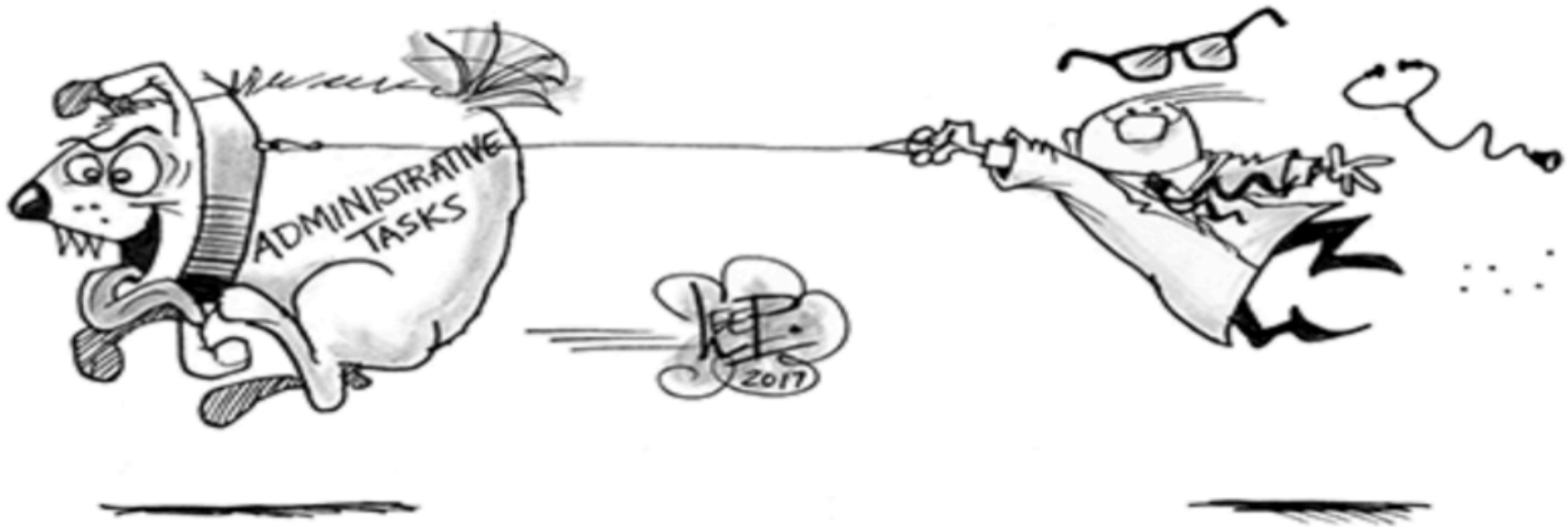


“Reducing Clinician Burden” Project

Health Level Seven (HL7)
Electronic Health Record Work Group
(EHR WG)

11 January 2021





Moral Injury?

Clash of Clinical and Business Models?

- “[Clinicians know] how best to care for their patients but [are] blocked from doing so by systemic barriers related to the business side of health care.”

— Washington Post: “Too many tests, too little time: Doctors say they face ‘moral injury’ because of a business model that interferes with patient care” – 1 February 2020

Quantifying the EHR Burden

Surveys Say...

- “3 out of 4 physicians believe that EHRs increase practice costs, outweighing any efficiency savings” — Deloitte Survey of US Physicians, 2016
- “7 out of 10 physicians think that EHRs reduce their productivity” — Deloitte
- “4 in 10 primary care physicians (40%) believe there are more challenges with EHRs than benefits” — Stanford Medicine/Harris Poll, 2018
- “7 out of 10 physicians (71%) agree that EHRs greatly contribute to physician burnout” — Stanford/Harris
- “6 out of 10 physicians (59%) think EHRs need a complete overhaul” — Stanford/Harris
- “Only 8% say the primary value of their EHR is clinically related” — Stanford/Harris
- “[Physicians express that EHR] systems had detracted from professional satisfaction (54%) as well as from their clinical effectiveness (49%)” — Stanford/Harris
- “Almost 40 percent of surveyed outpatient providers are looking to replace their EHR and other IT tools with solutions that offer better ease of use, more functionality and increased interoperability with other IT systems” — Health Data Management - Why EHRs are flawed, and how they can be fixed, 13 Jun 2019

Quantifying the EHR Burden

Few Clinicians Involved in EHR Decision

- "No other industry... has been under a universal mandate to adopt a new technology before its effects are fully understood, and before the technology has reached a level of usability that is acceptable to its core users." — New England Journal of Medicine, Transitional Chaos or Enduring Harm? The EHR and the Disruption of Medicine, 22 Oct 2015
- "Many clinicians know what they want — but haven't been asked... *Our biggest mistake lies not in adopting clunky systems but in dismissing the concerns of the people who must use them.*" — Ibid.
- "Few physicians and nurses were involved in the decision-making process of which EHR to implement in their workplace. Of physician participants, 66 percent said they had no input, 28 percent had input... Of nurse and [advanced practice nurse/APRN] participants, 80 percent said they had no input, 18 percent had input..." — Becker's Healthcare - [Survey finds] Nearly half of physicians think EHRs have decreased quality of care, 1 May 2019
- "Of the physician and nurse/APRN participants who had input in choosing their workplace's EHR system, *just 2 percent said the system they wanted was chosen.*" — Ibid.

Quantifying the EHR Burden

EHRs Co-Opted for Other Purposes

- “Although the original intent behind the design of EHRs was to facilitate patient management and care, the technology largely has been co-opted for other purposes.
 - “*Payers* see the EHR as the source of billing documentation.
 - “*Health care enterprises* see it as a tool for enforcing compliance with organizational directives...
 - “*Public health entities* see it as a way to use clinicians to collect their data at drastically reduced costs.
 - “*Measurement entities* see the EHR as a way to automate the collection of measure data, reducing their reliance on chart abstraction.
 - “*Governmental entities* see it as a way to observe and enforce compliance with regulations.
- “All these impositions on EHR systems have created distractions from their potential value in supporting care delivery... The ability of these systems to support care delivery will not improve unless physicians and others who deliver care insist that the functions needed by clinicians and their patients take priority over non-clinical requirements.”*
- American College of Physicians, Putting Patients First by Reducing Administrative Tasks... 2 May 2017 [*Emphasis added*]

THE MODERN MEDICAL TEAM



Based on...

Mandate of External Entities										Mandate of Internal Entities									
WHAT – Mandate	WHO - Entity																		
Law	Legislative bodies										Administration/ CEO/COO...	Administration/ CEO/COO/CIO...	Finance/CFO	Department, service, specialty	Information technology (IT)/CIO/CMIO	Health information management (HIM)	Security management/CISO		
Regulation	Federal, state, regional agencies										Organizational practice/policy	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Claims, payment policy	Public and private payers										Software design, development, initial deployment	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Public health reporting policy	Public health agencies										HIT standards	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Accreditation, licensing policy	Accreditation, licensing bodies										Practice guidelines	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Quality/performance measurement/reporting	Various entities										HIT standards	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Practice guidelines	Professional societies and others										HIT standards	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
HIT standards	HIT standards development organizations										HIT standards	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		
Software design, development, initial deployment	Software developers										HIT standards	Software procurement practice/policy	Financial, billing practice/policy	Unit practice/policy	Software management, support, implementation practice/policy	HIM practice/policy	Privacy, security practice/policy		

Weighing Considerable Burden and Constraint on...

Clinicians and their Clinical Practice – at the Point of Care – as they Support Individual Health – Serve Healthcare Needs – Engage Personal Interaction



Reducing Clinician Burden

Defining Terms

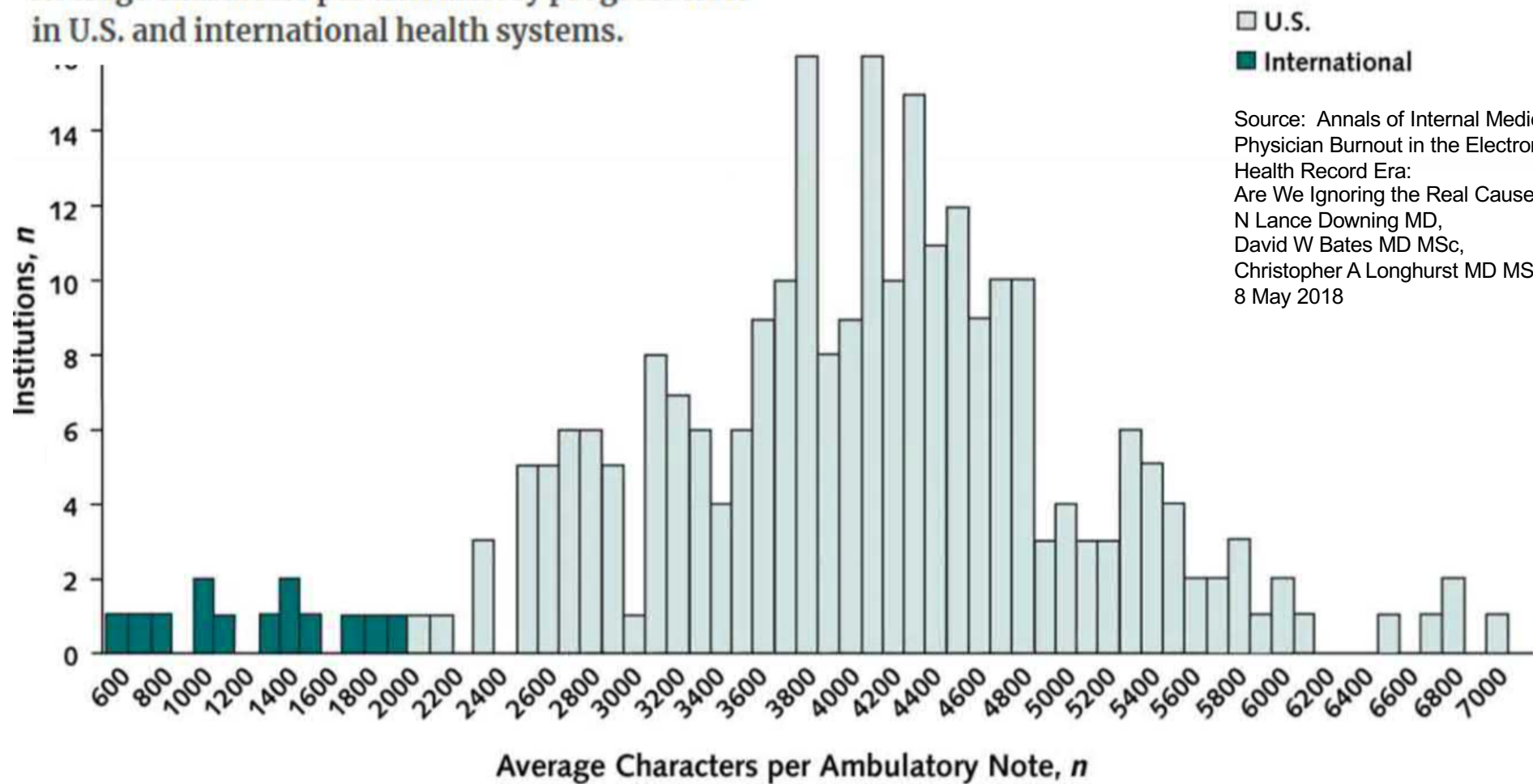
Reducing (reduce)	<ul style="list-style-type: none"> • “To bring down, as in extent, amount, or degree; diminish”, and “To gain control of... [to] conquer”, and “To simplify the form of... without changing the value”, also “To restore... to a normal condition or position” – The Free Dictionary • “To lower in... intensity” – Dictionary.com • “To narrow down”, also “To bring to a specified state or condition” – Merriam-Webster
Clinician	<ul style="list-style-type: none"> • “A health professional whose practice is based on direct observation and treatment of a patient” – Mosby's Medical Dictionary • “An expert clinical practitioner and teacher” – Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health • “A health professional, such as a physician, psychologist, or nurse, who is directly involved in patient care” – American Heritage Medical Dictionary
Burden	<ul style="list-style-type: none"> • “A source of great worry or stress”, and “[Something that] cause[s] difficulty [or] distress”, also “To load or overload” – The Free Dictionary • “Something that is carried, [as in a] duty [or] responsibility”, also “Something oppressive or worrisome” – Merriam-Webster Dictionary

Reducing Clinician Burden

Defining Terms

Clinician Burden	<p>Anything that hinders patient care, either directly or indirectly, such as:</p> <ol style="list-style-type: none">1) Undue cost or loss of revenue,2) Undue time,3) Undue effort,4) Undue complexity of workflow,5) Undue cognitive burden,6) Uncertain quality/reliability of data/record content,7) Anything that contributes to burnout, lack of productivity, inefficiency, etc.,8) Anything that gets in the way of a productive clinician-patient relationship. <p>-- Peter Goldschmidt, modified</p>
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Average characters per ambulatory progress note in U.S. and international health systems.

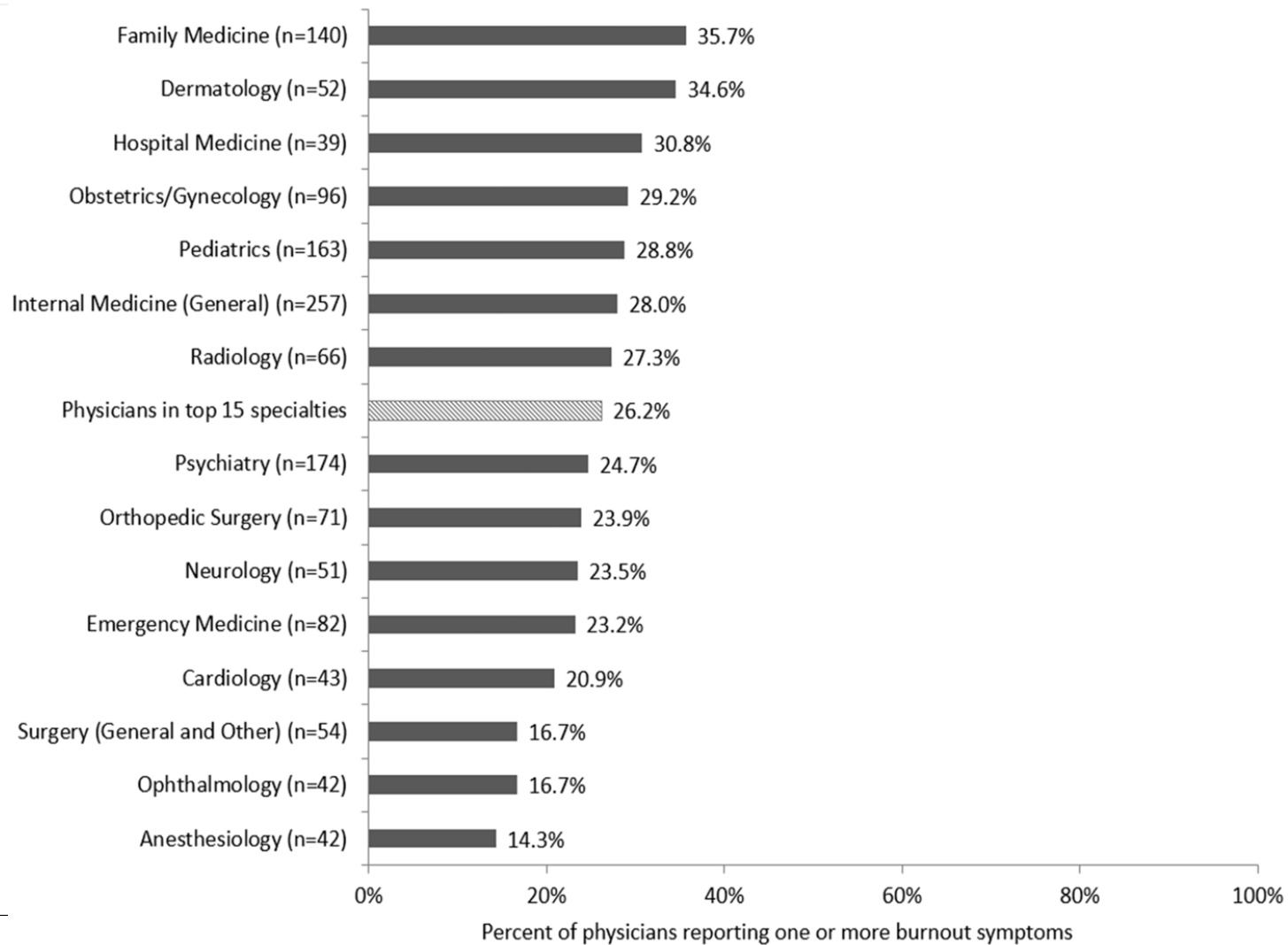




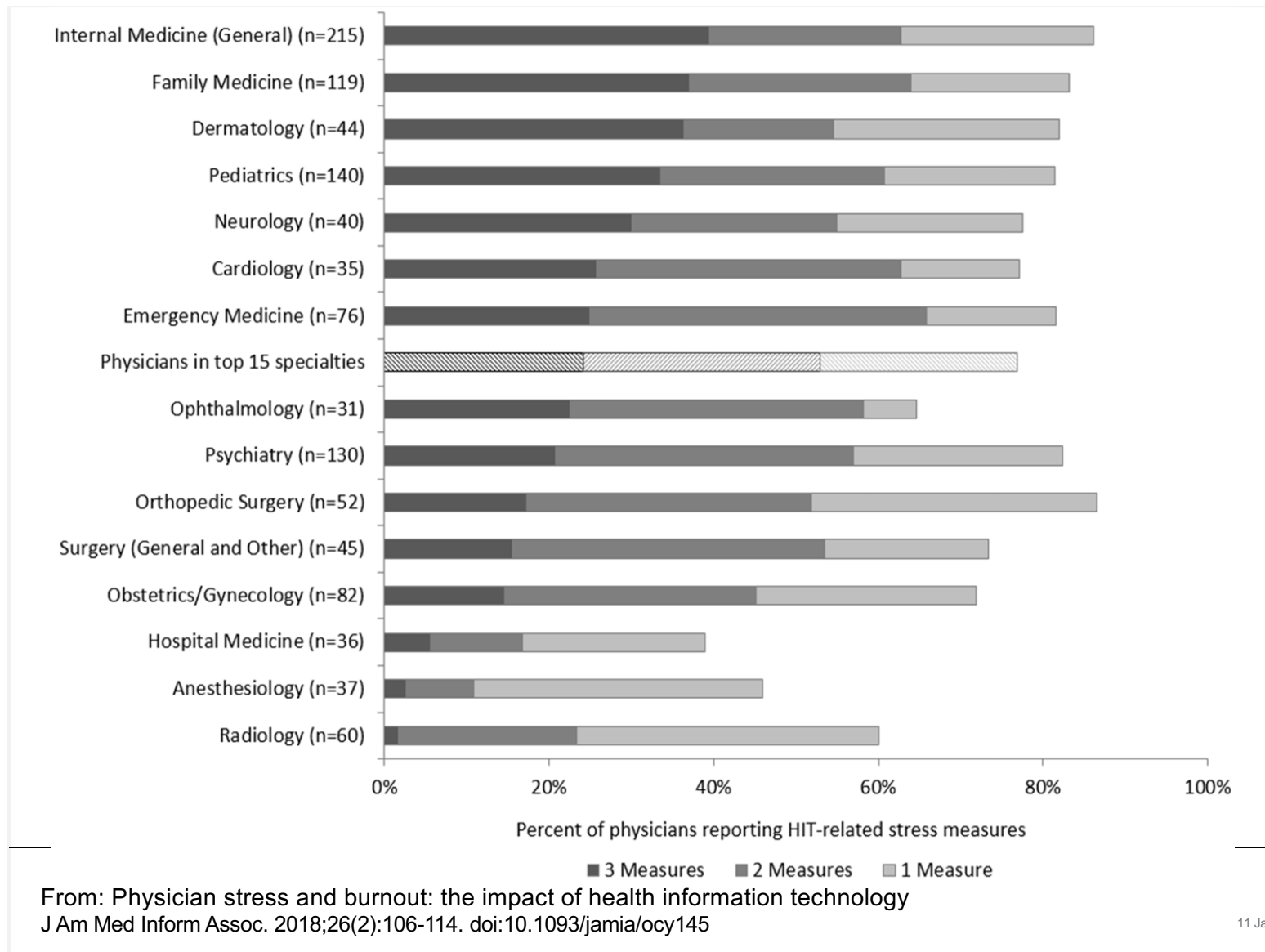
Burden Can Lead to Burnout

- “‘Physician burnout’ has skyrocketed to the top of the agenda in medicine. A 2018 Merritt Hawkins survey found a staggering 78% of doctors suffered symptoms of burnout, and [recently] the Harvard School of Public Health and other institutions deemed it a ‘public health crisis.’”

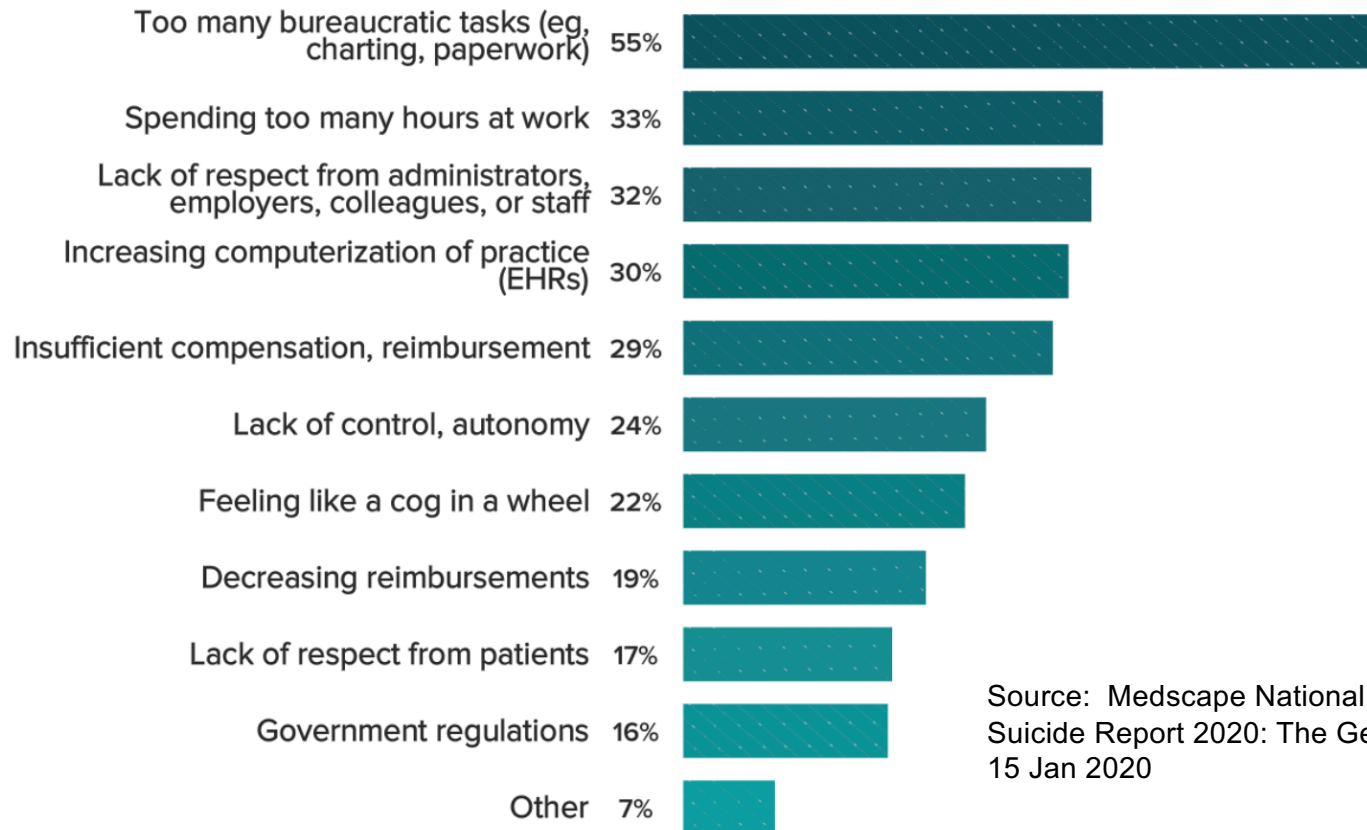
[Fortune and Kaiser Health News: “Death by a Thousand Clicks: Where Electronic Health Records Went Wrong”, Erika Fry and Fred Schulte, 18 Mar 2019](#)



From: Physician stress and burnout: the impact of health information technology
 J Am Med Inform Assoc. 2018;26(2):106-114. doi:10.1093/jamia/ocy145



What Contributes Most to Burnout?



Source: Medscape National Physician Burnout & Suicide Report 2020: The Generational Divide
15 Jan 2020



Reducing Clinician Burden Project Overview

- “Reducing Clinician Burden” Project is an [ongoing activity of the HL7 EHR Work Group](#)
- We are [open and collaborative](#) – oriented to US and international interests
- Our [primary focus is clinician burden including time & data quality burdens](#) associated with:
 - Use/engagement of EHR/HIT systems
 - Capture, exchange and use of health information
- We are considering, in particular, these aspects of burden:
 - Clinical practice – at the point of care
 - Regulatory, accreditation, administrative, payor, public health mandates
 - EHR/HIT system design, functionality, usability and implementation
 - Data quality and usability
- We have undertaken an [extensive review of reference sources to document the substance, impact and extent of clinician burden](#)
 - Trade publications, professional society journals, articles, studies, personal experience...

Reducing Clinician Burden Project

Assessing the Burden

- Our continuing work is **focused on root causes** in each RCB topic area (not just limited to EHR system functionality and usability issues – although that is important)
 - What is the problem and its source?
 - Why did it happen?
 - What will be done to prevent it from happening (now and in the future)?
 - Who (stakeholder(s)) might best address burden?
- We have **developed a White Paper**: *“Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow”*, led by David Schlossman MD
- We have evaluated burden related aspects of **US Core Data for Interoperability (USCDI)**.
- We have assessed burden related aspects of the **International Patient Summary (IPS)**, promoted by ISO TC215, HL7, CEN TC215 and IHE.
- We are **seeking success stories** specifically addressing burden reduction and burnout in provider organizations

Reducing Clinician Burden Project

Assessing the Burden

- We have initiated a task group effort, with experienced clinicians, to focus on burden reduction opportunities related to [medication list management and reconciliation](#). We anticipate parallel opportunities for [problem list management and curation](#).
- We have [completed a ballot](#) of the HL7 International Community seeking input, insight and guidance on workable strategies for reducing clinician burden
- We anticipate that our analysis will [influence future objectives](#) of HL7, ISO TC215 and other standards development efforts
- [Our goal is not to boil the ocean, but rather to understand the substance, extent and impact of the burden, to recognize root causes and to identify success stories.](#)

Reducing Clinician Burden – Breaking It Down

Topics/Categories

- | | | |
|---|---|---|
| 1) Clinician Burden – In General | management | process models |
| 2) Patient Safety (and Clinical Integrity) | 15) Information overload | 27) Software development and improvement priorities, end-user feedback |
| 3) Administrative tasks | 16) Transitions of care | 28) Product transparency |
| 4) Data entry requirements | 17) Health information exchange, claimed “interoperability” | 29) Product modularity |
| 5) Data entry scribes and proxies | 18) Medical/personal device integration | 30) Lock-in, data liquidity, switching costs |
| 6) Clinical documentation: quality and usability | 19) Orders for equipment and supplies | 31) Financial burden |
| 7) Prior authorization, coverage verification, eligibility tasks | 20) Support for payment, claims and reimbursement | 32) Security |
| 8) Provider/patient face to face interaction | 21) Support for cost review | 33) Professional credentialing |
| 9) Provider/patient communication | 22) Support for measures: administrative, operations, quality, performance, productivity, cost, utilization | 34) Identity matching and management |
| 10) Care coordination, team-based care | 23) Support for public and population health | 35) Data quality and integrity |
| 11) Clinical work flow | 24) Legal aspects and risks | 36) Process integrity |
| 12) Disease management, care and treatment plans | 25) User training, user proficiency | 37) List Management: problems, medications, immunizations, allergies, surgeries, interventions and procedures |
| 13) Clinical decision support, medical logic, artificial intelligence | 26) Common function, information and | |
| 14) Alerts, reminders, notifications, inbox | | |

Blue = Focus Teams Formed

Reducing Clinician Burden Project

Focus Teams

- Clinical documentation, quality and usability
 - Lead: Dr. Lisa Masson (lisa.masson@cshs.org)
- Clinical decision support, medical logic, artificial intelligence
Alerts, reminders, notifications, inbox management
Information overload
 - Lead: Dr. James McClay (jmcclay@unmc.edu)
- Clinical workflow
 - Lead: Dr. David Schlossman (dschloss39@gmail.com)
- Legal aspects and risks
 - Lead: Dr. Barry Newman (barrynewman@earthlink.net)
- System lock-in, data liquidity, switching costs
 - Lead: Dr. Michael Brody (mbrody@tldsystems.com)
- State of data content quality
Medication list management and reconciliation
 - Lead: Dr. Reed Gelzer (r.gelzer@trustworthyehr.com)



Reducing Clinician Burden Success Stories

1. [Reducing Clinician Burden: Cardiovascular Procedure Reporting at Duke](#)
James Tcheng MD, Duke University
2. ["Home for Dinner" - Reducing After Hours Documentation with Focused Training](#)
Greta Branford MD, University of Michigan
3. [Benefits of SNOMED CT from a clinical perspective, The Rotherham experience](#)
Monica Jones, NHS Rotherham Foundation Trust (UK)
4. [Getting Time Back in Your Day! Implementing a Multi-Faceted Approach to Optimizing Epic in the Ambulatory Setting](#)
Jeff Tokazewski MD, Carole Rosen, Shane Thomas, University of Pennsylvania
5. [Well-Being Playbook, A Guide for Hospital and Health System Leaders](#)
Elisa Arespacochaga, American Hospital Association

Reducing Clinician Burden Success Stories

6. [Understanding the Impact of the EHR on Physician Burnout and Wellness](#)
Christopher Sharp MD, Lindsay Stevens MD, Stanford University/Stanford Health Care
 7. [SPRINT – An Organizational Strategy that Increases Satisfaction, Improves Teamwork and Reduces Burnout](#)
Amber Sieja MD, University of Colorado School of Medicine, UCHealth
- [More to come...]

Work in Progress – White Paper

- [DRAFT Reducing Clinician Burden White Paper](#)
 - *“Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow”*
 - Draws from RCB Clinical Workflow and Clinical Documentation Focus Team efforts
 - Led David Schlossman MD PhD FACP MS CPHIMS
 - Primary contributors: Lisa Masson MD, James Tcheng MD, Luann Whittenburg RN PhD and Barry Newman MD
 - With input from Frank Opelka MD, James Sorace MD and Gary Dickinson FHL7
 - Please review and offer comments and suggestions

Reducing Clinician Burden

Recent Perspectives and Presentations

- Denise St. Clair PhD – US CMS Office of Burden Reduction and Health Informatics – 21 September
 - [Interoperability and Burden Reduction - Emerging Opportunities for Collaborative Care](#)
- Frank Opelka MD – American College of Surgeons – 21 September
 - [Reducing Clinical Burden thru Knowledge Engineering - Curating Clinical Knowledge](#)
- Joel Buchanan MD – University of Wisconsin at Madison – 21 September
 - [Problem Concept Maps: An Ontology to Facilitate Auto-Summarization of Electronic Health Information](#)
- Lincoln Weed – Problem-Oriented Health Record (POHR) – 17 August
 - [The POHR and a Pathway to Reducing Clinician Burden](#)
- Dr Ryan Mullins – Personal Perspective on Burden Reduction – 20 July
 - [The Health IT Vendor's Perspective – Lessons learned as a physician working for a health IT vendor](#)
- Dr Viet Nguyen – HL7 Da Vinci Project (Provider/Payer Exchange) – 18 May
 - [Da Vinci Project Overview \(Provider/Payer Exchange\)](#)
 - [Da Vinci Project Calendar](#)
- Dr Reed Gelzer – Data Quality, Integrity and Reliability – 4 May/1 June
 - [Data Quality and Clinician Burden - Overview, Examples, and Basic Recommendations](#)

Reducing Clinician Burden

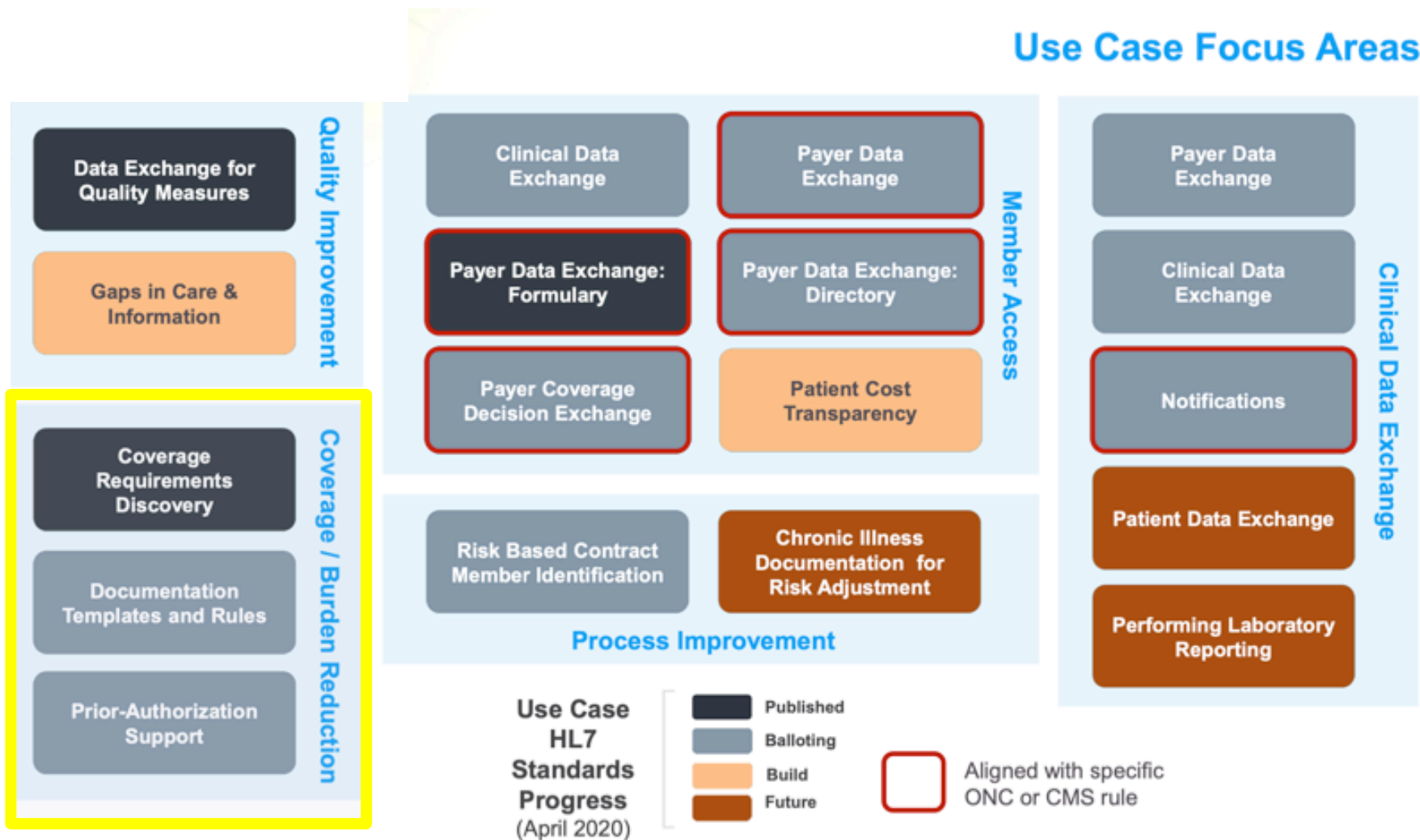
New ISO TC215 WG1 Work Item

- ISO TC215 – Health Informatics, formed in 1999
 - Chair: Michael Glickman (US)
- Working Group 1 – Frameworks, Models and Architectures
 - Convenor: Björn-Erik Erlandsson (Sweden)
- ISO 4419 – Work Item focused on Reducing Clinician Burden
 - Targeted as an Informative Technical Report
- Candidate Deliverable: RCB Root Cause Analysis
 - Developed in Collaboration with HL7 RCB Project Team
 - With US and International Input
 - Will be advanced from HL7 to ISO under Partnership Standards Development Organization (PSDO) Agreement (currently being formalized)
 - Ultimately – Published by HL7 and ISO

Key Standards Focused on Burden Reduction

- HL7 Da Vinci Project – Provider ↔ Payer Communication
 - Coverage Requirements Discovery (published)
 - Documentation Templates and Rules (in ballot)
 - Pre Authorization Support (in ballot)
- HL7 EHR System Usability Functional Profile
 - Functions and Conformance Criteria to Enhance System Usability
 - Ready for publication – November 2020
- ISO/HL7 10781 EHR System Functional Model, Release 3
 - In early design/development stage

HL7 Da Vinci Project



Reducing Clinician Burden Project Materials

- Project Documents – Project Website
 - https://wiki.hl7.org/Reducing_Clinician_Burden
 - Project Overview, Presentations
 - Analysis Worksheets
 - Reference Sources
 - Success Stories

Reducing Clinician Burden Project

Schedule

- Teleconferences, Monday at 3PM ET (US/Canada)
 - <https://global.gotomeeting.com/meeting/join/798931918>
 - Meeting 2nd and 4th Mondays each month
 - 11 January 2021
 - 25 January – HL7 Virtual Work Group Meeting – 2-4PM ET (US/Canada)
 - 8 and 22 February
 - ...

Reducing Clinician Burden Project

Contacts

RCB Project Co-Facilitators:

- Gary Dickinson FHL7: gary.dickinson@ehr-standards.com
EHR Standards Consulting
- David Schlossman MD PhD FACP MS CPHIMS: dschloss39@gmail.com
MedInfoDoc LLC

HL7 EHR WG Co-Chairs:

- Michael Brody DPM: mbrody@tldsistemas.com
TLD Systems
- Steve Hufnagel PhD: stephen.hufnagel.hl7@gmail.com
- Mark Janczewski MD: mark.janczewski@gmail.com
Medical Networks LLC
- John Ritter FHL7: johnritter1@verizon.net
- Pele Yu MD: pele.yu@archildrens.org
Arkansas Children's Hospital/University of Arkansas

Reducing Clinician Burden Project

US Federal Government Initiatives

- US Office of National Coordination for Health Information Technology – FINAL "Strategy on Reducing Burden Relating to the Use of Health IT and EHRs", including Findings, Strategies and Recommendations
 - Published 21 Feb 2020
- US Centers for Medicare and Medicaid Services – Initiative to Reduce Provider and Clinician Burden and Improve Patient Outcomes
 - Announced 23 Jun 2020
- Also – Your burden reduction suggestions may be directed to:
 - US Centers for Medicare/Medicaid Services (CMS)
reducingproviderburden@cms.hhs.gov

Reducing Clinician Burden Project

Responses to COVID-19 Pandemic

- [\(US\) Centers for Medicare and Medicaid Services \(CMS\) - Waivers and COVID-19 Response, Online Presentation](#), 7 April 2020
- [\(US\) CMS Announces Relief for Clinicians, Providers, Hospitals and Facilities Participating in Quality Reporting Programs in Response to COVID-19](#), 22 Mar 2020
- [\(US\) Trump Administration Makes Sweeping Regulatory Changes to Help U.S. Healthcare System Address COVID-19 Patient Surge](#), 30 Mar 2020
- [\(US\) Health Information Technology Advisory Committee \(HITAC\) Brainstorms Ways ONC Can Help Front-Line Providers in COVID-19 Response](#), 27 Mar 2020
- [\(US\) CMS - COVID-19 Disaster Response Toolkit](#), 7 April 2020
- [Logica COVID-19 Interoperability Project](#), 4 Apr 2020
- [Logica COVID-19 FHIR Implementation Guide](#), 4 Apr 2020

Reducing Clinician Burden Project

RCB Analysis Worksheet – Tabs

1. Burden (Columns B-F)

- B. Clinician Burden – Excerpts from reference sources and personal experience – organized by burden topic area (1-37 as above)
- C. Recommendations – Excerpts from reference sources and personal experience
- D. Reference(s) – Sources by number
- E. Targeted Recommendations – refined from our reference (and other) sources
- F. RCB Proposals and Successful Solutions – from Success Stories, proposed regulations and other sources

2. Burnout (Columns B-F)

- B. Clinician Burnout (sometimes the Result of Clinician Burden) – Excerpts from reference sources and personal experience – organized by burden topic area (1-37 as above)
- C. Recommendations – Excerpts from reference sources and personal experience
- D. Reference(s) – Sources by number
- E. Targeted Recommendations – refined from our reference (and other) sources
- F. RCB Proposals and Successful Solutions – from Success Stories, proposed regulations and other sources

3. Topic Index – Topics 1-37 – with links to the Burden Tab

4. Time Burden – Excerpts from reference sources and personal experience

Reducing Clinician Burden Project

RCB Analysis Worksheet – Tabs

5. Data Quality Burden – Excerpts from reference sources and extrapolated issues
6. Clinician Stories – First person accounts from front-line clinicians
7. Root Causes – DRAFT in progress analysis – organized by burden topic (1-37 as above) (Columns A-D)
 - B. Topic
 - C. What's the Problem? Clinician Burden - requirements/obligations beyond essentials of safe and effective clinical practice
 - D. Why did it Happen?
 - E. What will be done to prevent it from happening (now and in the future)?
8. Cause Matrix
9. RCB “Comment Only” Ballot Responses
10. Terms – Reducing, Clinician, Burden
11. References – Enumerated list of Reference Sources and Personal Commenters
12. Leads – RCB Project Co-Facilitators and EHR WG Co-Chairs
13. Acknowledgements – Reviewers and Contributors