UNDERSTANDING THE IMPACT OF THE EHR ON PHYSICIAN BURNOUT AND WELLNESS

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Conflicts of Interest

Neither Dr. Sharp nor Dr. Stevens have any relevant financial relationships to disclose.
Objectives

- Describe concepts of physician (clinician) burnout and wellness
- Describe current knowledge on the impact of the EHR on burnout and wellness
- Discuss possible interventions to decrease provider burnout, including the SHC and SCH provider efficiency programs
- Discuss metrics by which to measure provider efficiency
Stanford Health Care (SHC) seeks to care, to educate, and to discover by healing humanity through science and compassion, one patient at a time.
Stanford Children’s Health

Major academic medical center at Stanford University for pediatric and obstetric care

Medical foundation with network clinics all over the SF Bay Area

500,000+
pediatric outpatient visits annually

35+
specialty services

725+
Stanford Medicine doctors

60+
Bay Area locations
WHAT IS PHYSICIAN BURNOUT? WELLNESS?
What’s Happening to Doctors?
What is Burnout?

Burnout is a syndrome of depersonalization, emotional exhaustion, and low personal accomplishment that leads to decreased effectiveness at work.
Are you burned-out?

Select the statement below that best describes your situation at work.
1. I enjoy my work. I have no symptoms of burnout.
2. Occasionally I am under stress, and I don’t always have as much energy as I once did, but I don’t feel burned out.
3. I am definitely burning out and have 1 or more symptoms of burnout, such as physical and emotional exhaustion.
4. The symptoms of burnout that I’m experiencing won’t go away. I think about frustration at work a lot.
5. I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help.
**Burnout in the U.S.: Physicians & Population**

Shanafelt TD et al. Mayo Clinic Proceedings. 2019 Online
Well Physicians = Higher Performance

Physicians Who are Well:

- Higher patient satisfaction (Beach, et al. 2013)
- More likely to support preventive health practices in patients (Duperly, et al., 2009; Frank, et al., 2008; Frank, et al. 2013)
- Better patient outcomes, e.g. decreased post-hospital discharge recovery times (Halbesleben and Rathert, 2008)
- Less likely to leave their organization
What is the value (\$\$) of wellness?

$4.6$ Billion in MD turnover and reduced clinical hours

Achieving our mission is no longer possible without addressing wellness

Bodenheimer, Ann Fam Med 12:573
Aiming for Professional Fulfillment

Leadership
Values Alignment
Voice/input
Meaning in work
Community/colllegiality
Peer Support
Appreciation
Flexibility
Culture compassion

EHR usability
Triage
Scheduling
Patient portal
Documentation method
Team-based care
OR turnaround times
Staffing

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Bohman, NEJM Catalyst 2016
What is the role of Information Technology?
Death By 1,000 Clicks: Where Electronic Health Records Went Wrong

FierceHealthcare

Stanford's Lloyd Minor: EHRs need a ‘major revamp’ to solve physician burnout

by Evan Swooney | Aug 28, 2017 10:40am

Annals of Medicine

November 12, 2018 Issue

Why Doctors Hate Their Computers

These doctors think electronic health records are hurting their relationships with patients

By David Gorn, KQED Future of You | July 21, 2017 at 11:01 AM EDT
What is the EHR contribution?

How the EHR Contributes to Burnout

Usability, User Interface, Interoperability

Built-in Regulatory & Documentation Requirements

Shift in Workload, Lack of Mastery

Effect on Interpersonal Interactions

What is the EHR... and to whom?

Payers... the source of **billing documentation**.

Health care enterprises... a way to ensure **compliance** with organizational directives.

Legal system... a **statement of legal facts**.

Public health... a way to **collect their data at drastically reduced costs**.

Measurement entities... a way to **automate the collection of measurement data**.

Government entities... a way to **observe and enforce compliance** regulations.

The Complex Case of EHRs

Tutty MA, et al. The complex case of EHRs: examining the factors impacting the EHR user experience. JAMIA. 2019; 673-677.
It’s About Time

- For every hour physicians provide direct clinical face time, nearly 2 additional hours is spent on EHR and desk work.

- EHR time while face-to-face is equal to “Desktop Medicine” (patient messages, refills, ordering tests, reviewing results).

- While in the room with patients, physicians spent ~50% on direct clinical face time and ~40% on EHR and desk work.

- Receiving more than the average number of system-generated in-basket messages was associated with 40% higher probability of burnout.

WHAT CAN WE DO ABOUT IT?
What is Effective?

Optimization, personalization, and education

<table>
<thead>
<tr>
<th>Percent of personalization adopted by providers</th>
<th>Average net EHR experience score for organizations</th>
<th>Number of organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>10–20</td>
<td>-21.5</td>
<td>3</td>
</tr>
<tr>
<td>20–30</td>
<td>-29.1</td>
<td>6</td>
</tr>
<tr>
<td>30–40</td>
<td>-21.1</td>
<td>15</td>
</tr>
<tr>
<td>40–50</td>
<td>15.7</td>
<td>44</td>
</tr>
<tr>
<td>50–60</td>
<td>27.3</td>
<td>54</td>
</tr>
<tr>
<td>60–70</td>
<td>25.1</td>
<td>10</td>
</tr>
</tbody>
</table>

Improve Comfort with Current Technology

- In 2015, SCH initiated the Home 4 Dinner Program* to improve provider efficiency and satisfaction through targeted training.
- Similarly, SHC created the Epic Concierge targeted training/optimization program.

*see slides from UGM226-2016, TAC05-2017 for more info on program design
Home 4 Dinner Process

Learning Plan Development Process

Online Survey (15 minutes)
- Triggers observation scheduling

Observation Session (1-2 hours)
- Standardized checklist
- Stored in online Sharepoint database

Data Analysis (30 minutes)*
- Trainer analyzes:
  - Survey responses
  - EHR Profile
  - Observation data

Individualized Learning Plan (10-15 minutes)*
- Baseline goals for learning session
- Utilize established learning tracts when available

1-hour Learning Session
Repeat as needed

Self Reported Knowledge After H4D

EHR Functionality (Self Reported)

- Using InBasket Quick Actions (N=94)
  - Before Training: 2.4
  - After Training: 2.8

- Manually releasing a result to MyChart (N=72)
  - Before Training: 1.7
  - After Training: 2.5

- Adding a MyChart comment to a result (N=72)
  - Before Training: 1.9
  - After Training: 2.7

- Sending a MyChart Patient Message (N=72)
  - Before Training: 2.4
  - After Training: 3.3

- Adding items to your personal preference list (N=94)
  - Before Training: 2.5
  - After Training: 3.1

- Sharing SmartPhrases (N=94)
  - Before Training: 3.2
  - After Training: 3.6

- Creating SmartPhrases (N=94)
  - Before Training: 3.2
  - After Training: 3.6

Self-Reported Frequency of Use After H4D

DiAngi, et al. 2019
Self-Reported Ease of Use After H4D

DiAngi, et al. 2019
## Epic Experience Variables Pre/Post-Training

<table>
<thead>
<tr>
<th>Survey Questions</th>
<th>Before Training</th>
<th>After Training</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Satisfaction with</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The EHR (N=147)^</td>
<td>3.0 (1.0)</td>
<td>3.0 (1.0)</td>
<td>1.45</td>
</tr>
<tr>
<td>Clinical work (N=147)^</td>
<td>3.9 (0.8)</td>
<td>3.8 (0.8)</td>
<td>0.62</td>
</tr>
<tr>
<td>Workload in the EHR (N=114)^</td>
<td>2.7 (1.0)</td>
<td>3.0 (1.0)</td>
<td>3.60*</td>
</tr>
<tr>
<td>Amount of time in the EHR after clinic hours (N=94)^</td>
<td>2.7 (1.1)</td>
<td>2.7 (1.0)</td>
<td>0.34</td>
</tr>
<tr>
<td><strong>Competence with the EHR (N=147)^</strong></td>
<td>3.3 (0.9)</td>
<td>3.4 (0.9)</td>
<td>1.42</td>
</tr>
<tr>
<td><strong>Improvement in stress level related to the EHR (N=94)^</strong></td>
<td>2.7 (0.9)</td>
<td>2.9 (0.8)</td>
<td>1.15</td>
</tr>
<tr>
<td><strong>Self-reported hours spent in the EHR after clinic per week</strong> (N=94)</td>
<td>5.0 (4.3) hrs</td>
<td>4.1 (3.7) hrs</td>
<td>2.28</td>
</tr>
</tbody>
</table>

^Scale of 1-5 where a higher number indicates a more favorable rating; *p<0.01

DiAngi, et al. 2019
### Epic Functionality Metrics After H4D

<table>
<thead>
<tr>
<th>Metric</th>
<th>Results</th>
<th>Range</th>
<th>Patient Calls</th>
<th>Range</th>
<th>Preference list entries</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbox Turnaround Time (Days) (N=65)</td>
<td>4.0 (2.8)</td>
<td>(0.04-11.5 days)</td>
<td>3.2 (2.3)</td>
<td>(0.1-12 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Calls</td>
<td>2.3 (2.1)</td>
<td>(0.1-10 days)</td>
<td>1.9 (1.8)</td>
<td>(0.1-7.7 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference list entries (N=91)</td>
<td>38.1 (65.9)</td>
<td>(0-256 entries)</td>
<td>63.5 (90.5)</td>
<td>(0-404 entries)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DiAngi, et al. 2019
WHERE DO WE GO NEXT?
Looking forward

Usability / User Interface

Regulatory & Documentation Requirements

Team-based Care

Effect on Interpersonal Interactions
User Interface *Incremental* Improvements

A single screen for all activities

And other improvements selected by your champions:

- Specialty Snapshot
- Preference List Updates
- Diagnosis Speed-buttons
- Risk Score Calculators
- Note Templates
- Automated Letters
User Interface "Digital Health Improvements"
Impacting Regulatory Requirements

CMS rules are changing...

- Medical Student notes
- E&M Billing requirements

https://www.cms.gov/Research-Statistics-Data-and-Systems/Monitoring-Programs/Medicare-FFS-Compliance-Programs/SimplifyingRequirements.html
# Team-based Care

<table>
<thead>
<tr>
<th>Proactive planned care</th>
<th>Pre-visit planning and lab tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing clinical care among a team</td>
<td>Rooming protocols, standing orders, and panel management</td>
</tr>
<tr>
<td>Sharing clerical tasks</td>
<td>Collaborative documentation, order entry, Rx management</td>
</tr>
<tr>
<td>Improving team communication</td>
<td>Decrease of in-box activities</td>
</tr>
<tr>
<td>Improving team function</td>
<td>Co-location, team meetings, work flow mapping</td>
</tr>
</tbody>
</table>

Data Entry Assistance

Impact of Scribes on Physician Satisfaction, Patient Satisfaction, and Charting Efficiency: A Randomized Controlled Trial. Ann Fam Med. 2017
HOW WILL WE KNOW?
There hadn’t been any previously validated metrics for trending provider efficiency, so how can we measure the effects of interventions?

Surveys are time-consuming and aren’t always fully representative.
Leading vs. Lagging Indicators

Overflowing InBasket?  WOW?  Burnout  Attrition
Leading vs. Lagging Indicators

Overflowing InBasket?  WOW?  Burnout  Attrition
Leading vs. Lagging Indicators

Overflowing InBasket? → WOW? → Burnout → Attrition
Leading vs. Lagging Indicators

Overflowing InBasket?  WOW?  Burnout  Attrition
Leading vs. Lagging Indicators

Overflowing InBasket?  WOW?  Burnout  Attrition
Figure 2: Relationship between self-reported after clinic hours per week in the EHR and self-reported EHR experience

- Competence with the EHR
- Satisfaction with the EHR
- Satisfaction with clinical work
- Improvement in stress level related to the EHR
- Satisfaction with the amount of time in the EHR after clinic hours
- Satisfaction with workload in the EHR

*p < 0.01

DiAngi, et al. 2019
If "Work Outside Work" is a useful metric, is there an easier way of capturing this than surveying providers?

CLOC metric developed at Stanford

- Attempts to quantify how much time clinician is logged in outside of scheduled time using Epic data
  - 30 min before to 1h after scheduled time
  - Only works well for ambulatory providers
CLOC vs. Self-Reported Time

DiAngi, et al. 2019
Figure 5. Mean calculated CLOC time in the EHR Before and After Training (N=107)

Data averaged over 3 months; Providers who only provide inpatient care and those with an availability of zero were excluded; p = 0.73
Ways Forward

Usability / User Interface

Team-based Care

Regulatory & Documentation Requirements

Effect on Interpersonal Interactions
What are other areas of focus?

- **Click Counts** – click counts needed to accomplish daily tasks
- **Teamwork** – ratio of staff-entered to physician-entered
- **Being Present** – rates of visits with documentation or other assistance
- **Fair Pay** - track uncompensated EHR work (i.e. InBasket)
- **Regulatory Balance** - billing/pay-for-performance related clicks

AMA Joy of Medicine Award

<table>
<thead>
<tr>
<th>Joy Award recognition criteria</th>
<th>Bronze</th>
<th>Silver</th>
<th>Gold</th>
</tr>
</thead>
</table>
| **Commitment**                | Sign charter  
  Establish a well-being committee | CWO on the executive leadership team (report directly CEO/dean) and with at least 0.5 FTE  
  Organization identifies struggling units and/or individuals and supports interventions | Organization establishes a center for physician or workforce well-being |
| **Assessment**                | Annual assessment of physician well-being using a validated tool | Burnout results reported to board along with a specified goal | The costs of physician burnout are estimated annually and reported to the organization’s leadership/board |
| **Leadership**                | Annual assessment of all unit leaders using the Mayo Leadership Index or similar instrument, with feedback to leader | Leader development program that includes training in transformational leadership, ability to foster productive work environment and guide physicians’ careers  
  Professional coaching to leaders who are in the bottom quartile two consecutive years | Department chiefs (or clinic chiefs) responsible for improving well-being score in their department |
| **Efficiency of practice environment** | “Work outside of Work” (WOW) measured via EHR audit log data for select specialties | WOW, results reported to organization’s board and physicians  
  Local units involved in root cause analysis and development of intervention | WOW, reported confidentially to the AMA |
| **Teamwork**                  | Teamwork measured annually using AHRQ Teamwork Safety Attitudes Questionnaire or similar instrument for select specialties | Teamwork also measured in select specialties via EHR audit  
  Results reported to organization’s board and physicians | Teamwork results reported confidentially to the AMA |
| **Support**                   | Peer support program that supports dealing with adverse clinical events (i.e., second victim) | Peer support program that supports distressed physicians  
  Supports opportunities for community building among physicians | |

Summary

- Burnout for providers is a growing problem
  - Causes decreased engagement and effectiveness
  - Well physicians are better doctors
- Multiple factors contribute to burnout
  - EHR documentation burden exacerbated by regulatory, UI, institutional-related factors
- Individual training can improve comfort with the EHR, but does not address all issues contributing to burnout
  - Admin support, regulatory changes, UI improvements, AI/NLP could help
- CLOC time may be a good correlate to “Work Outside Work”
  - Likely other leading indicators can help
Questions?

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