

HL7 EHR WG – Reducing Clinician Burden Project – Progress Report

Updated 15 February 2021

- The RCB Project is a formal activity of the Health Level Seven (HL7) Electronic Health Record Work Group (EHR WG). The project is open and collaborative, includes a diverse array of contributors from the health/healthcare community – both US and International – and is not limited to HL7 members. Contributors represent a wide variety of training and backgrounds including front line clinicians, clinical informaticians, software developers, standards developers, and policy makers. (Note that there are also other HL7 activities focusing on burden reduction including several of those within the [Da Vinci FHIR Accelerator Project](#) which focuses on provider/payer communications.)
- Our initial goal has been 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 about 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 and medical records.
- For further information please reference the [RCB Project Website](#) and the [RCB Project Overview](#).

Following is a summary of RCB Project Team endeavors to date:

Target Audience	Description	Status
Recent Endeavors		
RCB Team	Considered a wide range of reference sources including trade publications, professional journals, articles, studies, personal experience and more.	Open to consider additional sources
RCB Team	Identified 37 topic areas of burden impact. See Appendix A.	Open to consider additional topics
RCB Team	Established Focus Groups to take a closer look at particular areas of burden impact. Each team is led by a clinician with front-line practice experience and has drafted a report and/or outline of their considerations.	Drafts for review/comment
All	Drafted a White Paper – “Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow” – Authored by David Schlossman MD PhD, with contributions from Lisa Masson MD, James Tchong MD, Luann Whittenburg RN PhD, Barry Newman MD, Frank Opelka MD, James Sorace MD and Gary Dickinson FHL7	Draft for review/comment

Target Audience	Description	Status
All	Received a wide range of Topical Presentations related to burden reduction from various organizations and individuals.	For reference, additional presentations anticipated
All	Reached out and received Success Story Presentations from a number of healthcare provider organizations – Duke University, Stanford University, University of Colorado, University of Michigan, University of Pennsylvania, UK National Health Service (Rotherham Foundation Trust), Centre for Addiction and Mental Health (Toronto) – and the American Hospital Association.	For reference, additional stories to come
All	Drafted a “ Perspective on the History and Progression of EHR System Functionality Standards, Certification and Adoption ”. Shows the chronological journey of EHR System Functionality Standards in HL7 and ISO from 2000 to present, noting how clinician involvement was key to early efforts and how that changed with advent of the HITECH Act as part of the American Recovery and Reinvestment Act and the multi-stage Meaningful Use and EHR Incentive Programs.	For reference
All	Developed and balloted EHR System Usability Functional Profile of ISO/HL7 10781 EHR System Functional Model. (This is part of the HL7 EHR Work Group Work Program.)	In final stages of publication
ISO TC215 WG1 – IPS Project Team	Developed a set of comments on ISO Draft International Standard 27269 - International Patient Summary (IPS) , derived from RCB analysis. These were submitted to the ISO TC215 WG1 IPS Project Team, via the US Technical Advisory Group (US TAG, ANSI Secretariat). Comments are focused on 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 content and related context, reconciliation of medications, medication allergies, all allergies, problems/diagnoses and more. IPS is a multi-part Standard with portions developed collaboratively by HL7, ISO TC215, the Committee for European Normalization Technical Committee 251 (CEN TC251 – Health Informatics) and SNOMED.	Some comments incorporated in current version, others to be considered in the next version
RCB Team	Drafted Discussion Graphic on Burden Causes , showing burden impacts & causes based on topic areas.	For reference; open to comment
RCB Team	Drafted Discussion Presentation on the US Core Data for Interoperability and its impact on clinician burden.	For reference; open to comment
RCB Team	Drafted Discussion Worksheet on Clinical Documentation – Collect, Share and Use – Information Flow and Lifecycle Example . This worksheet shows a typical example of end-to-end information flow of clinical documentation, starting at the point of origination of health record entry and ending at the point where record entry content is accessed/used for subsequent patient care, interventions and decision making.	For reference; open to comment
RCB Team	Drafted Discussion Graphic on Clinical Documentation – Ensuring End-to-End Fidelity . 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.	For reference; open to comment

Target Audience	Description	Status
RCB Team	Drafted Discussion Graphic on Clinical Documentation – Data Segmentation for Clinical Integrity . This paper shows a clinical documentation instance and subsequent clinical and non-clinical flow based on separate segments for: a) provenance, b) clinical facts, findings and observations, c) order detail, d) prior authorization detail, e) billing/claims detail, f) quality/performance data, g) public health data, h) administrative data, i) finance/cost data, j) registry data... Each segment represents a purpose of collection and a corresponding purpose of use, based on stakeholder needs.	For reference; open to comment
Sequoia Data Usability Work Group	Drafted Data Usability Characteristics/Qualities , derived from RCB analysis and submitted as part of an ongoing collaboration with the Sequoia Project, Data Usability Workgroup. These comments are focused on the characteristics (qualities) of health data that make it usable for particular end uses/end users (e.g., clinicians in clinical practice).	Submitted
HL7 International Members	Advanced Reducing Clinician Burden Ballot – to gain insights/input from the HL7 International Community on workable strategies for clinician burden reduction. Submitted comments .	Comments reviewed
Work in Progress		
All	Continuing development of a draft RCB Analysis Worksheet focused on 37 burden impact and topic areas. See Appendix B for an outline of worksheet content.	Draft in progress
All	Started development of a draft root cause analysis based on 37 burden impact and topic areas. See “Root Causes” tab in RCB Analysis Worksheet .	Draft in progress
All	Proposing an HL7 Burden Impact Statement targeting 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 the American Medical Association.	Draft in review
CMS OBRHI	Developing Medication List Management and Reconciliation Use Cases as part of a potential collaboration with the HHS Centers for Medicare and Medicaid Services, Office of Burden Reduction and Health Informatics (CMS OBRHI), focused on burden impacts and burden reduction opportunities.	In progress
ISO TC215 WG1	Collaborating with the International Standards Organization Technical Committee 215 (ISO TC215 – Health Informatics) Working Group 1 (Frameworks, Models and Architectures) to established a new work item – ISO 4419 on Reducing Clinician Burden. The deliverable is an informative technical report, based on work of the HL7 EHR WG RCB Project. Michael Glickman (US) is Chair of ISO TC215 and Björn-Erik Erlandsson (Sweden) is Convenor of ISO TC215 WG1. Both have been instrumental in promoting this work item in ISO TC215.	In progress
Future – Upcoming Efforts		
All	Propose a standing HL7 Clinician Burden Advisory Committee, comprised of practicing clinicians, who will meet regularly to assess new project proposals and offer burden reduction advice. The CBAC proposal is a collaboration with the American Medical Association.	Spring 2021

Target Audience	Description	Status
All	Update ISO/HL7 10781, Electronic Health Record System Functional Model (EHR-S FM), to Release 3. Emphasis on system usability, related conformance criteria and linking data requirements to HL7 FHIR implementation guides and resources. Is used as a guide for providers, system designers, developers and implementers, certification bodies and others.	Fall 2021
All	Update ISO/HL7 16527, Personal Health Record System Functional Model (PHR-S FM), to Release 3. (With similar emphasis as EHR-S FM R3.)	2022

Reducing Clinician Burden – Breaking It Down Topics/Categories

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|---|---|---|
| 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 = RCB Focus Teams Formed
Green = HL7 Da Vinci Accelerator Project

Appendix B – HL7 EHR Work Group – Reducing Clinician Burden Project – [RCB Analysis Worksheet](#) Outline

Tab by tab – from left to right:

1. Burden (Columns B-F)
 - B. Clinician Burden – Excerpts from reference sources and personal experience – organized by burden topic area (1-37)
 - 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)
 - 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 Burden Tab
4. Time Burden – Excerpts from reference sources and personal experience
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) (Columns A-D)
 - A. Topic
 - B. What's the Problem? Clinician Burden - requirements/obligations beyond essentials of safe and effective clinical practice
 - C. Why did it Happen?
 - D. 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