

Advanced Auditing Electronic Medical Record Access Logs

Requirements & Design

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Introduction

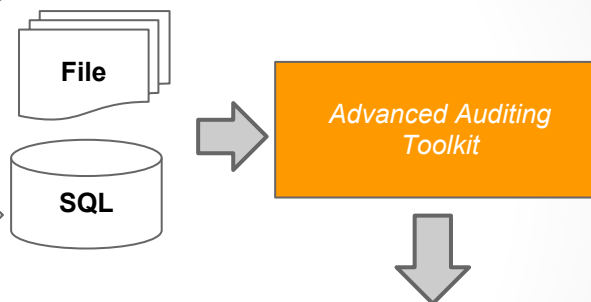
- Legislation has proposed auditing of electronic medical records
- Most of the available tools are limited in their scope: based on simple rules & well known abuses

Our Goal

- Support advanced auditing techniques
- Build an extensible auditing toolkit EMR access logs
- Integrate the emerging class of auditing methods like Community Anomaly Detection System (CADS); Social Networking Anomaly Detection (SNAD); and Interactive Network Policy Learning (INPL)

Challenge

- Account for various stakeholders
- Build a cohesive solution with heterogeneous systems
 - Data access integration & abstraction
 - Communication protocols
- Addressing big data in a viable and cohesive solution



Auditing Models Classification:

- Real-time auditing models (SNAD) used mainly by patients
- Big data auditing models (CADS, INPL) are used by health-care organization officers and analysts

Contributions

- Simplification of development, presentation and interpretation of access logs in an EMR system.
- Build an extensible platform for EMR logs that supports advanced auditing methods

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 - R01-LM010207
- National Science Foundation
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This block contains three screenshots of the 'Advanced Auditing Toolkit' interface.

1. **Officer's View (HCO Privacy Office):** A desktop screenshot showing a 'High level overview' bubble chart with 'Patient Access' on the y-axis and 'Confidence Scores' on the x-axis. The chart shows several blue bubbles of varying sizes.

2. **Patient's View:** A smartphone screenshot showing a 'Medical Access Report' with a list of items and a 'Patient Anomaly Detection Portal' header.

3. **Officer's View (HCO Privacy Office):** A desktop screenshot showing a 'Medical Oncology' dashboard with a bar chart titled 'Top 5 Events with Highest Confidence' and a table of data below it. The table has columns for 'Name', 'Event', 'HCO', 'View', 'Msg', and 'Log'.