HL7 EHR WG – Reducing Clinician Burden Project – Conversation with the American Medical Association (AMA)
Predicated on comments received on the Reducing Clinician Burden Ballot and Conversation during the RCB Teleconference on 7 Dec 2020
Updated 25 January 2021

AMA Presenter: Laura Hoffman JD. AMA Representatives: Celine Lefevbre JD, Heather McComas, Matt Reid, Tyler Scheid

→ AMA questions: *What are the specific goals of this (RCB) effort? What is going to be communicated? To which stakeholders?*

- 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 concentrating 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.

For an example of what is to be communicated and to which stakeholders, please consider RCB Project Team endeavors to date (as follows):

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

Target Audience	Description	Status
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 Tcheng MD, Luann Whittenburg RN PhD, Barry Newman MD, Frank Opelka MD, James Sorace MD and Gary Dickinson FHL7	Draft for review/comment
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) – 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.	Draft for review/comment
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.)	Ready for publication
ISO TC215 WG1 – IPS Project Team	Developed a set of comments on ISO Draft International Standard 27269 - International Patient Summary, 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.	Submitted
RCB Team	Drafted Discussion Graphic on Burden Causes, showing burden impacts & causes based on topic areas.	Draft for review/comment
RCB Team	Drafted Discussion Presentation on the US Core Data for Interoperability and its impact on clinician burden.	Draft for review/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.	Draft for review/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.	Draft for review/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.	Draft for review/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 Leadership	Drafted Re-Envisioning HL7 Comments, derived the RCB analysis, and submitted to HL7 leadership as part of an ongoing effort to re-envision HL7 with regard to its mission, products, stakeholder focus, organizational structure and processes.	Submitted
Work in Progress		
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 under review
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
CMS OBRHI	Developing Medication List Management and Reconciliation Use Cases in conjunction with 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	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.	Underway in 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.)	Underway in 2022

→ AMA Question regarding the reach of Standards and Implementation Guides. *There may be some different needs – between developers of standards and Implementation Guides and the actual end user implementers. Do we want to have the developers and the standards writers think about a certain type of clinician burden or multiple types of clinician burden as they are actively developing the standards or is the goal more focused on the end-user and how to reduce burden in actual implementations or, or is it both?*

This is a key area for collaboration. Standards are directly considered (i.e., recognized, applied, referenced) by certain stakeholders. As we move from system design/development, conformance testing and certification, system procurement, system implementation/configuration, exchange implementation to the ultimate production end use, here's a (somewhat subjective) measure of the reach of standards...

Reach of Standards (Recognized, Applied and/or Referenced)	**System Functionality Standards** e.g., ISO/HL7 – EHR/PHR/HIT System Functional Models and Profiles	**Data/Record Exchange Standards** e.g., ISO/HL7 – FHIR resources, v2 messages, CDA documents...	**Vocabulary Standards** e.g., SNOMED, LOINC, ICD, CPT...
System design, development	Frequently	Frequently	Frequently
Conformance testing & certification	Frequently	Frequently	Frequently
System procurement	Frequently	Frequently	Frequently
System implementation & configuration	Frequently	Frequently	Frequently
Exchange implementation	Sometimes	Frequently	Frequently
End use/end users (e.g., clinicians)	Seldom	Seldom	Sometimes

So, the answer to the AMA's question is "both." We strongly support the idea that healthcare IT standards developers and writers should think about human factors, user experience, clinical workflow, and multiple types of clinician burden as they are actively developing standards. However, well designed standards are only an intermediate goal. The end goal of improving the lives of patients and clinicians will require that such standards influence software development to reduce burden in actual implementations, and we are working to accomplish this goal as well.

→ AMA Recommendation: *Establish a formal objective in the development of each Standard and Implementation Guide (IG) to assess potential impact on clinician burden and identify possible benefits toward burden reduction.*

- This is a key area for collaboration.
- We should develop a proposal to include a burden reduction section in the template for standards and IGs.
- This would ensure consistency and might be framed as a burden impact statement which could be highly structured, a checklist or maybe just a summary designed to: a) assess potential impact on clinician burden (time, cost, workflow, data capture); and b) identify possible burden reduction benefits (savings of time, cost, enhanced workflow, optimization of user interface, data capture, data retrieval).
- Keeping in mind that there may be different effects/impacts as standards and IGs are implemented across various practice settings, as is the case with small provider organizations versus their medium and large counterparts or academic versus community practice settings.
- Longer term strategy: Establish a formal testing mechanism to assess actual burden impact as the Standard or IG is deployed in implementation and ultimately in production environments.

A Burden Impact Statement has been drafted and is now available for review and comment.

→ AMA Recommendation: *Establish a standing Clinician Burden Advisory Committee, comprised of practicing clinicians, who will meet regularly to assess new project proposals and offer burden reduction advice.*

- This is a key area for collaboration.
- We should develop a proposal to establish this Committee – with an eye to optimize the time commitment for clinicians who volunteer to participate.
- The committee would be comprised of clinicians across all different private practice settings and sizes and specialties.
- This committee would meet on a regular basis to review and assess new projects and their burden impact statements – and include the project leads in the discussion.
- Materials would be forwarded in advance of each meeting – allowing ample time for pre-meeting review by the participants.

→ AMA Recommendation: *Don't attempt to boil the ocean, instead hone in on some specific use cases.*

- The RCB Project Team has drafted a white paper, several drill-down assessments on particular burden impact areas, a number of discussion papers, comments regarding specific projects, comments on HL7 forward strategies and more recently, use cases related to medication reconciliation. See the enumeration (and links) in the first table above. Several items have been shared outside the Project Team as noted: e.g., to ISO TC215, to the Sequoia Project, to HL7 leadership.
- We have gained substantial input from provider organizations who have found success in addressing clinician burden and burnout and we plan to harness their input as guidance to others.
- We are blessed by an enthusiastic group of volunteers who see burden reduction as a key objective for HL7, other SDOs and the industry at large. While this drives our effort, it also acts as a constraint as it is limited to the time, energy and specific interests of individuals.

We concur with the AMA's recommendations and hope this brief outline offers a perspective on what we've accomplished thus far. We welcome collaboration and coordination that will assist our efforts to be effective and impactful.

Reducing Clinician Burden – Breaking It Down
Topics/Categories

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

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