

## ***What is PatientTruth<sup>TM</sup> solving for?***

### *The Medical Record Sharing Issue*

While the US Department of Health and Human Services Centers for Medicare and Medicaid Services (CMS) Meaningful Use incentives drove 95% of the hospitals in the US to adopt Electronic Medical Records over the past 10 years, it was not designed to drive interoperability and sharing of medical records. As a consequence, current methods for sharing and distributing patient medical data from one provider to the other are inefficient and costly to implement, and crucial medical records fail to be properly distributed to each segment of a patient's treatment pathway.

This distribution failure causes poor clinical outcomes, increased healthcare costs and potentially poses safety risks. As an example, a US study in colon cancer treatment found that better sharing of medical data could lead to cost savings of approximately 30% (Study from Hoverman Jr., Cartwright TH, Patt DA: *Pathways, Outcomes and Costs in Colon Cancer*, 2011). Similarly, a recent French study from the Caisse Nationale d'Assurance Maladie, the national healthcare payer, disclosed that 128,000 hospitalizations in France are caused each year by drug interaction effects, hospitalizations that can be mitigated or prevented entirely by the proper access and distribution of the patient's medical records.

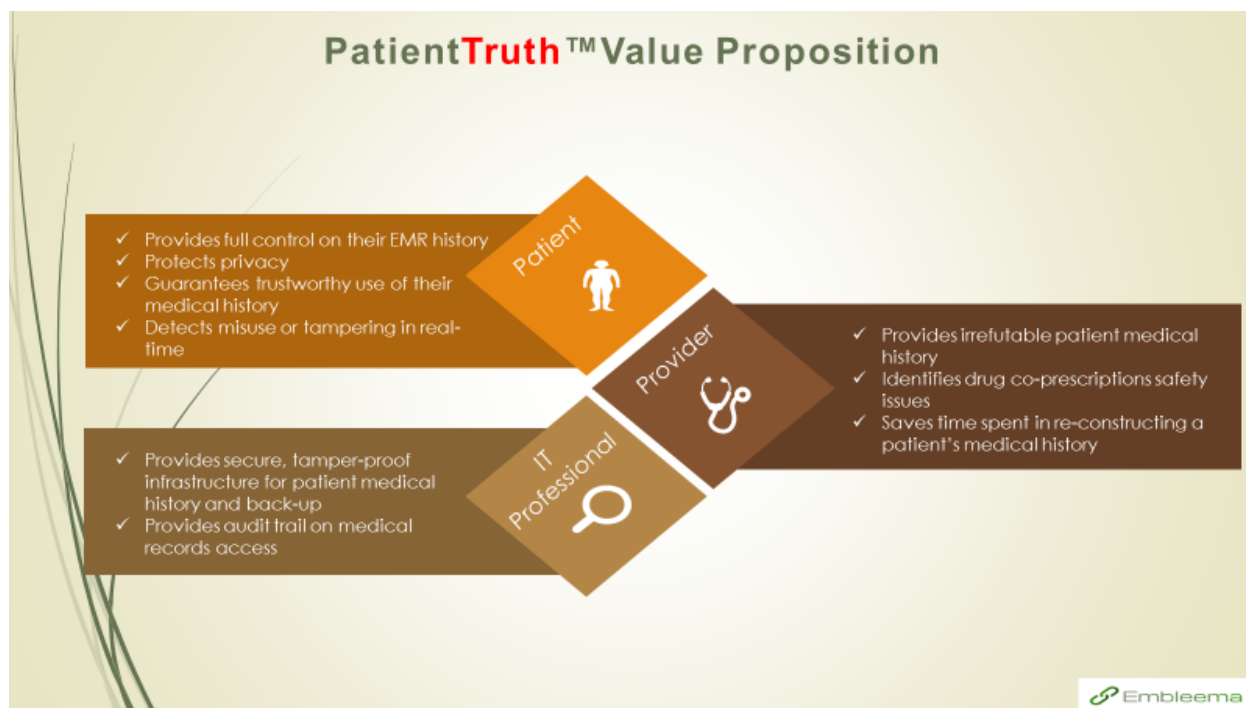
### *The Cyber-Security Issue*

The Office of Civil Rights of the US Department of Health and Human Services reported that more than 15,500,000 Electronic Medical Records were breached in the US in 2016, a staggering number. Patient medical records are lucrative targets for hackers and cyberthieves. According to Experian, an Electronic Medical Record ("EMR") is worth approximately \$ 500 on the black market, which is 10 times more valuable than a credit card number. A Ponemon study estimates the healthcare industry spent \$6.2 billion in 2016 to deal with healthcare data breaches. With the rise and prevalence of "ransomware" and increased frequency of cyberattacks, it is imperative that patients' valuable medical records are kept in a secure online environment. Blockchain technology is inherently resistant to tampering, thus making it extremely difficult to hack. Our software will keep track of who accesses the patient's medical history and perform continuous data integrity tests to detect in near real-time any hacking attempts as strives to create the safest platform possible for the efficient sharing of patient medical records.

## What is *PatientTruth*<sup>TM</sup>?

We believe Blockchain technology is the ideal standard that can provide patients, healthcare professionals, health insurance payers and providers a shared, comprehensive, longitudinal, and trusted view of a patient's medical history. When preserved as a ledger of transactions, a patient's medical history is clearly accessible to all stakeholders with due authorization from the patient, and the best treatment option can be determined.

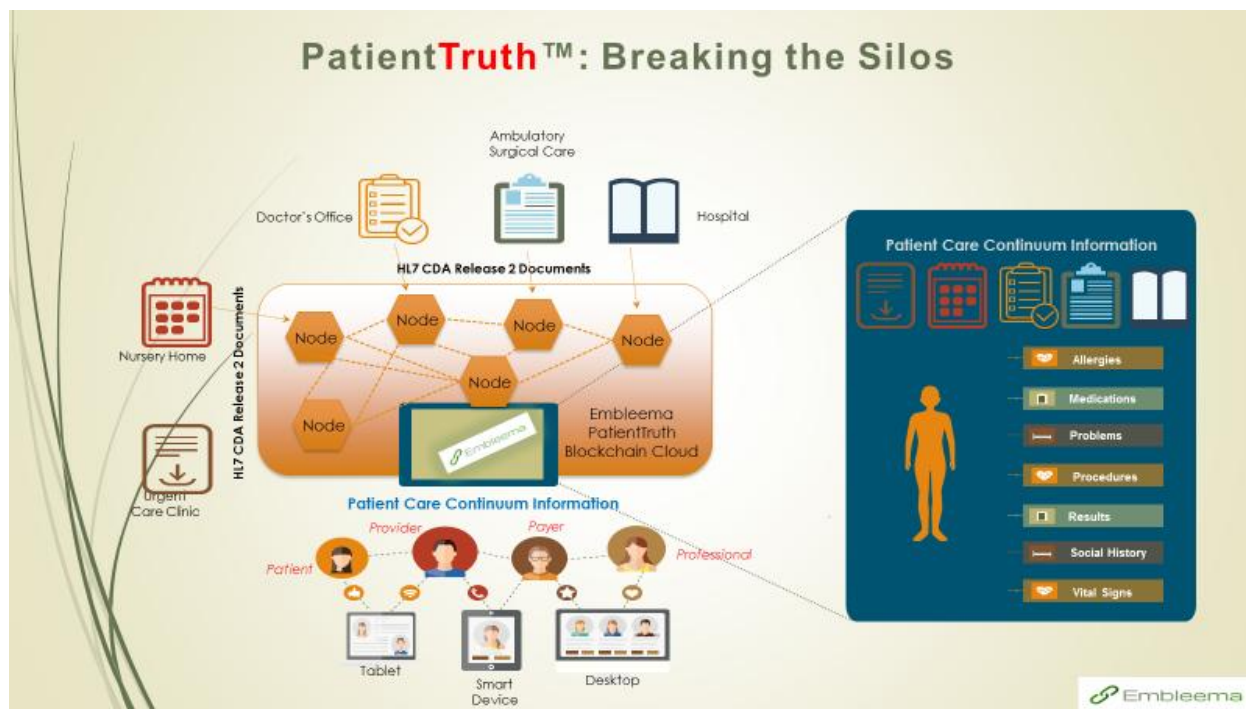
The Chart below illustrates stakeholders' benefits for using *PatientTruth*<sup>TM</sup>:



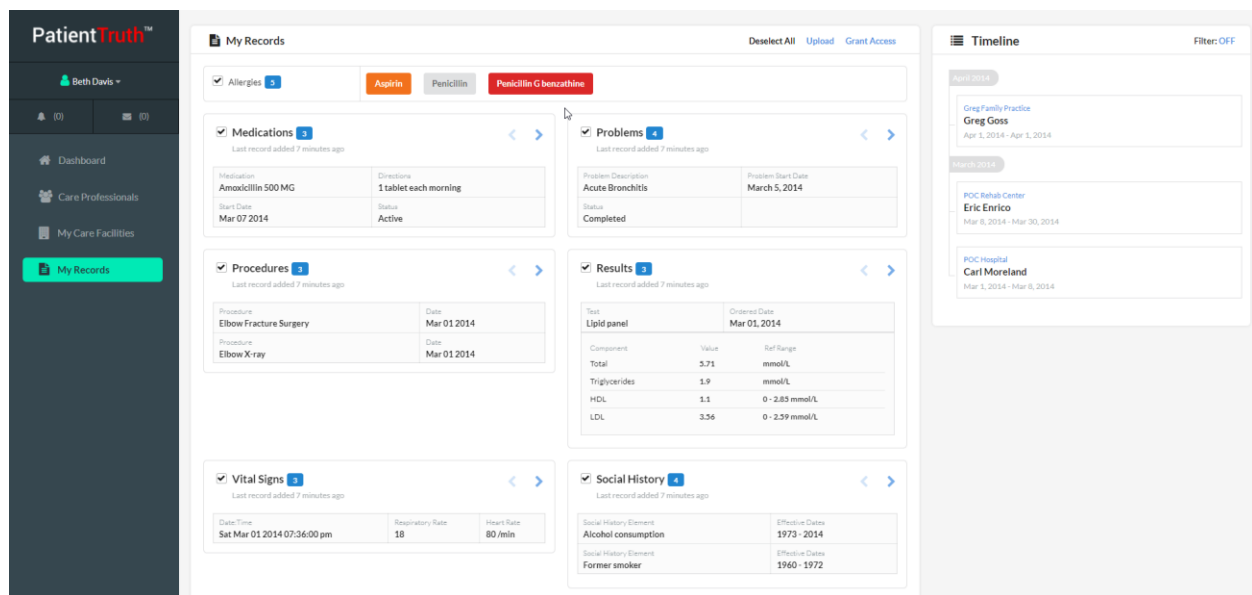
*PatientTruth*<sup>TM</sup> is a Cloud and Blockchain-based software solution that connects to a patient's different medical records at the various centers of healthcare services, such as hospitals, primary care practices, rehabilitative centers, nursing homes and urgent care centers, and chains them into a consistent, comprehensive, and tamper-proof medical history. *PatientTruth*<sup>TM</sup> provides a holistic view of a patient's medical history across providers and care centers.

PatientTruth™ will connect to a patient’s different care centers using standard HL7 interfaces (<http://www.hl7.org/>) to request and ingest the patient’s medical records stored in his/her care centers. The retrieved medical information from different care centers is then indexed and organized into a coherent patient medical history and mined into the Blockchain. The patient’s secure medical history is then accessible to duly authorized entities such as the patient itself, his healthcare providers and caregivers. PatientTruth™ will provide a patient interface, as well as a set of APIs, allowing the patient to access and organize his/her medical history in the Blockchain in a device-agnostic manner. The patient will also be able to grant access to his/her medical history to other entities. The entire process will be fully compliant with patient privacy and healthcare information regulations (e.g. HIPAA in the United States, Regulation 2016/679 in Europe).

The Chart below provides a high-level technical representation of PatientTruth™.



We have developed a working prototype of PatientTruth™, using an Ethereum Go test environment and HL7 Continuity of Care Documents (CCD) as medical record inputs from EMRs. The screen shot below from our prototype depicts the holistic view of a patient’s medical history in terms of allergies, medications, problems, procedures, results, vital signs and social history, as well as the various encounters across care facilities.



For more information or if you are an enterprise customer and would like to organize a demonstration of our prototype, please contact us at [info@embleema.com](mailto:info@embleema.com).