Reducing Clinician Burden (RCB)

- The Reducing Clinician Burden (RCB) Project is a formal activity of the Health Level Seven (HL7) Electronic Health Record Work Group (EHR WG). The project is open, transparent and collaborative, includes a diverse array of contributors from the health/healthcare community (US and International) and is not limited to HL7 members (although HL7 membership is encouraged – see http://www.hl7.org for additional details). Contributors represent a wide variety of training and backgrounds and include front line clinicians, clinical informaticians, software developers, standards developers, providers, payers and policy makers. (Note that there are also other HL7 activities addressing burden reduction including several within the HL7 Da Vinci FHIR Accelerator Project which focuses on provider/payer communications.)

- A primary objective of the RCB Project is to understand the substance, extent and impact of clinician burden – particularly with regard to front-line clinicians and their role in clinical practice, patient health and well-being, diagnosis and treatment of diseases, clinical decision making, clinical documentation, and patient safety. Our ongoing goals are to better understand the root causes of clinician burden, to share success stories regarding the use of information technology (IT) to mitigate burden, and to support novel and disruptively innovative advances that will allow healthcare IT to reduce burden and improve care quality by better supporting clinical workflow.

- Given that the RCB Project is a function of the HL7 EHR WG, we are particularly focused on clinician burden(s) such as increased cognitive load, decreased efficiency, and data quality burdens associated with:
  a. implementation and use of EHR/HIT systems in clinical practice;
  b. capture, exchange and use of health data/records.

Please subscribe to the HL7 EHR WG listserver for meeting announcements, agendas and updates regarding current work.

NOTE: DRAFT documents may be incomplete and are posted for Team review and discourse. Please take care to note their draft (tentative) status if referencing or sharing with others.

NOTE: Some document links will take you to an intermediate page with another link to the actual document (a click on that 2nd link should give you access). We are working to resolve this issue.

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BREAKING NEWS - February 2023 - US Physician Burnout increased by 6% since 2021, 26% since 2018...

Please review these recently published articles. First is the Medscape Report/Survey on US Physician Burnout and Depression 2023, followed by another perspective - commentary from the New York Times Opinion Section:

Medscape - Physician burnout and depression continue to climb, Article by Mariah Taylor, published 27 Jan 2023

Medscape - 29 physician specialties ranked by 2022 burnout rates, Article by Erica Carbajal, published 1 Feb 2023

Medscape - "I Cry but No One Cares" - US Physician Burnout and Depression Report 2023, Slide Set by Leslie Kane MA, published 6 Feb 2023

NY Times - Another Opinion - Doctors Aren't Burned Out From Overwork - We’re Demoralized by Our Health System, Eric Reinhart MD, published 5 Feb 2023

HL7 EHR WG/Reducing Clinician Burden Related Meeting Schedule
NEW! Reducing Clinician Burden - How to Get Involved and Contribute

**New! Burden Reduction Initiatives and Activities YOU can Join - HL7 + Others**

**HL7 RCB Project - Presentations and Reports**

Additional presentations are included in the "Success Stories" section below.

- **NEW! Reducing Clinician Burden Project - Overview**, updated 8 May 2023
- **NEW! Reducing Clinician Burden Project - Progress Report**, updated 8 May 2023
- **NEW! Working Session Presentation - International Patient Summary - RCB Comment Review and Disposition**, Gary Dickinson FH7L, presented 22 May 2023
  These comments on the DRAFT International Patient Summary were prepared in correspondence with findings of the HL7 RCB Project and clinician burdens associated with patient summary creation, exchange and use, particularly with regard to aspects of information overload, data integrity, patient/provider identity matching, preservation of clinical data context, reconciliation of medications, medication allergies, all allergies, problems/diagnoses and more.
- **NEW! Cooperative Work in Standardization - An Approach to Reducing Clinician Burden**, David Schlossman MD, presented 8 May 2023
- **NEW! Cognitive Challenges in the Use of EHRs**, Vimla L Patel PhD DSc FRSC, New York Academy of Medicine, presented 24 Apr 2023
- **AMIA 25x5 Initiative - Reducing Documentation Burden to 25% of Current State in Five Years**, Sarah Rossetti RN PhD, Columbia University, presented 27 Mar 2023
  Website: **AMIA 25x5 Initiative**
- **NEW! Toolkit: 25x5 Documentation Burden Reduction Toolkit**, published 6 May 2023
- **Latest Findings regarding EHR System Functionality and Usability - The Finnish update since 2021**, Jarmo Reponen MD, University of Oulu, presented 13 Mar 2023
- **Meeting Notes - What CAN WE DO? Notes from RCB Teleconference on 13 Feb 2023**
- **Is There A Standards-Based Approach To Clinician Burnout?** David Schlossman MD, presented 13 Feb 2023
- **Problem Oriented Health Record Project Update**, Lincoln Weed JD, presented at the HL7 Work Group Meeting, 16 Jan 2023
- **Medication List Management and Reconciliation**, Reed Gelzer MD, James Tcheng MD, presented at the HL7 Work Group Meeting, 16 Jan 2023
- **ISO 4419 Reducing Clinician Burden - Collaboration with ISO TC215 WG1**, David Schlossman MD, presented at the HL7 Work Group Meeting, 16 Jan 2023
- **HL7 EHR System Usability Functional Profile - Increasing EHR System Usability Through Standards - As One Approach to Reducing Clinician Burden**, David Schlossman MD PhD FACP MSMSI and John Ritter MSF7L, published 12 Dec 2022
  **New! HL7 Standard:** HL7 EHR System Usability Functional Profile Release 1, published 2 Jan 2023
- **Evolution of HL7 in Veterans Health Administration - Looking to the Future**, R Spencer Schaefer PharmD, US Veterans Administration Medical Center (Kansas City) and US VA National Artificial Intelligence Institute (NAII), presented 14 Nov 2022
- **Exploring FHIR to Reduce Burden for Quality Measurement**, Floyd Eisenberg MD MPH, Co-Chair, HL7 Clinical Quality Information Work Group, presented 24 Oct 2022
- **Using AI in Medical Informatics - Clinician burden reduction - Opportunity, not threat!** Jobst Landgrebe MD, published 10 Oct 2022
- **Galileo Project Update - Technological Changes for a Perfect Health System**, Ed Hammond PhD, presented 19 Sep 2022
  See also: The Galileo Project - Making the Future, Ed Hammond PhD, Duke University, presented 31 Jan 2022
- **ISO 4419 Project Update - Joint Work with ISO TC215**, David Schlossman MD PhD FACP MSMSI, presented 19 Sep 2022
  See also: HL7 RCB Project - White Paper
  See also the section below on Medication List Management and Reconciliation: HL7 RCB Project Focus Team - Medication List Management and Reconciliation
- **Problem-Oriented Health Record (POHR) Project Update**, Lincoln Weed JD, presented 19 Sep 2022
  See also the Problem Oriented Health Record Confluence Page: Problem Oriented Health Record (POHR)
- **Artificial Intelligence (AI) Focus Team Update**, Gary Dickinson FH7L, presented 19 Sep 2022
  See also the Artificial Intelligence (AI) Confluence Page: Artificial Intelligence (AI)
- **Advancing Interoperability for the Public Good - Sequoia Project - Data Usability Workgroup**, Didi Davis, Vice-President for Informatics, Conformance and Interoperability, Sequoia Project, presented 22 Aug 2022
  Link: Sequoia Project - Data Usability Workgroup Implementation Guide v1, released 14 Dec 2022
- **Website:** Sequoia Project
- **Website:** Sequoia Project - Data Usability Workgroup

Special thanks to Dr. Michael Brody for the GoToMeeting facilities.
Comments Submitted to Sequoia Project/Data Usability Workgroup: Package of Comments derived from Reducing Clinician Burden Analysis, .zip file compiled 22 Feb 2023

- International Patient Summary Overview, Robert Hausam MD, presented 8 Aug 2022
- Device Alerting & Reducing Clinician Alert Fatigue - IHE-HL7 Gemini SES+MDI Project, Todd Cooper, presented 25 Jul 2022
- Safety and Medical-Legal Liability Risks Resulting from Electronic Health Records, Barry M Newman MD MBA MS, presented 11 Jul 2022
- Posting: Safety and Medico-legal Liability Risks Resulting from the Implementation of Electronic Health Records: Recognition and Mitigation, Barry M Newman MD MBA MS
- Emerging Technology Platforms in Health Care, John Halamka MD, President, Mayo Clinic Platform, presented 9 May 2022

Article: Health-related artificial intelligence needs rigorous evaluation and guardrails, John Halamka MD, Suchi Saria, Nigam H. Shah, published 17 Mar 2022
- US Office of Surgeon General - Addressing Health Worker Burnout, Jeane Garcia Davis MSN/MPH RN, presented 9 May 2022
- Guidelines for US Hospitals and Clinicians on Assessment of Electronic Health Record Safety Using SAFER Guides, Dean Sittig PhD, Patricia Sengstock DNP RN-BC FAAN, Hardeep Singh MD MPH, published 25 Apr 2022
- Related Journal of the American Medical Association Article: Guidelines for US Hospitals and Clinicians on Assessment of Electronic Health Record Safety Using SAFER Guides, Dean Sittig PhD, Patricia Sengstock DNP RN-BC FAAN, Hardeep Singh MD MPH
- National Initiative to Optimize EHR Efficiency and Reduce Burden, David Schlossman MD, presented 25 Apr 2022
- Update on HL7 Da Vinci Project (Provider/Payer Information Exchange), Viet Nguyen MD, HL7 Chief Standards Implementation Officer, HL7 International Technical Director - Da Vinci Project, presented 14 Mar 2022
- Al-Driven Clinical Documentation with MedKnowts - Massachusetts Institute of Technology, Beth Israel Deaconess Medical Center and Lahey Health - David Sontag (MIT), Luke Murray (MIT), Monica Agrawal (MIT), Steven Hornig MD (BIDMC), published 28 Feb 2022

Website: Transforming Electronic Health Records with MedKnowts
- The Galileo Project - Making the Future, Ed Hammond PhD, Duke University, presented 31 Jan 2022
- Reducing the Clinician Burden with Artificial Intelligence - Enhancing EHR use with AI, Dr John Gachago (NIH), Pat Baird (Philips), presented 17 Jan 2022
- The Role of Diagnostic Management Teams in Improving Personalized Medicine and Reducing Provider Burden 1, James Sorace MD FCAP, Michael Laposata MD PhD FCAP, presented 3 Jan 2022
- The Role of Diagnostic Management Teams in Improving Personalized Medicine and Reducing Provider Burden 2, Michael Laposata MD PhD, University of Texas Medical Branch - Galveston, presented 3 Jan 2022
- Roadmap to a more useful and usable electronic health record, John Windle MD, presented 13 Dec 2021

Article: Roadmap to a more useful and usable electronic health record, Cardiovascular Digital Health Journal, John R Windle MD FHRS, Thomas A Windle BA, Ketemwabi Y Shamavu MS, Quinn M Nelson MS, Martina A Clarke PhD, Ann L Fruhling PhD, James E Tchong MD, 2021
- Swedish Decision Support System for Pediatrics (ePed), Christiane Garnemark MD Phd, Per Nydert PhD, presented 15 Nov 2021
- Creating a Manageable Cockpit: A Shared Responsibility, Christine Sinsky MD, Vice President of Professional Satisfaction, American Medical Association, presented 20 Sep 2021
- HL7 Da Vinci FHIR Accelerator Project Update including Burden Reduction Initiatives, Viet Nguyen MD, presented 23 Aug 2021
- 25 x 5 Symposium to Reduce Documentation Burden by 75% by 2025 - Sarah Rossetti RN PhD, Columbia University Medical Center, presented 28 Jun 2021

Results: 25 x 5 Symposium Action Items, published August 2021 Summary Report: 25 x 5 Initiative to Reduce Documentation Burden on U.S. Clinicians by 75% by 2025, published Dec 2021
- Problem-based charting (PBC): why now is the time - Amber Sieja MD, Richard Altman MD, Heather Holmstrom MD, University of Colorado, presented 24 May 2021 (Presentation removed at Epic's request - 15 Mar 2023)
- Electronic Health Record Usability and Workload Changes over Time for Provider and Nursing Staff following Transition to New EHR, Karen Dunn Lopez PhD MPH RN, presented 26 Apr 2021
- Monitoring the user satisfaction of major EHR brands in Finland - 10 years of experience, Jarmo Reponen MD PhD, presented 12 April 2021
- Burden Reduction Opportunities in the World of US Core Data for Interoperability (USCDI)? Presentation for Discussion, Gary Dickinson, updated 26 Oct 2020
- Interoperability and Burden Reduction - Emerging Opportunities for Collaborative Care, Denise St Clair PhD, US Centers for Medicare and Medicaid Services, Office of Burden Reduction and Health Informatics, presented 21 Sep 2020
- Reducing Clinical Burden thru Knowledge Engineering - Curating Clinical Knowledge, Frank Opelka MD FACS, American College of Surgeons, presented 21 Sep 2020
- Problem Concept Maps: An Ontology to Facilitate Auto-Summarization of Electronic Health Information, Joel Buchanan MD, presented 21 Sep 2020
- The Problem-Oriented Health Record (POHR) and a Pathway to Reducing Clinician Burden (with Links), Lincoln Weed, Chris Weed, presented 17 Aug 2020
- The Problem-Oriented Health Record (POHR) and a Pathway to Reducing Clinician Burden (with Notes), Lincoln Weed, Chris Weed, presented 17 Aug 2020
- Payment Reform in the Era of Advanced Diagnostics, Artificial Intelligence and Machine Learning, James Sorace MD MS, presented 3 Aug 2020
- Examining the Health IT Vendor’s Perspective - Lessons learned as a physician working for a health IT vendor, Ryan Mullins MD CPE, presented 20 Jul 2020
- Data Quality and Clinician Burden - Overview, Examples, and Basic Recommendations, Reed Gelzer MD, presented 4 May and 1 Jun 2020
- Exploring FHIR to Reduce Burden for Quality Measurement, Floyd Eisenberg MD PhD, presented 20 Apr 2020
- Exploring FHIR to Reduce Burden for Quality Measurement - Survey Results, Floyd Eisenberg MD PhD, presented 20 Apr 2020
- Association between EHR Usability and Burnout, David Schlossman MD, presented 18 Nov 2019
- Increasing EHR System Usability Through Standards - As One Approach to Reducing Clinician Burden, David Schlossman MD, presented 7 Oct 2019
- Reducing Clinician Burden Project - New Directions in Alleviating Clinical Workflow and Documentation Burdens - Association of Medical Directors of Information Systems (AMDIS) Presentation, David Schlossman MD, presented 20 Jun 2019
- Update on HL7 EHR System Usability Functional Profile Project, HL7 Da Vinci Project, CMS Patients over Paperwork RFI, David Schlossman MD, presented 17 Jun 2019

HL7 RCB Project - Analysis, Derivations and Worksheets
• DRAFT Reducing Clinician Burden Analysis Worksheet, dated 11 Apr 2022
  All reference sources up through #135 have been reviewed and are incorporated in this version. See "References" Tab.
• Burden Impact Statement, updated 19 Mar 2021
  The HL7 Burden Impact Statement (BIS) targets HL7 Projects – to assess potential impact on clinician burden and identify possible benefits toward burden reduction. Intended for inclusion as part of HL7 Project Scope Statements (new projects) and within HL7 Standards and Implementation Guides. The BIS is a collaboration with, and has been endorsed upon submission by, the American Medical Association.
• UPDATED! DRAFT Requirements Statements Applicable to USCDI, Candidate Standards and Systems, Gary Dickinson, updated 28 Feb 2023
  These comments were submitted to the Sequoia Project, Data Usability Workgroup, as part of their consideration of characteristics/qualities of health data that make it usable - for particular end uses/end users (e.g., clinicians in clinical practice) and are derived from analysis of the RCB Project.
• UPDATED! DRAFT Requirements Statements Applicable to USCDI, Candidate Standards and Systems, Gary Dickinson, updated 28 Feb 2023
  Additional comments submitted to the Sequoia Project, Data Usability Workgroup. EXAMPLES of requirements statements that might be derived from Data Provenance Use Cases. This update reflects audit log detail consistent with ASTM E2147-18 - as required for ONC EHR/HIT system certification in Dec 2022.
  These comments were developed and submitted in response to the ONC Request for Comments - partially based on HL7 EHR Work Group/RCB Project Team analysis.
• DRAFT Reducing Clinician Burden - Cause Matrix, updated 12 Apr 2021
  This one page DRAFT outlines key causal factors for clinician burden and is offered for review and comment.
• Reducing Clinician Burden Comments on ISO DIS 27269 - International Patient Summary, dated 30 Mar 2020
  These comments on the DRAFT International Patient Summary were prepared in correspondence with findings of the HL7 RCB Project and clinician burdens associated with patient summary creation, exchange and use, particularly with regard to aspects of information overload, data integrity, patient/provider identity matching, preservation of clinical data context, reconciliation of medications, medication allergies, all allergies, problems/diagnoses and more.
• UPDATED! DRAFT Clinical Documentation - Collect, Share, Use - Information Flow and Lifecycle Example - including Intersections with Clinician Burden and Safety Concerns, updated 23 Feb 2023, .pdf version, .xlsx version (Command-Click to download directly)
  This worksheet shows a typical end-to-end information flow for clinical documentation, starting at the point of origination (authorship) of a health record entry - following with points of update, verification, attestation, exchange (transmit and receipt) - ending at the point where record entry content is accessed/used for subsequent patient care, interventions and decision making.
• UPDATED! DRAFT Clinical Documentation - Ensuring End-to-End Fidelity, dated 2 Apr 2023
  This graphic asks the question "How Might We Ensure End-to-End Fidelity as We Collect, Share and Use Clinical Documentation?", considering what the author sees/intends and how that corresponds to what the end user sees.
• UPDATED! DRAFT Clinical Documentation - Collect, Share, Use - Data Segmentation for Clinical Integrity, dated 2 Apr 2023
  This graphic shows a Clinical Documentation Instance and subsequent clinical and non-clinical flow based on its segments: provenance, clinical facts, findings and observations, order detail, prior authorization detail, billing/claims detail, quality/performance data, public health data, administrative data, finance/cost data, registry data... Each segment represents a purpose of collection and a corresponding purpose of use, based on stakeholder needs.
• UPDATED! "A Perspective on the History and Progression of EHR System Functionality Standards, Certification and Adoption", Gary Dickinson, updated 8 May 2023
  This document offers a timeline of HL7 and ISO TC215 EHR system functionality standards development activities from 2000 to the present.
• "Re-Envisioning HL7", Gary Dickinson, submitted 30 Nov 2020
  These comments were submitted to HL7 leadership as part of the ongoing effort to re-envision HL7 and are derived (in part) from analysis of the RCB Project.

HL7 RCB Project Project Team - Problem-Oriented Health Record (POHR)

The RCB Problem-Oriented Health Record Project Team has developed their initial standard - focused on functionality for Problem List Management - and addition work is underway. Co-Leads: Lincoln Weed JD (lidweed424@gmail.com), Charles Burger MD (CBurger710@gmail.com), Ryan McMullins MD, Joel Buchanan MD (j Buchanan@uwhealth.org)

See the POHR Meeting schedule above - goToMeeting link. If you have experience and/or an interest in this topic, please join us.

POHR is now an active HL7 Project with its own Confluence page. Please follow this link: Problem Oriented Health Record (POHR)

HL7 RCB Project Focus Team - Medication List Management and Reconciliation

The RCB Medication Reconciliation Burden Reduction Focus Team is underway. Co-Leads: Reed Gelzer MD (r.gelzer@trustworthyehr.com), James Tcheng MD (james.tcheng@duke.edu)

The Focus Team meets first Wednesday monthly at 5PM ET (US) using the Zoom Link noted above. If you are a clinician with medication reconciliation experience, please join us.

• Project Summary Statement (working document) - Conformant Reconciled Medication List (cRML) Initiative
• Convergence with other significant stakeholders (sub title) HL7 Pharma, NCPDP, Leap Frog(Med Rec Script)
• Overview DRAFT of Medication Reconciliation_Overview Draft of Derivatives v14 03 24 2022.docx (v18 on new location)
• Overview DRAFT of Medication Reconciliation_Overview Intro to Derivatives v12 03 12 2022 HIMSS Distribution.docx
• HIMSS Handout (excerpt from and adapted from full-text four page Overview Draft of Medication Reconciliation with Intro to Derivatives v11 03 12 22 HIMSS Handout One Page PDF.pdf) (historical artifacts)
• Include link to Lucid Software - Use Case spreadsheet link, v18 derivative, project summary, scenario
• Current Version of As-Is/To-Be Scenario with Burdens Reduction and Teams as of March 2022 - Scenario v31 As Is To Be March 2022 DRAFT Final.docx (Scenario current version)nc
• Medication List Management and Reconciliation Focus Team Update, Reed Gelzer MD, presented 1 Nov 2021
• Medication List Management and Reconciliation Focus Team Update, David Schlossman MD, presented 20 Sep 2021
• DRAFT Medication Reconciliation Burden Reduction Focus Team - Overview - Reed Gelzer MD PhD, updated 12 Apr 2021
• DRAFT Medication Reconciliation Use Case Scenario Worksheet, updated 3 Jun 2020
HL7 RCB Project Focus Team - Artificial Intelligence (AI)

Recently the HL7 EHR WG/Reducing Clinician Burden Project Team received several reports/presentations regarding the substantial potential of Artificial Intelligence/Machine Learning in burden reduction and would like to start a dialogue within the HL7 Community in this regard.

- How might we best assess this topic?
- What might we identify as drivers of our interest and potential outcomes/results of related endeavors?
- What standards development projects/products should be the first priority and most immediately advantageous/beneficial to the health /healthcare community?
- Who should be part of any AI/ML collaboration (both internal and external to HL7)?

Please follow this link for additional details: Artificial Intelligence (AI)

HL7 RCB Project - Reducing Burden - Success Stories

The HL7 EHR WG/Reducing Clinician Burden Project Team has invited a number of healthcare provider and other organizations to share their positive experience(s) in reducing clinician burden and burnout. Their success stories are outlined in the following presentations. Please contact the authors directly for further information on their projects. (Most represent work still in progress).

- DRAFT Reducing Clinician Burden - Success Story Template, updated 28 Jan 2019
- Duke University - Duke Heart Business Unit – Procedure Reporting, James E Tcheng MD FACCS FSCAI, 4 Feb 2019
- Duke University - Reducing Clinician Burden - Cardiovascular Procedure Reporting at Duke, James E Tcheng MD FACCS FSCAI, 18 Sep 2019 (Posted with Permission)
- University of Michigan - "Home for Dinner" - Reducing After Hours Documentation with Focused Training, Greta Branford MD, Marie Baldwin MSHROD, 28 Aug 2019 (Posted with Permission)
- National Health Service - Rotherham Foundation Trust (UK) - Benefits of SNOMED CT from a clinical perspective, The Rotherham experience, Monica Jones, 9 Apr 2019 (Posted with Permission)
- University of Pennsylvania - Getting Time Back in Your Day! Implementing a Multi-Faceted Approach to Optimizing Epic in the Ambulatory Setting, Jeff Tokaszewski MD, Carole Rosen, Shane Thomas, 15 Jul 2019 (Posted with Permission)
- American Hospital Association - Well-Being Playbook, A Guide for Hospital and Health System Leaders, May 2019
- American Hospital Association - Well-Being Playbook Presentation, Elisa Arepsacopochaga, 19 Aug 2019 (Posted with Permission)
- Stanford University/Stanford Health Care - Understanding the Impact of the EHR on Physician Burnout and Wellness, Christopher Sharp MD, Lindsay Stevens MD, 28 Aug 2019 (Posted with Permission)
- University of Colorado School of Medicine/UCHealth - SPRINT – An Organizational Strategy that Increases Satisfaction, Improves Teamwork and Reduces Burnout, Amber Sieja MD, 16 Dec 2019 (Posted with Permission)
- Addressing EHR-related burnout at the Centre for Addiction and Mental Health (CAMH), Toronto, Ontario, Canada, Gillian Strudwick RN PhD FAMA, Tania Tajiri MD CCFP FCFP DTMPH, Brian Lo MHI, 25 Jan 2021 (Posted with Permission)
- Intermountain Healthcare (Utah) - Reducing Clinician Documentation Burden - Nursing Documentation Optimization, Seraphine Kapsandoy PhD RN, Perry Gee PhD RN, 22 Mar 2021 (Posted with permission)
- University of Michigan Update - "Home for Dinner" - MiChart Boost, Greta Branford MD, 18 Oct 2021 (Posted with Permission)
- EHR Efficiency and Training (and Pandemic Impacts), Lindsay Stevens MD, Stanford University, presented 28 Mar 2022

NOTE that Dr Stevens has made this presentation available for for review and purposes of the HL7 EHR WG/RCB Team. Please do not reproduce or share without explicit permission.

HL7 EHR WG - Electronic Health Record System Functional Model (EHR-S FM)

- HL7 EHR-S FM Release 2.1
  Current HL7 EHR System Functional Model, balloted and published by HL7 in 2020; Anticipated adoption by ISO in 2022 as ISO/HL7 10781.
- NEW!! HL7 EHR System Usability Functional Profile Release 1, published 2 Jan 2023
- UPDATED!! EHR-S FM Based Functional Profiles, dated 8 May 2023
  Current Set of Functional Profiles (FPs), based on EHR-S FM (various releases), defined for specific requirements of care settings, services, specialties and other domains. These were developed by the HL7 EHR and other WGs. Additional FPs (not listed) have been developed by EHR system developers, healthcare providers, certification bodies, government agencies and others.
  UPDATED!! EHR-S FM Known National Initiatives, dated 8 May 2023
  National initiatives known to have used the EHR-S FM for EHR development programs, certification and accreditation purposes.

HL7 RCB Project - Our Conversations with US Centers for Medicare and Medicaid Services (CMS), Office of Burden Reduction and Health Informatics (OBRHI)

We are engaged in a continuing conversation with the US CMS OBRHI. Following are OBRHI presentations and teleconference recordings for your reference.

- Teleconference Recording, 24 May 2021
- Teleconference Transcript, Questions and Conversation with Alexandra Mugge, 24 May 2021
- Interoperability and Burden Reduction - Emerging Opportunities for Collaborative Care, Denise St Clair PhD, US Centers for Medicare and Medicaid Services, Office of Burden Reduction and Health Informatics, presented 21 Sep 2020
- Teleconference Recording, 21 Sep 2020

HL7 RCB Project - Reducing Clinician Burden "Comment Only" Ballot

This ballot closed on 14 September 2020.
HL7 RCB Project - White Paper

This White Paper has been released for Project Team review and comment.

- DRAFT Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow, David Schlossman MD PhD, Lisa Masson MD, James Tcheng MD, Luann Whittenburg RN PhD, Barry Newman MD, Gary Dickinson FHL7, released 1 Jun 2020

Burden Reduction (and other) Initiatives in Response to the 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, posted 22 Mar 2020
- (US Health Plan) Humana easing administrative, financial burdens on providers amid COVID-19 crisis, published 2 Apr 2020
- (US) CMS - COVID-19 Disaster Response Toolkit, posted 7 April 2020
- Logica COVID-19 Interoperability Project, posted 4 Apr 2020

"See What We Mean"

- "See What We Mean" Video Clips, developed by Medstar Health - National Center for Human Factors in Healthcare - EHR Safety and Usability Team

HL7 RCB Project - Survey and Responses

- RCB Project Survey and Responses, dated 19 Aug 2019
- "The Value Expression" Presentation to CMS, Frank Opelka MD, Medical Director, American College of Surgeons, Quality and Health Policy, published Jun 2019 (Posted with Permission)

HL7 RCB Project - Focus Team Drafts

- DRAFT Reducing Clinician Burden - New Approaches to Clinical Workflow, Clinical Documentation, and Electronic Health Record Usability, Clinical Workflow and Documentation Focus Team Report, David Schlossman MD, Lisa Masson MD, Leads, updated 8 May 2019
- DRAFT Team Outline - Clinical decision support, medical logic, artificial intelligence + Alerts, reminders, notifications, inbox management + Information overload - Jim McClay MD, Lead, updated 17 Jan 2019
- DRAFT Team Report - Clinical Workflow (Usability Focus) - David Schlossman MD, Lead, updated 21 Jan 2019
- DRAFT Team Outline - Legal aspects and risks - Barry Newman MD, updated 1 April 2019
- DRAFT Team Report - Lock-In, Data Liquidity and Switching Costs - Michael Brody DPM, Lead, updated 15 Dec 2018
- DRAFT Team Report - Data Quality - Reed Gelzer MD, Lead, updated 4 Mar 2019

US Office of National Coordinator for Health Information Technology (ONC)

- Response to ONC Request for Input on Health Interoperability Outcomes 2030, submitted 30 Jul 2021
  Many response items derived from RCB Analysis, particularly those focused on end-to-end fidelity of health record content (point of origination to each ultimate point of access/use), plus data quality and integrity issues.

ONC Strategy for Reducing Burden

- ONC Annual Meeting - Reducing Clinician Burden Session, 29 Mar 2021
- A Path Toward Further Clinical and Administrative Data Integration - Final Report of the Health Information Technology Advisory Committee's Intersection of Clinical and Administrative Data Task Force to the National Coordinator for Health Information Technology, published 17 Nov 2020
- ONC DRAFT Federal Health IT Strategic Plan, 2020-2025 - published 15 Jan 2020
- ONC FINAL "Strategy on Reducing Burden Relating to the Use of Health IT and EHRs", including Findings, Strategies and Recommendations, published 21 Feb 2020
- Summary of Public Comments on ONC DRAFT Strategy, published 26 Mar 2019
- HL7 Comments on ONC DRAFT Strategy, compiled by HL7 Policy Advisory Committee, submitted 28 Jan 2019
- CentriHealth Comments on ONC DRAFT Strategy, submitted 28 Jan 2019
- ONC/Urban Institute - Health Policy Center - DRAFT Electronic Health Record Reporting Program, published Jun 2020
**US National Academy of Medicine**

- **US National Academy of Medicine - Action Collaborative on Clinician Well-Being and Resilience**, recommended by Andrea Borondy Kitts, linked here 13 Feb 2023
- **US National Academy of Medicine - National Plan for Health Workforce Well-Being**, recommended by Andrea Borondy Kitts, linked here 13 Feb 2023
- **National Academy of Medicine - A Vision for a Person-Centered Health Information System**, Keith Horvath, Patricia Sengstack, Frank Opelka, Andrea Borondy Kitts, Peter Basch, David Hoyt, Alexander Ommaya, Pamela Cipriano, Kensaku Kawamoto, Harold L Paz, J Marc Overhage, published 1 Oct 2018

**US Department of Health and Human Services (HHS) Patients over Paperwork Initiative**

- **FINAL RULE - Medicare and Medicaid Programs; Regulatory Provisions To Promote Program Efficiency, Transparency, and Burden Reduction...**, 20 Sep 2019

**More RCB Perspectives and Resources**

- **Video - Professional Satisfaction – Saturday Night Belongs to Epic**, Christine Sinsky MD, VP/American Medical Association, posted 27 Jan 2016
- **Video - Creating Joy in Medical Practice - An Interview**, Christine Sinsky MD, VP/American Medical Association, posted 25 Jan 2018
- **Video - Strategies to Address Burnout Must be Practical and Local**, Christine Sinsky MD, VP/American Medical Association, posted 25 Jan 2018
- **Video - AMDIS/HIMSS Physician Executive Symposium - An Interview**, Christine Sinsky MD, VP/American Medical Association, posted 28 March 2018
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