“Reducing Clinician Burden” Project

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

15 June 2020
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
"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.
  - “The legal system sees the EHR as a statement of legal facts.
  - “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
Based on...

<table>
<thead>
<tr>
<th>Mandate of External Entities</th>
<th>Mandate of Internal Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHO - Entity</strong></td>
<td><strong>What - Mandate</strong></td>
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<tr>
<td>Legislative bodies</td>
<td>Law</td>
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<tr>
<td>Federal, state, regional</td>
<td>Regulation</td>
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<tr>
<td>agencies</td>
<td>Claims, payment policy</td>
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<tr>
<td>Public and private</td>
<td>Public health reporting</td>
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<tr>
<td>payers</td>
<td>policy</td>
</tr>
<tr>
<td>Public health agencies</td>
<td>Accreditation, licensing</td>
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<td></td>
<td>bodies</td>
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<td>various entities</td>
<td>Quality/performance</td>
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<td>measurement/reporting</td>
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<td>Professional guilds and</td>
<td>Practice guidelines</td>
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<tr>
<td>others</td>
<td>HIT standards</td>
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<td></td>
<td>software developers</td>
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<td></td>
<td>administration/</td>
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<td></td>
<td>CEO/COO/CMIO/cMO</td>
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<tr>
<td>Administration/CEO/COO/CMIO</td>
<td>Software procurement policy</td>
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<td>Financial/billing policy</td>
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<td>Unit practice/policy</td>
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<td>HIM practice/policy</td>
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<td></td>
<td>Privacy, security</td>
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<td>practice/policy</td>
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Weighing Considerable Burden and Constraint on... Clinicians and their Clinical Practice – at the Point of Care Supporting Individual Health – Serving Healthcare Needs – Engaging Personal Interaction

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## Reducing Clinician Burden

### Defining Terms

<table>
<thead>
<tr>
<th>Reducing (reduce)</th>
<th>Clinician</th>
<th>Burden</th>
</tr>
</thead>
</table>
| • “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 | • “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 | • “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

<table>
<thead>
<tr>
<th>Clinician Burden</th>
<th>Anything that hinders patient care, either directly or indirectly, such as:</th>
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<tbody>
<tr>
<td></td>
<td>1) Undue cost or loss of revenue,</td>
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<td></td>
<td>2) Undue time,</td>
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<td></td>
<td>3) Undue effort,</td>
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<td>4) Undue complexity of workflow,</td>
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<td>5) Undue cognitive burden,</td>
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<tr>
<td></td>
<td>6) Uncertain quality/reliability of data/record content,</td>
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<td></td>
<td>7) Anything that contributes to burnout, lack of productivity, inefficiency,</td>
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<td></td>
<td>8) Anything that gets in the way of a productive clinician-patient</td>
</tr>
<tr>
<td></td>
<td>relationship.</td>
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-- Peter Goldschmidt, modified
Average characters per ambulatory progress note in U.S. and international health systems.

Source: Annals of Internal Medicine – Physician Burnout in the Electronic Health Record Era: Are We Ignoring the Real Cause? N Lance Downing MD, David W Bates MD MSc, Christopher A Longhurst MD MS, 8 May 2018
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.’”

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Percent Reporting Burnout</th>
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<tbody>
<tr>
<td>Family Medicine (n=140)</td>
<td>35.7%</td>
</tr>
<tr>
<td>Dermatology (n=52)</td>
<td>34.6%</td>
</tr>
<tr>
<td>Hospital Medicine (n=39)</td>
<td>30.8%</td>
</tr>
<tr>
<td>Obstetrics/Gynecology (n=96)</td>
<td>29.2%</td>
</tr>
<tr>
<td>Pediatrics (n=163)</td>
<td>28.8%</td>
</tr>
<tr>
<td>Internal Medicine (General) (n=257)</td>
<td>28.0%</td>
</tr>
<tr>
<td>Radiology (n=66)</td>
<td>27.3%</td>
</tr>
<tr>
<td>Physicians in top 15 specialties</td>
<td>26.2%</td>
</tr>
<tr>
<td>Psychiatry (n=174)</td>
<td>24.7%</td>
</tr>
<tr>
<td>Orthopedic Surgery (n=71)</td>
<td>23.9%</td>
</tr>
<tr>
<td>Neurology (n=51)</td>
<td>23.5%</td>
</tr>
<tr>
<td>Emergency Medicine (n=82)</td>
<td>23.2%</td>
</tr>
<tr>
<td>Cardiology (n=43)</td>
<td>20.9%</td>
</tr>
<tr>
<td>Surgery (General and Other) (n=54)</td>
<td>16.7%</td>
</tr>
<tr>
<td>Ophthalmology (n=42)</td>
<td>16.7%</td>
</tr>
<tr>
<td>Anesthesiology (n=42)</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

From: Physician stress and burnout: the impact of health information technology
What Contributes Most to Burnout?

- Too many bureaucratic tasks (e.g., charting, paperwork) 55%
- Spending too many hours at work 33%
- Lack of respect from administrators, employers, colleagues, or staff 32%
- Increasing computerization of practice (EHRs) 30%
- Insufficient compensation, reimbursement 29%
- Lack of control, autonomy 24%
- Feeling like a cog in a wheel 22%
- Decreasing reimbursements 19%
- Lack of respect from patients 17%
- Government regulations 16%
- Other 7%

15 Jan 2020
Reducing Clinician Burden Project

Overview

- As of late 2018, “Reducing Clinician Burden” is a formal project of the HL7 EHR Work Group
- Is open and collaborative – oriented to US and international interests
- Primary focus is on clinician burden including time & data quality burdens associated with:
  - Use/engagement of EHR/HIT systems
  - Capture, exchange and use of health information
- Considering:
  - 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
- Has 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

- Continuing work to identify root causes in each RCB topic area (not 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?
- Developing focused White Paper: “Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow”
- Looking for success stories specifically addressing burden reduction and burnout
- Anticipating influence on future objectives of HL7, ISO TC215 and other standards development efforts

- Goal is not to boil the ocean, rather to understand the substance, extent and impact of the burden, to recognize root causes and to identify success stories.
<table>
<thead>
<tr>
<th>Topics/Categories</th>
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</thead>
<tbody>
<tr>
<td>1) Clinician Burden – In General</td>
<td>15) Information overload</td>
</tr>
<tr>
<td>2) Patient Safety (and Clinical Integrity)</td>
<td>16) Transitions of care</td>
</tr>
<tr>
<td>3) Administrative tasks</td>
<td>17) Health information exchange, claimed “interoperability”</td>
</tr>
<tr>
<td>4) Data entry requirements</td>
<td>18) Medical/personal device integration</td>
</tr>
<tr>
<td>5) Data entry scribes and proxies</td>
<td>19) Orders for equipment and supplies</td>
</tr>
<tr>
<td>6) Clinical documentation: quality and usability</td>
<td>20) Support for payment, claims and reimbursement</td>
</tr>
<tr>
<td>7) Prior authorization, coverage verification, eligibility tasks</td>
<td>21) Support for cost review</td>
</tr>
<tr>
<td>8) Provider/patient face to face interaction</td>
<td>22) Support for measures: administrative, operations, quality, performance, productivity, cost, utilization</td>
</tr>
<tr>
<td>9) Provider/patient communication</td>
<td>23) Support for public and population health</td>
</tr>
<tr>
<td>10) Care coordination, team-based care</td>
<td>24) Legal aspects and risks</td>
</tr>
<tr>
<td>11) Clinical work flow</td>
<td>25) User training, user proficiency</td>
</tr>
<tr>
<td>12) Disease management, care and treatment plans</td>
<td>26) Common function, information and process models</td>
</tr>
<tr>
<td>13) Clinical decision support, medical logic, artificial intelligence</td>
<td>27) Software development and improvement priorities, end-user feedback</td>
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<tr>
<td>14) Alerts, reminders, notifications, inbox management</td>
<td>28) Product transparency</td>
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<td>29) Product modularity</td>
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<tr>
<td></td>
<td>30) Lock-in, data liquidity, switching costs</td>
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<td>31) Financial burden</td>
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<td>32) Security</td>
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<td>33) Professional credentialing</td>
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<td>34) Identity matching and management</td>
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<td>35) Data quality and integrity</td>
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<tr>
<td></td>
<td>36) Process integrity</td>
</tr>
<tr>
<td></td>
<td>37) List Management: problems, medications, immunizations, allergies, surgeries, interventions and procedures</td>
</tr>
</tbody>
</table>

Blue = Focus Teams Formed

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Reducing Clinician Burden Project

**Focus Teams**

- **Clinical documentation, quality and usability**
  - Lead: Dr. Lisa Masson ([lisa.masson@cshs.org](mailto: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](mailto:jmcclay@unmc.edu))

- **Clinical workflow**
  - Lead: Dr. David Schlossman ([dschloss39@gmail.com](mailto:dschloss39@gmail.com))

- **Legal aspects and risks**
  - Lead: Dr. Barry Newman ([barrynewman@earthlink.net](mailto:barrynewman@earthlink.net))

- **System lock-in, data liquidity, switching costs**
  - Lead: Dr. Michael Brody ([mbrody@tldsystems.com](mailto:mbrody@tldsystems.com))

- **State of data content quality**
  - Leads: Dr. Reed Gelzer ([r.gelzer@trustworthyehr.com](mailto: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...]
Reducing Clinician Burden
Work in Progress – White Paper

- **Reducing Clinician Burden White Paper**
  - Draws from RCB Clinical Workflow and Clinical Documentation Focus Team efforts
  - Led David Schlossman
  - 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
Work in Progress – JAMIA Call for Papers

- **JAMIA Call for Papers – Special Focus Issue on Clinician Burnout**
  - Dr Pele Yu, Co-Chair of the HL7 EHR Work Group, will lead an HL7 team effort to respond to the JAMIA Call for Papers
  - Paper focused on clinician burnout
  - Will draw from analysis of the HL7 RCB Team
  - Initial abstract due 26 June
  - To contribute, please contact Pele ASAP:
    Feliciano "Pele" Yu, Jr., MD, MSHI, MSPH, FAMIA
    Chief Medical Information Officer, Arkansas Children’s Hospital
    Professor of Pediatrics and Biomedical Informatics, University of Arkansas for Medical Sciences
    Pele.Yu@archildrens.org
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 – Preliminary 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
  - Advanced from HL7 to ISO under Partnership Standards Development Organization (PSDO) Agreement (currently being formalized)
  - Ultimately – Published by HL7 and ISO
Reducing Clinician Burden
Recent Perspectives and Presentations

- 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
  - [Data Quality and Clinician Burden - Overview, Examples, and Basic Recommendations](#)

- Dr Floyd Eisenberg - Quality Measurement and Reporting – 20 April
  - [Exploring FHIR to Reduce Burden for Quality Measurement](#)
  - [Exploring FHIR to Reduce Burden for Quality Measurement - with Survey Results](#)
USE CASE INVENTORY & STATUS

Data Exchange for Quality Measures
Coverage Requirements Discovery
Documentation Templates and Coverage Rules
Health Record Exchange: Framework/Library
Clinical Data Exchange
Prior-Authorization Support
Payer Data Exchange
Payer Data Exchange: Provider Network
Payer Data Exchange: Formulary
Alerts/Notifications: Transitions in Care; ER admit/discharge
Payer Coverage Decision Exchange
Gaps in Care & Information
Health Record Exchange: Patient Data Exchange
Patient Cost Transparency
Risk Based Contract Member Identification
Performing Laboratory Reporting
Chronic Illness Documentation for Risk Adjustment

PROJECT PROCESS
Define requirements (technical, business and testing)
- Create Implementation Guide
- Create and test Reference Implementation (prove the guide works)
- Pilot the solution
- Deploy the solution

Source: HL7
http://www.hl7.org/about/davinci/use-cases.cfm

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Reducing Clinician Burden Project

Key Standards Focused on Burden

- HL7 Da Vinci Project – Provider ↔ Payer Communication
  - Coverage Determination
  - Pre Authorization
  - and more...
- HL7 EHR System Usability Functional Profile
  - Functions and Conformance Criteria to Enhance System Usability
  - Ready for publication
- ISO/HL7 10781 EHR System Functional Model, Release 3
  - In early design/development stage
Reducing Clinician Burden Project

Materials

- Project Documents – Project Website
  - https://wiki.hl7.org/Reducing_Clinician_Burden
  - Project Overview, Presentations
  - DRAFT RCB Analysis Worksheet
  - DRAFT RCB Comments related to Patient Summaries
  - Reference Sources
  - Success Stories
Reducing Clinician Burden Project

Schedule

- Teleconferences, Monday at 3PM ET (US/Canada)
  - 1st and 3rd Mondays each month
    15 June 2020, 6 and 20 July, 3 and 17 August...
  - [https://global.gotomeeting.com/meeting/join/798931918](https://global.gotomeeting.com/meeting/join/798931918)

- Upcoming Virtual Meetings
  - HL7 Plenary and Working Group, Week of 21-25 Sep 2020
  - ISO TC215, Week of 11-16 Oct 2020
Reducing Clinician Burden Project

Contacts

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:
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- Stephen Hufnagel PhD: stephen.hufnagel.hl7@gmail.com
  Apprio Inc
- Mark Janczewzki MD: mark.janczewski@gmail.com
  Medical Networks LLC
- John Ritter FHL7: johnriter1@verizon.net
- Pele Yu MD: pele.yu@archildrens.org
  Arkansas Children’s Hospital/University of Arkansas
Comments may also be directed to:

- US Centers for Medicare/Medicaid Services (CMS)
  reducingproviderburden@cms.hhs.gov
Reducing Clinician Burden Project

RCB Analysis Worksheet – Tabs

A. Burdens
B. Burnout
C. RCB Topics/Index
D. Time Burdens
E. Data Quality Burdens
F. Clinician Stories
G. Terms: Reducing, Clinician, Burden
H. Root Causes
I. Reference Sources
J. Leads: EHR WG Co-Chairs
K. Acknowledgements: Reviewers + Contributors
Reducing Clinician Burden Project

RCB Analysis Worksheet

First Tab – Burdens – Columns
B) Clinician Burdens (the current situation) – Raw Input
C) Recommendations – Raw Input
D) Reference Sources
E) Targeted RCB Recommendation(s) – refined from our reference (and other) sources
F) RCB Proposals and Successful Solutions