LAIKA: An Open Source Electronic Health Record Testing Framework

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Problem

- **United States adoption of Electronic Health Records (EHRs) is poor among developed countries***
  - **Netherlands—98% adoption**
  - **United Kingdom—89% adoption**
  - **Australia—79% adoption**
  - **United States—28% adoption**
- **Data interoperability with current EHR systems in use range from limited to none and is a barrier to broader U.S. adoption**

***http://www.commonwealthfund.org/usr_doc/Press_Release3.pdf?section=4056**

Background

- Accelerating the adoption of interoperable EHRs is in the national interest of the United States, highlighted by President Bush's 2004 goal that "every American should have an electronic health record by 2014" *

- Certification Commission for Healthcare Information Technology (CCHIT) is the sole body recognized by U.S. Health and Human Services for EHR system certification

- In the fall of 2007, MITRE and CCHIT agreed to a partnership to create LAIKA—an open source EHR testing framework

*http://www.nytimes.com/2007/02/18/washington/18health.html?fta=y

Objectives

- **Lead the design and development of an open source EHR interoperability testing tool, LAIKA**
- **Provide the LAIKA software and source code for the 2008 CCHIT certification process of U.S. Electronic Health Record systems**
- **Grow an open source community, including government, industry, and academia dedicated to open source Healthcare Information Technology (HIT) tools**

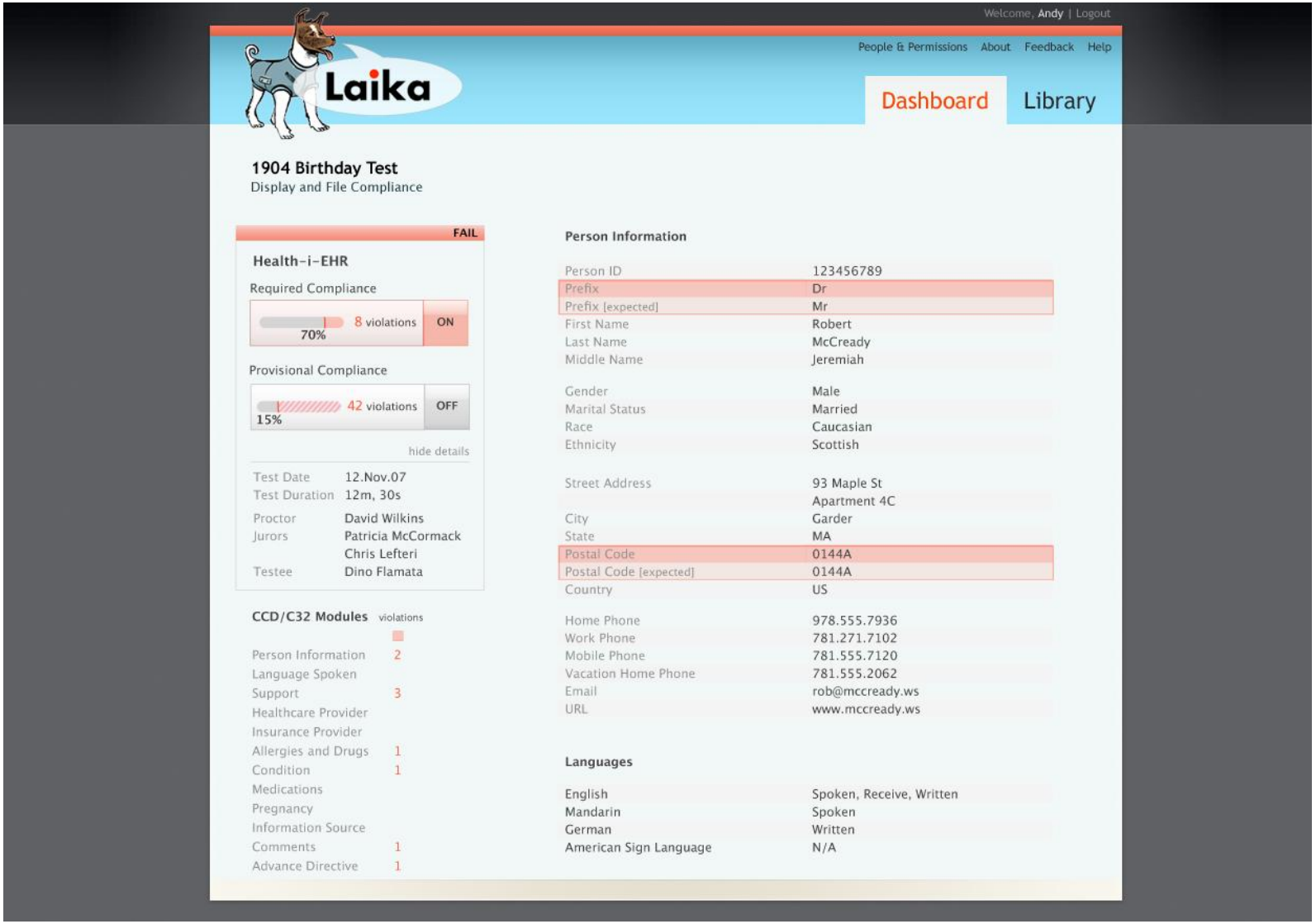
Activities

- Authored memorandum of understanding between MITRE and CCHIT
- Established open source project website http://projectlaika.org
- Attended 2008 IHE Connectathon conference with the majority of the United States EHR vendor market
- Presented LAIKA at the 2008 Healthcare Information and Management Systems Society (HIMSS) conference

Highlights

- LAIKA v1.0 released to the general public in March 2008
- Supporting interoperability testing for HL7's Continuity of Care Document (CCD) using HITSP's C32 specification
- Initiated discussions among MITRE, CCHIT, Integrating the Healthcare Enterprise (IHE), and the National Institute of Standards and Technology (NIST) to design a plug-in architecture for HIT testing tools

Demonstration

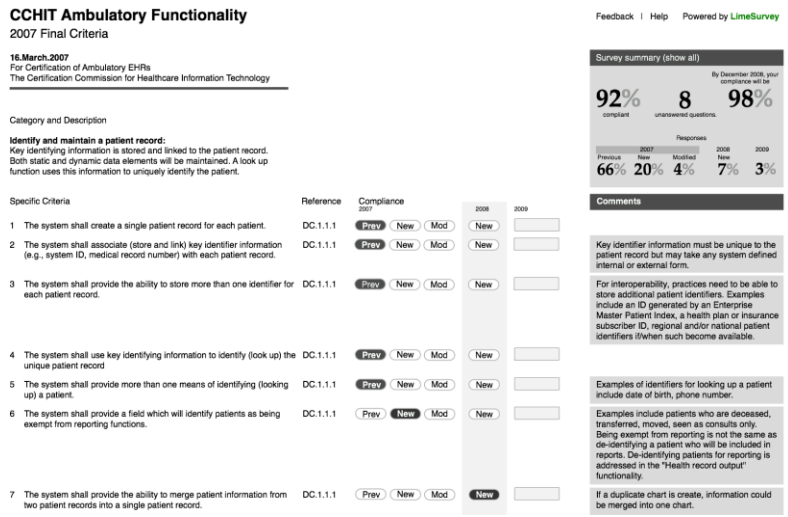


Impacts

- **LAIKA will be used by CCHIT to certify U.S. EHR systems for interoperability starting in July 2008**
- **IHE planning on using LAIKA at the 2009 Connectathon for interoperability testing of numerous EHR systems**
- **Demonstrating a new approach for MITRE to transfer knowledge by leading <u>active</u> open source projects**

Future Plans

- Expanding the users, contributors, and governance of LAIKA to include other organizations from government, industry, and academia
- Designing enhancements to LAIKA to eliminate paper from the 2009 certification process with the open source Lime Survey project
- Investigating the mobile platform to augment data collection



CCHIT Ambulatory Functionality
2007 Final Criteria

16.March.2007
For Certification of Ambulatory EHRs
The Certification Commission for Healthcare Information Technology

Category and Description

Identify and maintain a patient record:
Key identifying information is stored and linked to the patient record. Both static and dynamic data elements will be maintained. A look up function uses this information to uniquely identify the patient.

Feedback | Help Powered by LimeSurvey

Survey summary (show all)

By December 2008, your compliance will be 98%

92% compliant | 8 unanswered questions.

Responses

Previous	2007 New	2007 Modified	2008 New	2009
66%	20%	4%	7%	3%

Specific Criteria	Reference	Compliance 2007	2008	2009	Comments
1 The system shall create a single patient record for each patient.	DC.1.1.1	Prev New Mod	New		
2 The system shall associate (store and link) key identifier information (e.g., system ID, medical record number) with each patient record.	DC.1.1.1	Prev New Mod	New		Key identifier information must be unique to the patient record but may take any system defined internal or external form.
3 The system shall provide the ability to store more than one identifier for each patient record.	DC.1.1.1	Prev New Mod	New		For interoperability, practices need to be able to store additional patient identifiers. Examples include an ID generated by an Enterprise Master Patient Index, a health plan or insurance subscriber ID, regional and/or national patient identifiers if/when such become available.
4 The system shall use key identifying information to identify (look up) the unique patient record	DC.1.1.1	Prev New Mod	New		
5 The system shall provide more than one means of identifying (looking up) a patient.	DC.1.1.1	Prev New Mod	New		Examples of identifiers for looking up a patient include date of birth, phone number.
6 The system shall provide a field which will identify patients as being exempt from reporting functions.	DC.1.1.1	Prev New Mod	New		Examples include patients who are deceased, transferred, moved, seen as consults only. Being exempt from reporting is not the same as de-identifying a patient who will be included in reports. De-identifying patients for reporting is addressed in the "Health record output" functionality.
7 The system shall provide the ability to merge patient information from two patient records into a single patient record.	DC.1.1.1	Prev New Mod	New		If a duplicate chart is create, information could be merged into one chart.