How Secure Is Your Electronic Health Record System?

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Introduction



- The American Reinvestment and recovery Act provides \$34 billion to incentivize the adoption of an electronic health record systems within the next few years, and establishes financial penalties for providers that fail to use <u>certified</u> electronic health record system by January 1st, 2014.
- Certification Commission for Health Information Technology (CCHIT) is a well known certification body and it has been certifying electronic health record systems since 2006.

Consider...

- Security is a crucial aspect of healthcare IT due to HIPAA, and the cost of intrusions.
- CCHIT and NIST would be ineffective and detecting common security vulnerabilities or design flaws.
- Law does not hold software vendors responsible for infringements on the privacy contained within their

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What Can Doctors Do?

- Ask vendors security questions
- Communicate with the certification organizations
- Find and report bugs

Our Study

- We performed exploratory security analysis on a proprietary and an open source EHR.
- We were able to exploit a range of common codelevel and design level vulnerabilities including exposing all users' login information, the ability of any user to view or edit health records, denial of service for all users.



Doctor Interviews

Characteristics	Practice 1	Practice 2	Practice 3
# Providers specialty: Internal (IM) /Family Medicine (FM)	Large (2 7 physicians) FM/IM	Medium (4-6 physicians) FM	Solo** FM
IT staff dependence on vendors	None. Considers Certification Commission for Health Information Technology (CCHIT*) as marketing tools.	Relies on vendors for security work	Bases security decisions and work on HIPPA rules. Vendor builds interfaces
IT staff security work	Created additional security to EHR system due to "fat file" structure of EHR. Uses alerting system to notify IT staff about concerning "fils" to their EHR system. Limits patient record viewing rights by staff role and audits viewing.	Has ability to run chart viewing audits by staff role, but does not.	 Uses alerting system to notify IT staff about concerning 'hits' to their EHR system. Limits pt, record viewing rights by staff role and audits viewing ONLY when responding to pt. compliant.
IT Challenges (non- security related)	Concerned that less resourced practices will not be able to afford a system as robust as theirs(Estimated that a new system would cost 500,000 per provider	How to deal with the advent of "meaningful use".	Overseas telephonic help deak support staff unfamiliar with medical office practice. Lack of method to transfer old electronic patient data to new electronic systems.
Security concerns and how these limit practice efforts in expanding electronic tools.	- Use of non-secure e-mail communications to provides and patients from referral physicians. - Release of patient records electronically (CD's in lieu of paper records; unsure of regulations). - Pathologistytology service's reliance on using full SS# for LD. - Security concerns imiting enthusiaem for patient portals and apopintment scheduling.	 Concerned about lab company's requirement of pt. SS# for patient-lab data matching process). 	Security concerns limiting enthusiasm for patient portals.
Electronic connectivity desires for hospital system data base better i security consultant workforce for electronic referral processes 7) H office 10) Link to hospital medical	the near future (combined comments): 1) Link w dentify current patient-provider dyads 3) Be able medical providers 5) Integrate siloed systems wh ave secure practice-patient e-mail system 8) Hav recordiabimaging data 11) Have all of the differ	ith patient electronic records from lo to provide patients with electronic d le simultaneously creating better int e state vaccine registry integration 5 ent electronic health data systems in	ng term care facilities 2) Have local ata (i.e. jump drives) 4) Have IT egrated models 6) Have a standard I) Have patient portals or klosks in their region communicate.

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