ISO/TC 215/WG 1
ISO/AWI TR 4419 Health Informatics
Reducing Clinician Burden (RCB)

36th Annual HL7 Plenary and Working Group Meeting
September 19, 2022

Gary Dickinson, FHL7, Co-Chair HL7 EHR Work Group
Co-Facilitator HL7 RCB Project

David Schlossman, MD, PhD, FACP, MSMI, CPHIMS
Co-Facilitator HL7 RCB Project
ARRA, HITECH, and Meaningful Use

I'm gonna make him an offer he can't refuse.
Broken Promises of Healthcare IT

- Modest improvement in process metrics
- No change in large scale health outcomes
- Continued rise in healthcare costs

1. Decreased clinician efficiency due to
   a. Required nonclinical activities
   b. Unnecessary alerts and reminders and low value CDS
   c. Data obfuscation, obscure navigation, and redundant notes

2. Disconnect from patients and burnout
Underlying Clinical Practice Stressors

Death By 1,000 Clicks: Where Electronic Health Records Went Wrong

Stanford’s Lloyd Minor: EHRs need a ‘major revamp’ to solve physician burnout

These doctors think electronic health records are hurting their relationships with patients
What is Clinician Burden?

- **Clinician**: A health professional whose practice is based on direct observation and treatment of patients

- **Burden**
  - Increased stress
  - Increased physical workload
  - Increased cognitive workload
  - Unproductive time requirements
  - Decreased Efficiency
  - Decreased patient connection
Clinician Burnout

Burnout is a syndrome characterized by

- Emotional exhaustion
- Feelings of cynicism and detachment from work
- Sense of low personal accomplishment

- 54% of US physicians report at least one symptom of burnout (twice the rate of the general population)
- 70% of US physicians report symptoms of health IT-related stress
- Average cost of replacing a physician who leaves due to burnout = $500 thousand – 1 million
- Annual US healthcare costs attributable to physician burnout = $2.6 – 6.3 billion

These Problems Are Contemporary and International

**Perspective**

**Do electronic health record systems “dumb down” clinicians?**

Genevieve B. Melton, James J. Cimino, Christoph U. Lehman, Patricia R. Sengstack, Joshua C. Smith, William M. Tierney, and Randolph A. Miller

**Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis**

Alexander Hodkinson, Anli Zhou, Judith Johnson, Keith Geraghty, Ruth Riley, Andrew Zhou, Eftharis Panagopoulou, Carolyn A Chew-Graham, David Peters, Aneeza Esmail, Maria Panagioti
The impact of healthcare IT on clinician workflows and well-being and on patient experience has become a matter of great national and international concern.

In the US, many national organizations have initiatives around mitigating the burden on clinicians using healthcare IT. These efforts have great potential to improve not just clinician satisfaction, but also care quality and the patient experience.

These efforts occur in silos without national or international cross-organizational alignment and have had limited effectiveness.
Reducing Clinician Burden (RCB) Project

- Physicians
- Nurses
- Clinical informaticians
- Software developers
- Standards developers
- EHR implementers
- Academicians
- Policymakers
ISO/TC 215 agrees to circulate ISO/AWI TR 4419 Health informatics — Reducing clinicians burden for comment and requests the committee manager to issue a call for experts for the project by 25 February 2022. In addition, TC 215 agrees to retract resolution 2021-43 (agreement to circulate for DTR ballot).

Thanks to:
- Gary Dickinson
- Dr. Björn-Erik Erlandson
- Rachel Hawthorne
Call for Comments and Experts

Result of voting

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ISO Volunteers
- Peter Williams (Australia)
- Dr. Alpo Värri (Finland)
- Dr. S. B. Bhattacharyya (India)
- Anders Thurin (Sweden)
- John Greaves (United States)
- Dr. Randeep Singh (India)
- Dr. Linn Brandt (Norway)
- Dr. Bente Christensen (Norway)

Contributors to HL7 White Paper (All US)
- Dr. Barry Newman
- Dr. Lisa Masson
- Dr. Jimmy Cheng
- Dr. LuAnn Whittenburg
- Gary Dickinson
• Utilize well established human factors and usability principles to
  • Suggest disruptive innovations in EHR design
  • Improve EHR efficiency and usability
  • Reduce clinician burden
• Revise a draft HL7 white paper into an ISO technical report
• Develop standards to measure whether EHRs conform to user-centered design principles
• Engage with software developers and regulators to measure and prioritize EHR usability and mitigate current problems
Reducing Clinician Burden by Improving Electronic Health Record Usability and Support for Clinical Workflow

HL7 Reducing Clinician Burden Project
Gary Dickinson, FHL7 and David Schlossman, MD, PhD Co-Facilitators

Clinical Workflow and Documentation Focus Team
David Schlossman, MD, PhD, Lead
Lisa Masson, MD
James Tcheng, MD
Luann Whittenburg, RN, PhD
Barry Newman, MD
Gary Dickinson, FHL7

Reducing Clinician Burden Project: Outline of Example Topics

Healthcare quality and safety are emergent properties which arise from a sociotechnical healthcare system comprised of interactions among five domains including people, processes, technology, organizations, and an external social and regulatory environment. In the rush to qualify for incentives and/or meet legal regulations, current healthcare IT systems were hastily implemented based on the paradigms and design models available at the time. Doing so failed to achieve a proper balance between clinicians and the regulatory environment (Social Dimension of clinician burden) and between clinicians and the technology (Technical Dimension of clinician burden).

I. Social Dimension

A. Non-clinical Documentation Requirements: Health IT systems frequently require clinicians to enter and curate significant amounts of data which is not directly related to clinical care processes (e.g., financial authorization (in the US), quality improvement, regulatory compliance, converting free text to structured data). Although important and well meaning, such programs increase cognitive load, intrude on the limited time clinicians have with each patient, and decrease efficiency.

1) Possible Solutions to Investigate: Simplify, harmonize, and automate all data entry requirements not directly related to patient management and care team communication. Require EHRs, as a condition of certification, to record,
Social Dimension (Regulatory and Policy)

- Non-clinical documentation requirements
  - Simplify, harmonize, automate, delegate

- Ineffective regulation of EHR software developers
  - Reproducible measures of EHR usability based on plausible use case scenarios
  - Documented user-centered design processes
  - National and international usability and safety databases

- Unrealistic expectations of clinician performance
  - Improved location-specific clinician training and clinician wellness programs
  - Increased configuration flexibility
  - New productivity metrics that reflect the real workload demands of clinical practice
Technical Dimension

- Inadequate interoperability
  - Use of NLP and AI to convert clinical data to structured form automatically
  - Stronger incentives for use of standard interoperability protocols (e.g., SMART on FHIR)

- Oversimplified algorithmic EHR designs
  - Re-envision EHRs as platforms to manage and communicate with the database
  - Uncouple the database from the UI
  - Robust APIs which enable innovative, pluggable apps to provide best of breed UI and workflow tools directed at specific user contexts

- Lack of context specific information preprocessing
  - AI enabled voice interfaces which can parse topics during the visit
  - Present just the right data to support clinical understanding exactly when it is needed
  - Semantic links to relevant literature to provide evidence based suggestions
Support disruptive innovation in healthcare information technology through standards and research
Comments and Questions?

Gary Dickinson FHL7, Co-Chair EHR WG
EHR Standards Consulting
gary.dickinson@ehr-standards.com

David Schlossman MD PhD FACP MSMI
MedInfoDoc LLC
dschloss39@gmail.com