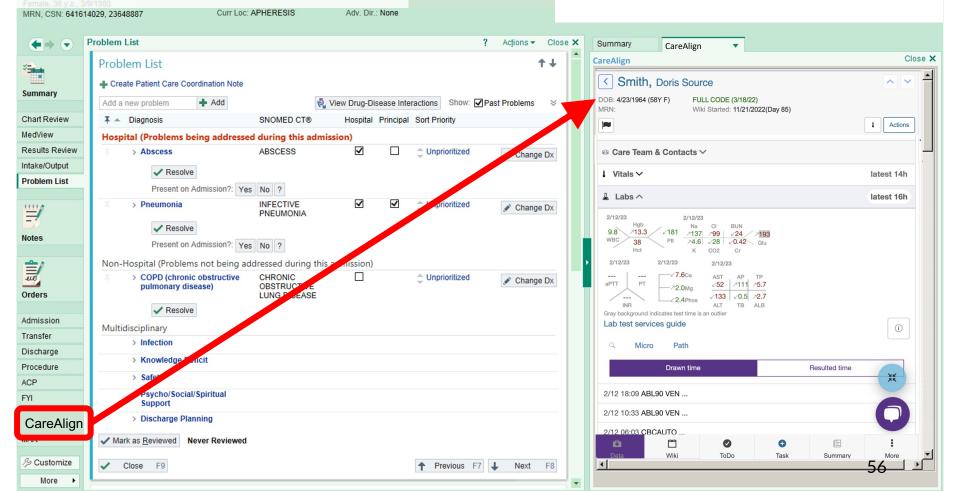
Integration into EHR

Launch CareAlign from within any EHR Feels like a module withIN the EHR



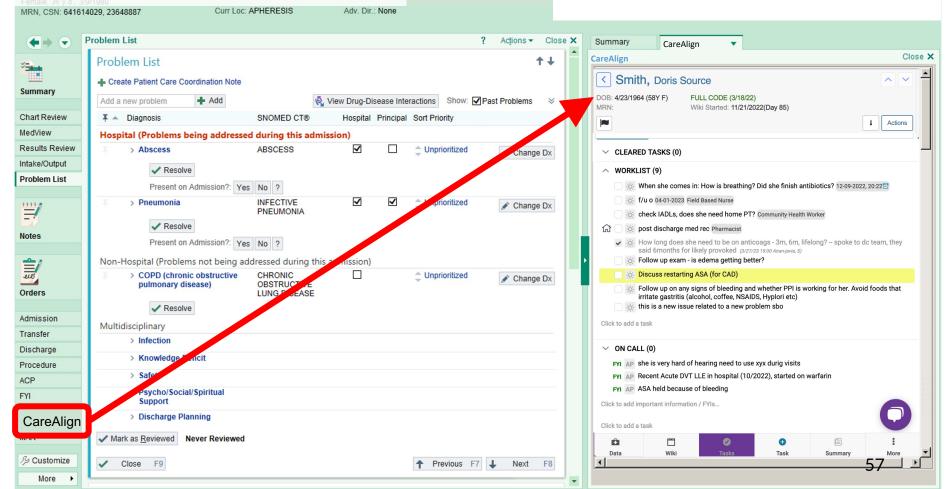
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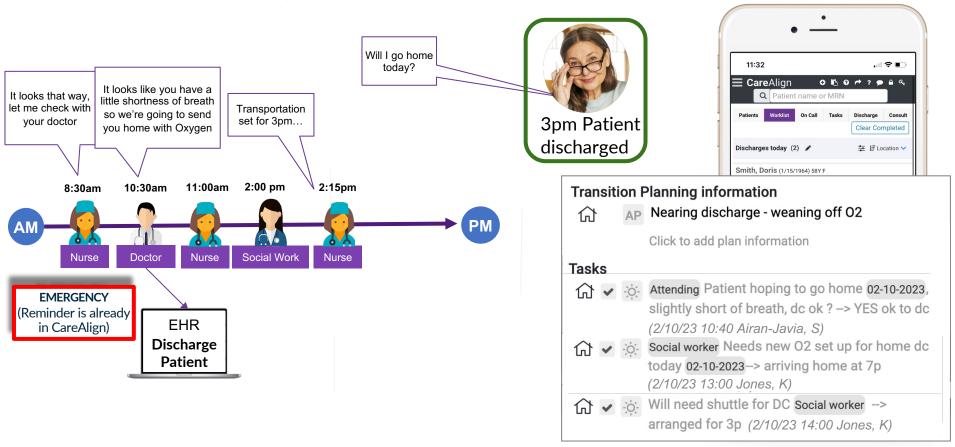


Integration into EHR

Launch CareAlign from within any EHR Feels like a module withIN the EHR



Reimaging How Clinical Teams Work Together



Learn from the actions teams take

"Hidden Communication/Work" → The Next "Vital Sign"?



- ✓ Make "invisible" work and data accessible & actionable
- √ Generate insights from clinical ops
- ✓ Reduce care variations, standardize processes

Addressing Stigmatizing Language

A randomized-controlled trial of computerized alerts to reduce unapproved medication abbreviation use

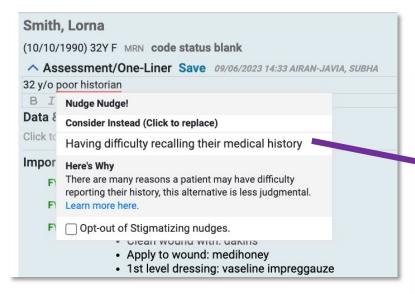
Jennifer S Myers ☑, Sattar Gojraty, Wei Yang, Amy Linsky, Subha Airan-Javia, Rosemary C Polomano

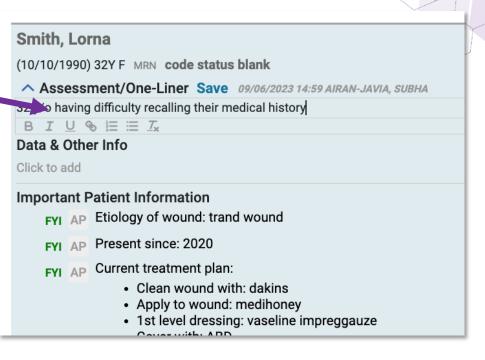
Journal of the American Medical Informatics Association, Volume 18, Issue 1, January 2011, Pages 17–23, https://doi.org/10.1136/jamia.2010.006130

Published: 03 December 2010 Article history ▼



Addressing Stigmatizing Language





Addressing Stigmatizing Language

Microa

are unintention

against a grou

because of ur

Discrin

is an unjust o

treatment of

What is unconscious bias?

Unconscious bias is an automatic and unintentional thought about a person, idea, or thin actions. Before we delve further into unconscious bias and its' impact in healthcare, lets the subject.

Unconcious bias

is an automatic and unintentional thought about a person, idea, or thing that can impact thoughts, decisions, and actions.

Stereotypes

are oversimplified beliefs about a type of person or group of people.

People can have unconscious biases about others based on race, ethnicity, gender, age, so levels, sexual orientation, and more.

When this bias is acted upon, it can lead to microaggressions and discrimination. Oftentim minority groups that do not traditionally hold positions of power are most impacted by ur

Why does unconscious bias matter in medicine?

"Bias and stereotypes unintentionally impact decisions"

Unconscious biases can impact how clinicians interact with patients, and the type of care that patients receive. Clinicians often work in stressful environments with lots of time constraints where they need to be efficient and make quick decisions. When people are tired, pressured, or anxious and need to make quick judgment calls, they often rely on their autonomic nervous system to make decisions. This sometimes means that bias and stereotypes unintentionally impact decisions, leading to unfair treatment of people in minority groups. But this bias can also perpetuate in how clinicians talk (or write) about patients.

One <u>study</u> looked at medical students and residents attitudes towards a patient and treatment plans prescribed for a patient. Some of these clinicians saw a note with neutral language, while the other note used stigmatizing language that did things that subtly portrayed the patient negatively. They found that seeing the stigmatizing language note was associated with more negative attitudes towards the patient and less aggressive pain management.

Another study, looked at the type of stigmatizing language in charts, and found that the most common stigmatizing language fell into a few categories: questioning patient credibility, disapproval of patient reasoning or self-care, stereotyping by race or social class, portraying the patient as difficult, and emphasizing physician authority over the patient. Not only do clinicians carry their own biases that could potentially impact care, but they can also pick up biases from stigmatizing languages in patient charts or through conversations with clinicians about a common patient.

Results from our implementation at Penn Medicine



A Mobile, Electronic Health Record-Connected Application for Managing Team Workflows in Inpatient Care

Jacqueline M. Soegaard Ballester¹ Geoffrey D. Bass² Richard Urbani³ Glenn Fala³ Rutvij Patel³ Damien Leri⁴ Jackson M. Steinkamp⁵ Joshua L. Denson⁶ Roy Rosin^{4,7} Srinath Adusumalli⁸ Clarence William Hanson^{9,10} Ross Koppel^{7,11,12,13} Subha Airan-Javia^{14,15}

Implement with a Carrot, Not a Stick







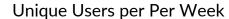
160+ Services

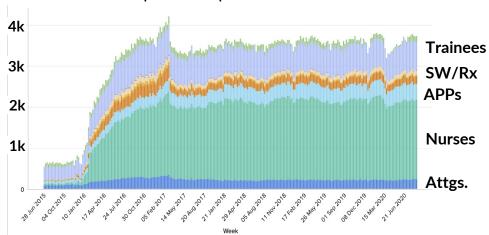


>5000 Users/Month

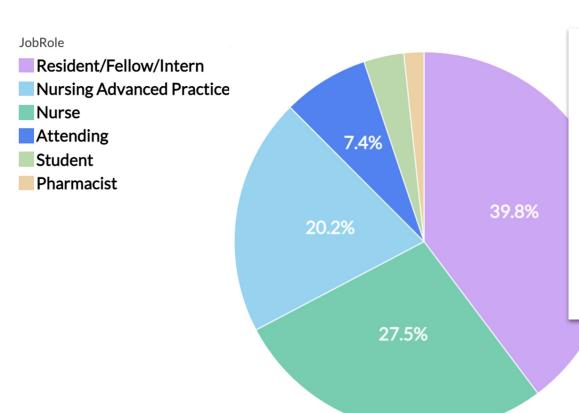


>8M actions per month





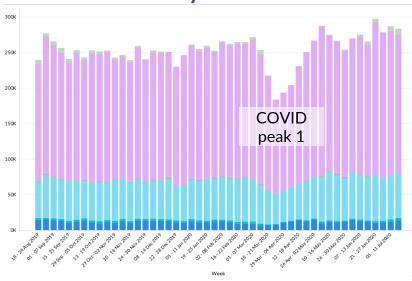
Interdisciplinary Approach Drives Improved Understanding



"I have a much better understanding of the patient's plan when I look at the team's rounding and handoff list. I don't have to text the intern as often"

- Medicine Floor Nurse

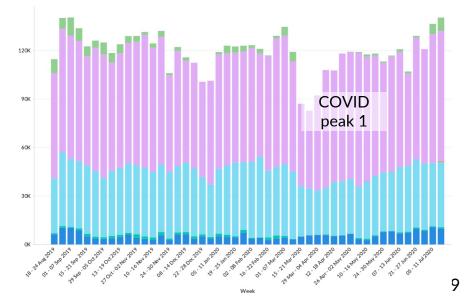
Weekly Task Edits





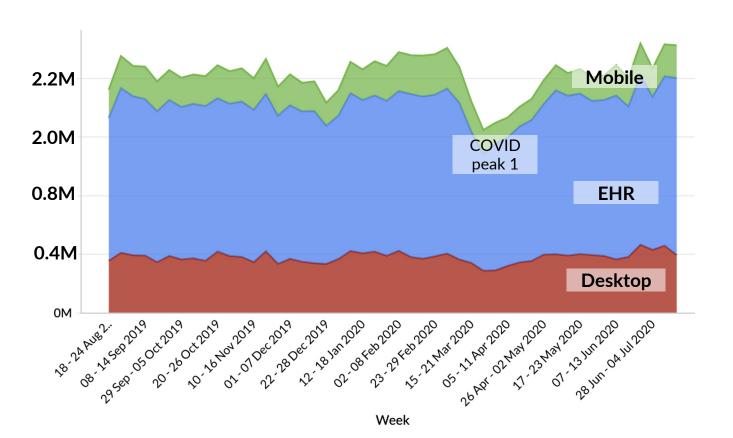
35-50 daily edits/patient

Weekly Updates to Pt Summary



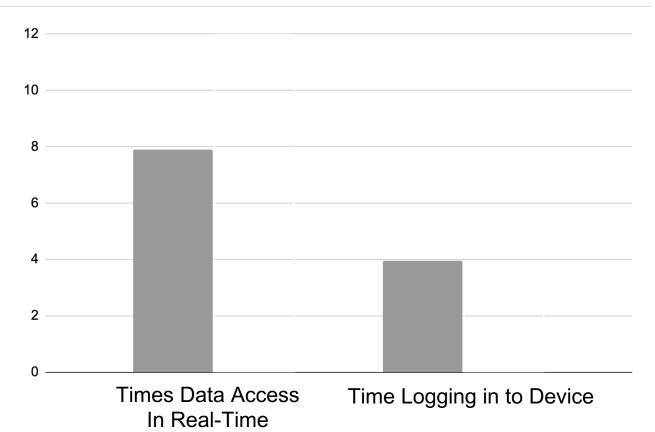
An Integral Part of Workflow

Intra-Application Actions Per Week



Observations of Inpatient Rounds: EHR Only

Data accessed in real time vs Time spent logging in



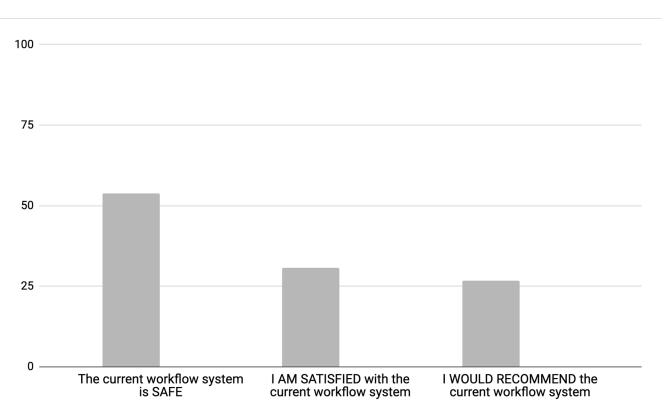
Observations of Inpatient Rounds: EHR + CareAlign

Data accessed in real time vs Time spent logging in

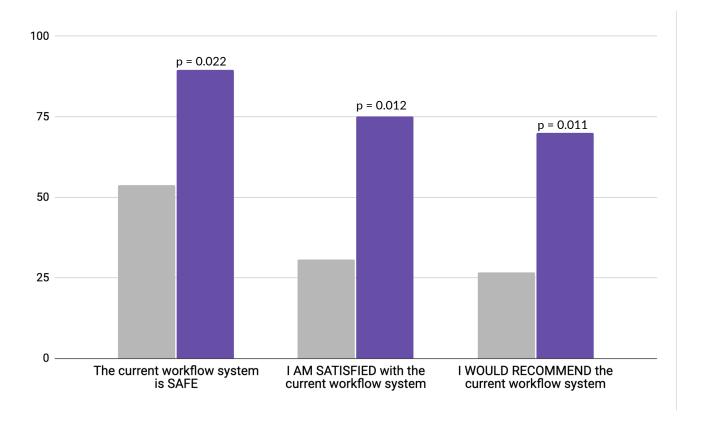


Clinician Survey: Workflow & Task Management

EHR Alone



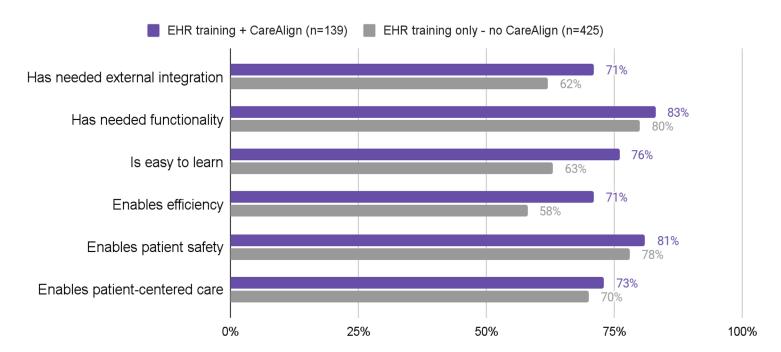
Clinician Survey: Workflow & Task Management EHR Alone vs. EHR + CareAlign



Clinician Survey: Acceptance & Adoption



EHR Experience Survey: Significant Improvement in EHR Experience





USE DATA TO UNLOCK THE POWER OF THE EHR



Well Designed

Tech

"CareAlign is the last thing have to pry

check before going to the last thing have to pry

check before going to the wife to spend more

I get mying the independent of the time the RIGHT thing for patients

"I can't imagine doing

my job with my job without it"

> "I love how it integrates with the FHR"

Don't accept the STATUS QUO

Thank You

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