

Comments and Views from
HIMSS APAC India Chapter
on
“National Health Stack, Strategy and
Approach”, July 2018,
Published by NITI Ayog

Introduction

National Institute of Transforming India (NITI) Ayog, which is a Government of India Agency has come out with National Health Stack (NHS), a strategy and approach document containing technology guidelines towards building the digital infrastructure of Ayushman Bharath, the health scheme aimed at setting up 1.5 lakh Health and Wellness Centers across India and Health Insurance Scheme to cover 10 Crore families below poverty line. NITI Ayog has invited comments and consultation on this important document. Health Information Management Systems Society (HIMSS), a globally recognized not for profit organization working towards transforming healthcare through information technology, through its APAC India Chapter would like to appreciate NITI Ayog for coming out with a comprehensive document and hereby submit our comments and suggestions to further improve the same.

While we do have a view on the overall Ayushman Bharath initiative which is briefly mentioned in the beginning, the focus and scope of this document is restricted to the National Health Stack.

For questions or clarification please do not hesitate to contact us through our email id india.leaders@himsschapter.org

Comments and views on the concept note for the National Health Stack

Section	Comment
1. Executive Summary & National Health Stack (NHS Overview)	The section offers a brief yet succinct articulation of the goals, current Health IT context and therefore the reason why National Health Stack is required. Well done.
2. Introduction	<p>This section deals with the background of the National Health Policy and Ayushman Bharath Yojna</p> <p>Although the focus of comments in the following sections is on Health Stack, the following are some high level views on the Ayushman Bharath Yojna:</p> <ol style="list-style-type: none"> 1. It is suggested to deal with the family member as a separate entity or individual. Individuals therefore would get a coverage of 1 lac (the family members can transfer their coverage as and when required). This is to overcome one of the drawbacks in the PDS on the overall administrative overheads related to management of data and processes pertaining to families and family members. 2. Disease risk based stratifications and identifications need to be at source (similar to private insurance policies where diabetes, history of hypertension, cancer, etc. are identified prior to enrolment) 3. A sum of Rs 80,000/- per wellness center (1200 Crores for 1.5 lac Centers) per year looks highly unviable and hence may not be sustainable. This does not include manpower costs let alone systems and services rendered 4. One of the challenges with the existing schemes as mentioned on page 15 is related to poor participation by providers. From a technology perspective we need to dwell into their state of readiness and how they will adapt to the change will be detrimental to the success of this scheme.
3. NHS Overview	<p>This section provides an overview of the various components of National Health Stack</p> <p><u>Phased Manner of Implementation</u></p> <p>National Health Stack (NHS), the technology foundational components of Ayushman Bharath is a massive initiative which would be extremely challenging to implement unless the priorities are clearly laid down in phases. A categorization on the basis of Base Components, Fully Functional Set and Advanced Set would help. The Phases mentioned on page 37 are basically pockets or grouping of benefits.</p>
4. Electronic Registries and Approach and Considerations for	<p><u>National Health Registry</u></p> <p>National Health Registries are expected to be the single source of truth for master data pertaining to various health-sector stakeholders.</p>

designing
Electronic
Registries

This process would, over time, build and maintain a cross-reference index of all identifiers associated with each entity (e.g. Aadhaar, Jan Dhan, driver's license number, etc.), a history of all source records associated with the unique identifier and a history of all changes to entity master record and its corresponding source records.

Single Central Registry Vs Multiple Registries

- A single central person registry may not be optimal for the population of India. It may be advantageous to consider a 2-/3-level hierarchy of person registries, with central registry consolidating registrations from state-based registries and perhaps these consolidating registrations from smaller administrative divisions or groups of healthcare organisations.
- This model would permit lookup of person details across geographic and administrative boundaries while localising search and improving retrieval efficiency, and distributing maintenance burden amongst operators of registries.
- This is suggested on the basis that most patients will receive services in their local areas and only seek services elsewhere on relatively few occasions. [NHS Framework: Guiding Principle 2][NHS Overall Design: Principle 4][NHS Overall Design: Principle 3]
- Patient/Person/Doctor/Provider Registries are in production use as part of EHRs at national and regional level, and independently in hospital and hospital group contexts in many countries in the world including Australia, United States and elsewhere. Support for standards-compliance, vendor product compliance, availability of practical industry experience and international health systems' experience could be drawn upon for lessons learnt and best practices.

Security, Audit and Consent Management

- Sophisticated solutions typically incorporate appropriate security, audit and consent features. Solutions that provide registry functionality can ingest standards-compliant data objects such as HL7 v2 and HL7 v3 messages, providing the ability to integrate data from legacy systems, and typically offer a rich set of solution-specific APIs that utilise standards-based channel security, and standards-compliant authentication and authorisation mechanism. [NHS Framework: Guiding Principle 4][NHS Overall Design: Principle 4][NHS Overall Design: Principle 10]
- Principle 1 of NHS expects that "Patient is the Controller of her data" but the challenge would be managing the consent by unlettered or low/under educated BPL population of India
- Provision of this kind of control requires that patient identification (Patient/Consumer/Health ID Registry) and user identity management (Identity Management in traditional authentication and authorisation sense) are combined with provider identification (Doctor Registry, Provider Registry) and entitlements management (appropriately-grained "who is authorised access to what under what conditions" in the access control sense). [NHS Framework:

	<p>Guiding Principle 1 and 3][NHS Overall Design: Principle 2][NHS Overall Design: Principle 4]</p>
<p>5. Coverage and Claims Platform</p>	<p>An end to end Coverage and Claims platform should include:</p> <p><u>Component Based Approach and Interoperability</u></p> <p>It is critical that the platform takes a component based approach to allow for heterogenous environments and interfaces depending on third party requirements such as health insurers or TPAs, medical researchers, auditors, policy makers etc. The interfaces to the components should support open standards such as REST and Web Services (SOAP) for complete interoperability and digitization. A common security model is also critical for these integration points to ensure that any interaction with third parties is properly authorised.</p> <p><u>Security & Audit Capabilities</u></p> <p>The coverage and claims platform includes sensitive PHI level information embedded in claims data. It is essential that the platform support best practices such as HIPAA, GDPR or equivalent to ensure that technical controls are adequate. These audit mechanisms need to be applied regardless of interfaces used (user interface or API) and often will also need to include the logging of view operations in addition to data modification.</p> <p>The platform should provide the ability to encrypt data at rest and in transit.</p> <p>The components within the platform should be capable of supporting a common identity provider across both user interface and API access so that security access can be centrally managed.</p> <p><u>Extensibility Model</u></p> <p>The extensibility model should be based on configuration which can be shared and governed between the policy administration (coverage) capability and claim engine capability. The extensibility approach should provide for flexibility/speed but also provide appropriate governance and controls so that data model changes between environments/instances of the components is controlled. Furthermore changes to the data model should be consistent across user interface and API integration points for maximum benefits.</p> <p><u>Multi Jurisdiction Support</u></p> <p>The ability to configure rules and settings by jurisdiction enables localisation of the platform while maintaining the efficiencies of a shared service. Rules should be configurable so that these can be applied holistically and also for a selected jurisdiction or provider network as needed.</p> <p><u>Technological Innovation</u></p> <p>Disruptive technologies such as block chain should be explored as a futuristic way of doing health care related transactions, including the ability to setup and recognize smart contracts, and make the claim process frictionless as possible. A proof of concept would be the best way forward in this direction to assess solution fitment before adoption.</p>

<p>6. Claims Engine</p>	<p>A modern high-performance claims engine has several required characteristics which all combined can deliver excellence in claims processing. These include:</p> <p><u>Rules Based Approach</u></p> <p>Claims pricing and adjudication requires the application of complex rules to correctly process a claim. These rule types can include provider network rules including agreed provider fee schedules, claim line pricing rules including consideration of episode or case level considerations, support for various claim line coding schemes such as DRG or ICD and benefit calculation including consideration of limits. These rules are in addition to fraud detection rules such as medical necessity or anomalies in claim patterns.</p> <p><u>Alternate Reimbursement Models</u></p> <p>As public and private health payers alike seek to control claims costs support for various reimbursement models is essential. Traditional fee for services models are now combined with alternate models such as capitation, bundled payments and shared savings. It is fundamental that the claims engine is aware of these different reimbursement models to provide long term flexibility but also reduce administrative and payment errors due to inconsistencies in claiming across the various models.</p> <p><u>Straight Through Processing/EDI</u></p> <p>It is critical that a claim engine can support various EDI formats including coding schemes that may be adopted over time. These coding schemes such as DRG, ICD and others often differ by claim type/modality and the system should have the flexibility to validate and process these as required.</p> <p>Straight through processing of claim line information is critical to ensure the necessary cost savings and efficiency with some health payers achieving 99% plus. The ability to support the rules required to support end to end claim processing is key along with flexibility in pend rules.</p> <p><u>Scalability</u></p> <p>Medical claims processing can be complex and requires the application of multiple groups of rules to validate claim information, run claim line pricing calculation, apply fraud detection and adjudicate the claim to determine benefits payable. It is critical that the claim engine is designed from the ground up for scalability including the use "in memory" approaches where possible. Claim processing across claim lines can include very large volumes of work and it is critical that these can be processed at speed.</p>
<p>7. Fraud Management Service</p>	<p>Fraud Management is fundamental to driving cost savings and the ability to configure the claims engine to conduct fraud checks "in process" and pre-payment is key. Fraud Management needs to include various types of real time checks including:</p> <ul style="list-style-type: none"> • Plausibility – Is the claim/provider combination reasonable in the context of other claims made with the same time period (regardless of patient). These checks often identify service volumes and service codes for a provider which seem unreasonable. Example: A physiotherapist claiming more than 32 physiotherapy sessions per day

	<ul style="list-style-type: none"> • Medical Necessity – are the claims lines reasonable and necessary given the diagnosis/presenting illness. This class of checks can identify situations such as where prescribed drugs are not aligned to the condition or where the combination of medical procedures are not appropriate to the diagnosis. • Combination Claim Checks – checking for claims where the combination of claims is not valid. Examples could include fillings for patients that have previously claimed for dentures or claims for items which should have been included in a bundled package. • Patient Appropriateness – Is the claimed procedure appropriate for the patient age, gender or similar. • Provider rendering service for which he is not authorized • Claims not matching pre authorized limits <p>It is important to note that many of the above fraud checks include the need to validate claims within the context of other claims made (either for the same patient or across patients).</p> <p>Leveraging smart analysis and reporting capabilities to analyze fraud patterns, healthcare provider utilization, healthcare provider benchmarking is key for sustainability of any health care system in the world.</p>
<p>8. Federated Personal Health Records Framework (PHR) and Interoperability</p>	<p><u>Health ID</u></p> <p>A good idea but people have multiple PAN, and Aadhar cards, as well as more than 1 mobile number, so how will the duplication of data be managed?</p> <p><u>EHR Integration Mechanism Not Clear</u></p> <p>PHR has been given attention with the patient consent and working of the fiduciary at the same time EHR is not adequately mentioned from an implementation stand point. It is suggested to leverage the current EHR standards, Minimum Data Set along with the setting of Health Information Exchanges which will be the building blocks for the PHR infrastructure. There needs to be a roadmap and governance structure with clear jurisdiction defined to oversee the adoption and regulation of EHR.</p> <p><u>Integration Mechanism not adequately addressed</u></p> <p>An initiative of this nature requires a lot of interconnection with a huge variety of systems. Also how do we plan to get the private sector on board with the variety of systems they have. Web based APIs are a good option as mentioned in the document but the structure of the content also need to be looked at. HL7 FHIR could be a good candidate.</p> <p><u>IHE- Global standard for Health Information Exchange</u></p> <ul style="list-style-type: none"> • The "Integrating the Healthcare Enterprise" (IHE) is an industry body working on improving interoperability of health systems. IHE has created "interoperability profiles" which guide vendors in building interoperability into their products to minimise challenges faced by the need to integrate multiple healthcare applications.

Interoperability

- One of the major IHE interoperability areas is the Cross-enterprise Document Sharing (XDS). IHE XDS addresses the requirements of federating clinical document repositories for the purpose of providing secure, standards-compliant access to clinical documents that supports repository models ranging from centralised to massively distributed. [NHS Framework: Guiding Principle 2][NHS Overall Design: Principle 4][NHS Overall Design: Principle 3]
- Electronic Health Records Systems that use IHE XDS-compliant Registries and Repositories are in production use in a number of EHRs at national and regional level in many countries in the world including Australia, United States and elsewhere.

Federated Health Data Repository

- It is suggested that IHE XDS approach to federating health record repositories and standardising submission and retrieval of health records will provide immediate advantages for the Federated Personal Health Records Framework in terms of support for standards-compliance, vendor product compliance, availability of industry and international health systems' experience that could be drawn upon for lessons learnt and best practices.

Open API

- IHE XDS standardised APIs would be used by clinical document providers and consumers to interact with the document Registries and Repositories. These APIs would be registered and managed via centralised API Gateway as they are or can be encapsulated with APIs wrappers which themselves would be registered with and managed via a centralised API Gateway if required. [NHS Framework: Guiding Principle 6][NHS Overall Design: Principle 2]

Security and Consent Management

- IHE XDS incorporates security features, audit features and consent features. IHE XDS can ingest structured objects (CDA, CCD) and unstructured objects (PDF, image, text, etc.), providing the ability to integrate clinical data from legacy systems as well as from modern systems which support CDA Level 2 and CCD documents. [NHS Framework: Guiding Principle 4][NHS Overall Design: Principle 4][NHS Overall Design: Principle 10]

Patient controlled Electronic Health Record

- Principle 1 of NHS expects that "Patient is the Controller of her data" but the challenge would be managing the consent by unlettered or low/under educated BPL population of India
- Secure audit trail stores, and security auditing and audit management tools and technologies would provide the means to undertake security-related investigations and other activities aimed at enhancing robustness of security provisions on the PHR. [NHS Overall Design: Principle 4]

	<p><u>Better Clinical Outcomes</u></p> <ul style="list-style-type: none"> In order to ensure clinical outcome measurement, Clinical guidelines and protocols must be followed as per evidence based medicine, which means that providers (Read Doctors) will need to follow them carefully, we need to have a mechanism to ensure that it really happens.
<p>9. National Health Analytics Platform</p>	<p>The National Health Analytics Platform as described in the document is a quite high level and generic in nature but we are sure will have more clarity as we move along. It is also expected to over time incorporate new and emerging technologies and solutions that will include the Big Data and related analytical tooling and methodologies.</p> <p>The National Health Analytics platform should have following key capabilities:</p> <ul style="list-style-type: none"> Extraction and Accumulation of health Data which would be humungous in size and volume Stream Analytics for real-time event processing both for fraud detection and for health status monitoring, anomaly detection and alerting, epidemiology, and real-time health enterprise and national health status review. The business intelligence components of the platform will support both reporting and analytic output formats for traditional monitors as well as mobile device form factors, with attractive and easy to use interfaces. It is expected that availability of large bodies of data collected throughout the country and deposited in traditional structured and unstructured Big Data stores will facilitate development and training of machine learning models, their refinement and deployment for automation and reduction of human errors, as well as trend and causation discovery, predictive analysis and enterprise-grade reporting and visualisations. Depending on the requirement and the detail of data to be analysed it may be necessary to provide sensitive person data in identifiable or in de-identified form, and perhaps to provide secure means of re-identifying specific patients if data analysis suggest that clinical intervention is required. The Patient/Consumer/Health ID Registry can provide this capability and work in conjunction with the analytics platform as the source of de-identified patient data.
<p>10. Others</p>	<ul style="list-style-type: none"> Security: Although there is a mention about Privacy and Security in the guiding principles section on page 34, it needs to be more firmed up from cyber security framework and compliance perspective. Share as well as unshare feature for patients is a must for better privacy Training: Although it states that implementation is out of scope for this document – how does NITI Ayog propose to train clinical staff for data entry into the EMRs? Training is an important aspect of the whole implementation and therefore needs due attention

- Quality: Accreditations, quality have not been addressed. This framework should address these issues through sharing of anonymized data across the identified providers.
- Change management: This is going to be a big change for all stakeholders involved, there is no mention anywhere on how they propose to plan and conduct change management. All the important stakeholders (Government, Providers/Payers, Information Technology Vendors and Public) roles and responsibilities need to be clearly mentioned.
- Existing Schemes: It is recommended to leverage and extend the existing programs which are doing fairly well for example Mother and Child, Tuberculosis, Malaria, have robust methods and techniques for implementation that have yielded results for decades. Need to look at mechanisms to ensure that the existing framework for these are be continued and the data be acquired using a pull mechanism.