

Analyzing Medical Communication Apps

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1 Abstract

mHealth (mobile health) is the technological linkage between patient and doctor supported by mobile phones. Leveraging dependency on mobile phones, the healthcare services such as remote patient monitoring, diagnosis support, delivery of healthcare information to patients and post-visit patient surveillance, are provided via smart phone apps. These applications claim to provide secure communication and enforce data security standards regulated by HIPAA and FDA. In this paper, we evaluate these claims and perform the in-depth measurement analysis of security mechanisms by reverse engineering the mHealth apps. We use a combination of automated and manual teardown techniques on a set of 20 Android mHealth apps. The findings include various security vulnerabilities in data encryption methods and communication channels even after satisfying HIPAA guidelines. Finally, we discover the loopholes in the security standards and policies which make the foundation of customers' trust on these HIPPA complaint apps.