Executive Summary

The stage has been set up for IT to revolutionize the world of healthcare. Many world leaders have already realized the immense role that electronic health records and other modernization technologies will play in the development of their nations. For them, it is no more a question of "Should we?", but more like, "How soon and how best can we?"

They are inspired by big problems like:

- How to make quality of care transparent across the country?
- How to build and retain public trust?
- How to promote continuous innovation and growth?
- How to make quality healthcare affodable to all?

And specific goals such as:

- Identifying healthcare technologies that will make the biggest impact
- Empowering patients in their own health and care
- Upgrading disease monitoring and control
- Improving patient satisfaction across the country
- Enabling better decision-making of clinical support staff, providers and caregivers
- Streamlining revenue billing cycle for all providers

Implementing the complete solution set can be quite daunting, time-consuming and not viable. IT administrators, bureaucrats and officials are inspired to pick the most valuable problems, that when solved well, will make for a rock-solid foundation upon which all other solutions can be built incrementally over time.

This white paper examines these and other questions and considerations. It elucidates the shortcomings of current technologies and practices. It also offers guidance on picking the right solution set that will bring about a more healthier nation.

What Have We Tried So Far

Sadly, the inefficient paper records are still popular

The inefficiencies of paper records are widely documented and analyzed. As patient care data is scattered across multiple locations, getting access to the right information at the right time at the right place is not always possible. In addition to that, recalling medical histories by patients or caregivers may not be complete or accurate, which are often done after a very long time. Paper records are very expensive to create, manage, store and distribute.

Patient Engagement Features
Your healthcare passport.

Find doctors nearby

Public or private hospital

Check availability

Find wait times

Book appointments

Personal health records

Share health information

Reminders and alerts

Collaborate with doctors

Paperless experience

Lab & radiology reports

Order medicines

Out with the paper, in with the EMR – but nothing has changed much

Hundreds of studies have shown that EMR (electronic medical records), which addresses many shortcomings of paper-based records, is not any closer to improving overall health outcomes. They have introduced a new set of problems, like:

Inability to form a big picture view

Be it paper records or EMR, they don't offer much help to develop a big picture of the health situation of the whole nation. A bird's eye view is needed to spot epidemics and control them before they spead across regions. Outcome studies that can be conducted with them, if any, are way too expensive and far more time-intensive. The results, most often, are very delayed.

Duplicate patient testing

Non-availability or access to test data of patients necessiates duplicate testing. This wastes scarce and competitive medical resources like time, staff, equipment and supplies, which could be better used for other patients. This also adds to treatment costs billed to the insurance company or the patients themselves. There's a bigger concern: jeopardizing the patient's health by repeating the procedures.

Providers spend more time at the office, in front of the computer

Physicians are now forced to spend additional time entering clinical data on their EMR programs. So they end up staying in office more. The number of patients they see each day has also come down, drastically, in some cases. This has considerably lowered their incomes.

EMRs don't talk to each other

Different hospitals use different EMR vendors and they can't read each other's data. This makes EMRs useless to our objective of providing universal access to health care data. There have been instances where the EMR software in the ER room could not even read the information provided by their main hospital – and the patient had to print and carry a copy of their records!

The biggest risk with EMR

EMRs have many pitfalls and the biggest is when the EMR vendor goes out of business, leaving the provider with no access to their records. And because the data formats are not standardized, they can't be taken to another EMR solution easily.

EMRs are not secure enough

Security concerns with EMRs run high as they do not promote the constitutional and ethical rights to privacy. For instance, in most systems, patients cannot give access to specific data selectively to practitioners. Moreover, PHI (protected health information), which is 20-50 times more valuable than a citizen ID, is always under the risk of theft. They are used illegally to bill health plans, insurance and medical programs; and to obtain government benefits.

The Pieces of a Robust Healthcare System

The modern healthcare ecosystem will have three defining characteristics: digital, real-time and interoperable. These will attune towards achieving the objectives of:

- Promoting transparency
- Making healthcare affordable to all
- Improving healthcare outcomes
- Empowering patients to their own health and care

eBluCare fully complies with the following standards:

Health Level-7   (HL7)

Health Information Exchange Framework

Electronic health exchange

IHE Profiles (XDS.b, PIXV2, PIXV3, PDQV2, PDQ V3, BPPC, XCA, XCPD)

Various types of bi-directional C32 exchange

Bi-directional demographic integrations

Other in-bound and out-bound clinical integrations such as labs, discharge summaries, etc.

Single sign-on capabilities to-and-from the eEHX system
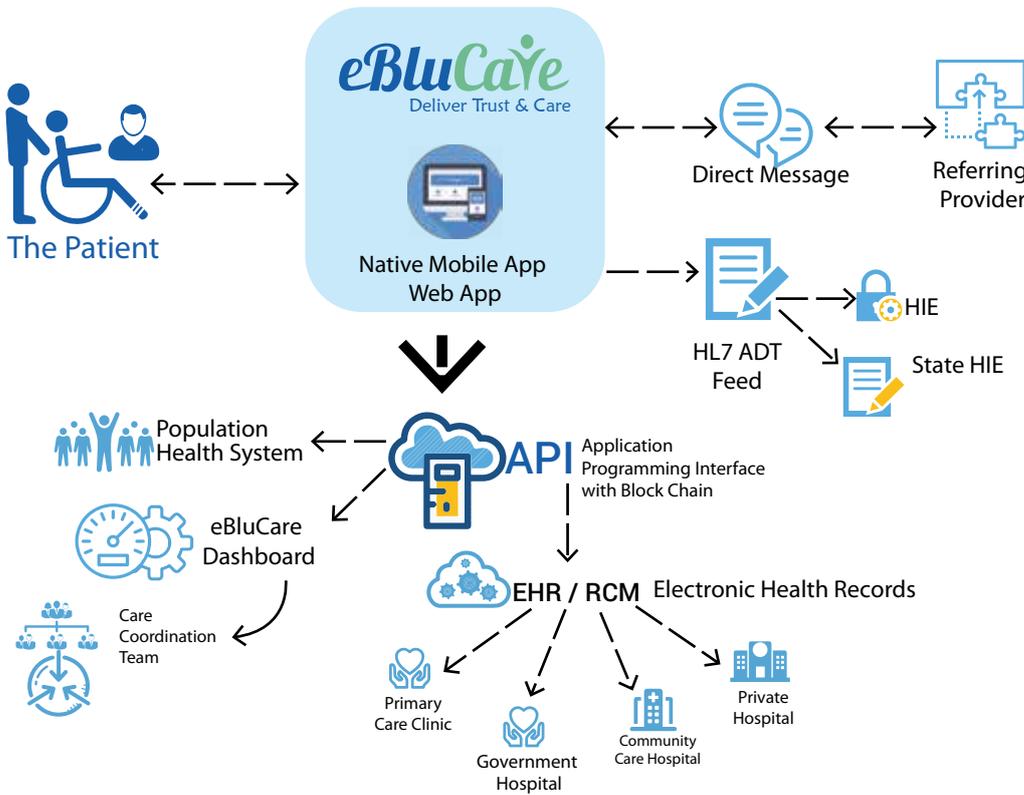
Aggregate data from private and government hospitals

To make medical reform across an entire country, it is important to bring together data and information from both private and government (public) hospitals into a single fold.

EHR & PHR

Electronic health records (EHR) and personal health records (PHR) will be at the heart of the modern healthcare system.

PHR will allow the patients to manage by themselves – in a private, secure and confidential manner. PHRs can include information from a wide variety of sources, including clinicians, home monitoring devices, and patients themselves.

An EHR will contain all past and present clinical data (allergies, primary diagnoses, current immunizations, detailed list of medications, family members and caregivers, adverse reactions, etc.), communication from labs, radiologists, pharmas, payers, providers, and other parties. Clinicians and other authorized persons will access patient data as and when required. EHRs offer a range of benefits to the individual, provider, caregiver and country:

- Diseases and their occccurrence over an entire geography (or demography) can be monitored and treated effectively
- Make quality care available to everyone in the country
- Plan services to best make use of budgets
- Monitor the safety and efficacy of drugs and treatments
- Compare the quality of care available in different parts of the country
- Enable patients to get deeply involved in their own health and care
- Reduced cost of care
- Give doctors access to the data as and when they want
- Promote the best use of data and technology

A mobile app – the doorway to your health

Our healthcare transformation plan would make use of smartphones, the adoption of which is growing at an exponential rate. The modern healthcare system will have a mobile app as a key component. This app will connect to patient's healthcare information, providers, caregivers, government entities, payers, labs and pharmacies.

The app will be available on all platforms including iOS and Android, and devices like smartphones, tablets and wearables.

Patients will be able to:

- Book appointments with any physician across the country
- Look up practitioners by specialty, location and rating
- Check the availability information and wait times of physicians
- Selectively share their health information discretely and securely
- Connect their citizen ID to the app

- Transact with payers, pharmacies and labs securely
- Receive appointment reminders
- Give caregivers access to their health information
- Access their medical conditions and other data

Interoperability

EHR interoperability standards determine how the various applications (from different vendors) in a healthcare system interact with each other and users, process and manage information, and how consumer devices integrate with other systems and applications. Without interoperability, no healthcare transformation would be possible.

Blockchains, the next big frontier

Blockchains can make a fundamental shift in how healthcare is being run. Blockchains are decentralized, public ledgers that store information – in a tamper-proof, uneditable, fully audited system. This gives tremendous advantages to providers, patients, caregivers, payers and other parties involved in a healthcare situation:

- The full history of a patient is captured.
- The cost of storing patient data will drastically come down.
- Access control is fine-grained – only the right people can access it and only for specific duration.
- The attributes and movement of all assets – medicines, lab equipment, etc. – can be accurately tracked.
- They make fulfilling regulatory compliances easier.
- Providers and patients can track which data was shared with whom, without revealing the data itself.

EHRs could be powered by decentralized, public blockchains. This gives tremendous advantage in terms of reducing the computing resources of providers, security, and real-time access to data than currently possible.

"Blockchain technology provides a highly secure, decentralized framework for data sharing that will accelerate innovation throughout the industry." – Shahram Ebadollahi, Chief Science Officer, IBM Watson Health

"Blockchain technology has the potential to support secure exchange of large volumes of data while ensuring patient privacy and maintaining data integrity. These are critical features of a scalable data exchange ecosystem that can support high-quality research while safeguarding against breaches of sensitive patient-level data." – Angela Stark, FDA

End-user Benefits

STAKEHOLDER	BENEFITS
Citizens	Individuals can easily book appointments from their mobile phones, access their health data any time, feed in data from their health monitoring devices, share information selectively with their doctors, and become more involved in their own health and care.
Healthcare providers	Private and public hospitals, and private practices can create integrated health systems – and to support co-ordinated care across any partner and track intra-organization performance.
Healthcare professionals	Professionals can now spend more time interacting with patients and less time feeding clinical records in the computer. They get all the care data they need – lab reports, medications, historical health information, allergies, patient-generated health data – at the click of a button, enabling them to offer the best care.
Caregivers	Caregivers get access to critical health information of their young children, elderly parents, or spouses. This helps them deal with the health conditions effectively.
Researchers	EHRs will deepen understanding gathered from clinical trials. It will also support the development of personalized medicine.
Government	The government, by closely monitoring the outbreak, prevalence, and diminishment of pandemics – in a specific region or across the country – can prevent and control them effectively and in a timely fashion.

Conclusions

This White Paper for National Health Leaders, Policymakers and Practitioners has shown the various ways the healthcare problem has been solved, and how the learnings can be used to bring about change on a national scale. We have also rounded out the components that will play a key role in this transformation and offered you guidance on picking the right vendor.

About the Company

eBluCare software suite is a set of intuitive cloud-based and on premise apps that feature clean UI, deep integration capabilities, robust workflows custom built for the caregiver who has to constantly deliver superior quality of care and healthy bottom-line.

Our inspired team in the United States and India works round the clock re-imagining and building top-notch healthcare applications that transform the way you run and build your practice.