• 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), 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, policy makers and subject matter experts. (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.

• 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:

<table>
<thead>
<tr>
<th>Target Audience</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCB Team</td>
<td>Reviewed a wide range of reference sources including trade publications, professional journals, articles, studies, personal experience and more.</td>
<td>Open to consider additional sources</td>
</tr>
<tr>
<td>RCB Team</td>
<td>Identified 37 topic areas of burden impact. See Annex A.</td>
<td>Open to consider additional topics</td>
</tr>
<tr>
<td>RCB Team</td>
<td>Established Focus Teams 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.</td>
<td>Open for review/comment</td>
</tr>
<tr>
<td>All</td>
<td>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</td>
<td>Update underway in collaboration with ISO TC215 (ISO 4419)</td>
</tr>
</tbody>
</table>
## Received a wide range of Topical Presentations related to burden reduction from various organizations and individuals, including:

- American College of Surgeons
- American Hospital Association
- American Medical Association
- American Medical Informatics Association
- US Office of National Coordinator for Health Information Technology
- US Office of Surgeon General
- US Centers for Medicare/Medicaid Services, Office of Burden Reduction and Health Informatics
- US National Institutes of Health
- US Department of Defense
- US Veterans Health Administration
- Columbia University Medical Center
- Duke University
- Dartmouth University
- University of Colorado
- University of Iowa
- University of Nebraska
- University of Oulu, Finland
- University of Texas
- University of Virginia
- University of Wisconsin
- Vanderbilt University
- Mayo Clinic Platform
- Massachusetts Institute of Technology + Beth Israel Deaconess Medical Center/Leahy Health
- New York Academy of Medicine
- HL7 Da Vinci Project, focused on Provider/Payer Information Exchange
- HL7 Clinical Quality Information Work Group
- HL7 Devices Work Group
- HL7/ISO TC215/CEN TC251/SNOMED/IHE International Patient Summary Project
- Sequoia Project, Data Usability Work Group
- and others...

## Reached out and received Success Story Presentations from a number of healthcare provider organizations –

- Duke University
- Intermountain Healthcare (Utah)
- Stanford University
- University of Colorado
- University of Iowa
- University of Michigan
- University of Pennsylvania
- UK National Health Service (Rotherham Foundation Trust, England)
- Centre for Addiction and Mental Health (Toronto, Ontario, Canada)

## Developed 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 US HITECH Act as part of the American Recovery and Reinvestment Act and the multi-stage US Meaningful Use and EHR Incentive Programs.

## Developed and balloted HL7 EHR System Usability Functional Profile (UFP) based on ISO/HL7 10781 EHR System Functional Model Release 2.1. (The UFP Project is part of the HL7 EHR Work Group Work Program.)

For reference, additional presentations planned

For reference, additional success stories anticipated

For reference

Published
<table>
<thead>
<tr>
<th>Cross SDO IPS Group: ISO TC215/WG1, HL7, SNOMED, IHE</th>
<th>Developed a set of <a href="https://www.iso.org/obp/ui/#iso:std:iso:27269:ed-1:v1:en">comments on ISO Draft International Standard 27269 - International Patient Summary</a> (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), Systemized Nomenclature for Medicine (SNOMED) and Integrating the Healthcare Enterprise (IHE).</th>
<th>Submitted to xSDO IPS Group; Comments under review</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Developed <a href="#">Discussion Graphic on Burden Causes</a>, showing burden impacts &amp; causes based on topic areas.</td>
<td>For reference; open to comment</td>
</tr>
<tr>
<td>All</td>
<td>Developed <a href="#">Discussion Presentation on the US Core Data for Interoperability</a> and its impact on clinician burden.</td>
<td>For reference; open to comment</td>
</tr>
<tr>
<td>All</td>
<td>Developed <a href="#">Discussion Worksheet on Clinical Documentation</a> – 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.</td>
<td>For reference; open to comment</td>
</tr>
<tr>
<td>All</td>
<td>Developed <a href="#">Discussion Graphic on Clinical Documentation – Ensuring End-to-End Fidelity</a>. This graphic asks the question &quot;How Might We Ensure End-to-End Fidelity as We Collect, Share and Use Clinical Documentation?&quot;, considering what the author (clinician) sees/intends and how that corresponds to what the end user (clinician) sees.</td>
<td>For reference; open to comment</td>
</tr>
<tr>
<td>All</td>
<td>Developed <a href="#">Discussion Graphic on Clinical Documentation – Data Segmentation for Clinical Integrity</a>. This graphic 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.</td>
<td>For reference; open to comment</td>
</tr>
<tr>
<td>All</td>
<td>Drafted <a href="#">Data Usability Characteristics/Qualities</a>, derived from RCB analysis and submitted as part of an ongoing collaboration with the <a href="#">Sequoia Project, Data Usability Workgroup</a>. These comments are focused on the characteristics (qualities) of health data that make it usable for particular end uses/end users (in particular, clinicians in clinical practice).</td>
<td>Submitted; Comments under consideration</td>
</tr>
<tr>
<td>All</td>
<td>Developed and circulated HL7 <a href="#">Reducing Clinician Burden Ballot</a> – to gain insights/input from the HL7 International Community on workable strategies for clinician burden reduction. <a href="#">Ballot comments</a> received from a number of organizations – US and international.</td>
<td>Ballot complete and comments reviewed</td>
</tr>
<tr>
<td>All</td>
<td>Proposed an HL7 <a href="#">Burden Impact Statement</a> (BIS) 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 was developed collaboration with, and was endorsed upon submission by, the American Medical Association.</td>
<td>Submitted to HL7 leadership; Have commitment to implement</td>
</tr>
<tr>
<td>All</td>
<td>Developed HL7 Confluence Page on <a href="#">How to Get Involved and Contribute</a> to Burden Reduction Activities, within and beyond HL7</td>
<td>Published</td>
</tr>
</tbody>
</table>
### 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. | In progress |
| All | Initiated development of a draft root cause analysis based on 37 burden impact and topic areas. See “Root Causes” tab in [RCB Analysis Worksheet](#). | In progress |
| All | Established HL7 Problem-Oriented Health Record Project Team, focused on establishing a common organizing approach for EHR and PHR records, along with burden reduction opportunities. Collaborators include the University of Colorado, University of Wisconsin, the Weed Group (sons and associates of the late Larry Weed, father of the POHR, SOAP notes, Problem-Knowledge Couplers) and others. | Initial Deliverable Ready to Publish – Additional work in progress |
| All | Established HL7 Medication List Management and Reconciliation Focus Team, concentrating on burden impacts and burden reduction opportunities. Collaborators include the University of Alabama/Birmingham, Duke University, University of Nebraska, Cedars-Sinai Medical Center, National Council for Prescription Drug Programs (NCPDP), the HL7 Pharmacy Work Group and others. | In progress |
| All | Established HL7 Artificial Intelligence Focus Team, concentrating on vital AI topics that promote burden reduction for clinicians. | In progress |
| All | Established HL7 AI Data Lifecycle Project, focused on standards supporting AI trustworthiness, transparency and traceability. | Initial deliverable in development |
| ISO TC215 WG1 | Collaborating with the International Standards Organization Technical Committee 215 (ISO TC215 – Health Informatics) to engages 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 Team. | In progress |
| All | Participating in the National Burden Reduction Collaborative, sponsored by Association of Medical Directors of Information Systems (AMDIS), American Medical Informatics Association (AMIA), American Medical Association (AMA) and the Alliance for Nursing Informatics (ANI). Others invited: American College of Medical Informatics (ACMI), Arch Collaborative, Center for Medicare & Medicaid Innovation (CMMI), CMS Office of Burden Reduction and Health Informatics (OBRIH), HL7 DaVinci Project, Electronic Health Records Associations (EHRA), Healthcare Information Systems Society (HIMSS) Burden Reduction Task Force, National Library of Medicine (NLM), Office of the National Coordinator (ONC), Office of the Surgeon General (OSG) | 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 resources, profiles and implementation guides. The EHR-S FM is used as a guide for providers, system designers, developers and implementers, regulators, certification bodies, procurement agencies and others. | 2024-2025 |
| 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.) | 2025-2026 |
### Meeting Schedule with Access Links

| All | Reducing Clinician Burden Project – 2nd and 4th Mondays each month, 3-4PM US ET | https://global.gotomeeting.com/join/798931918 | Ongoing |
| All | RCB Project Team on Problem-Oriented Health Record – 1st and 3rd Mondays each month, 3-4PM US ET | https://global.gotomeeting.com/join/798931918 | Ongoing |
| All | RCB Focus Team on Artificial Intelligence – 4th Tuesdays each month, 4-5PM US ET | https://global.gotomeeting.com/join/798931918 | Ongoing |
| All | RCB Focus Team on Medication List Management and Reconciliation – 1st Wednesday each month, 5-6PM US ET | https://unmc.zoom.us/j/99555910370?pwd=cjl5WEJ1Z1IkVXBtaVFLOkRrSWJWdz09 | Ongoing |
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