Nationwide Interoperability Roadmap: What It Means for IIS

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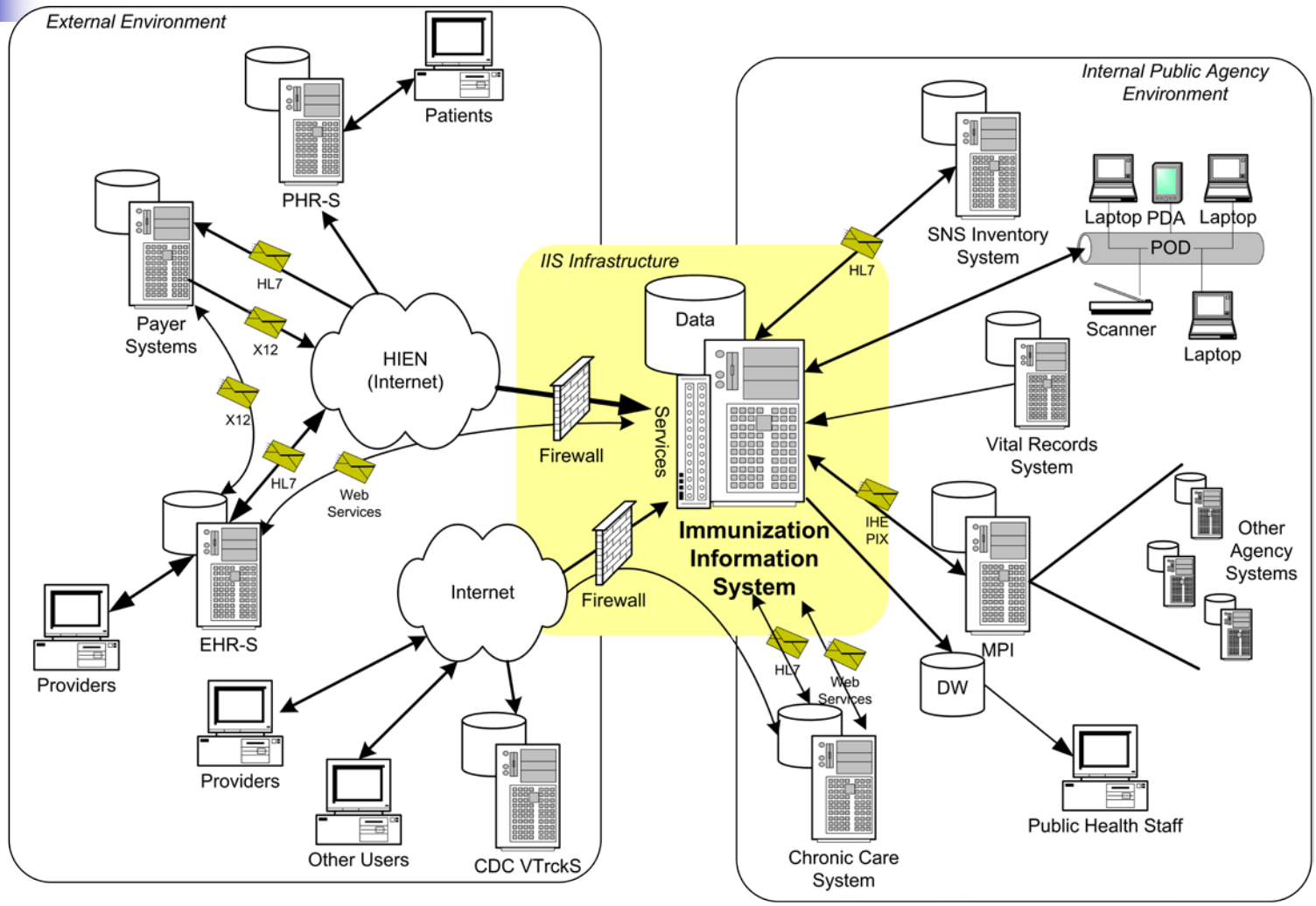
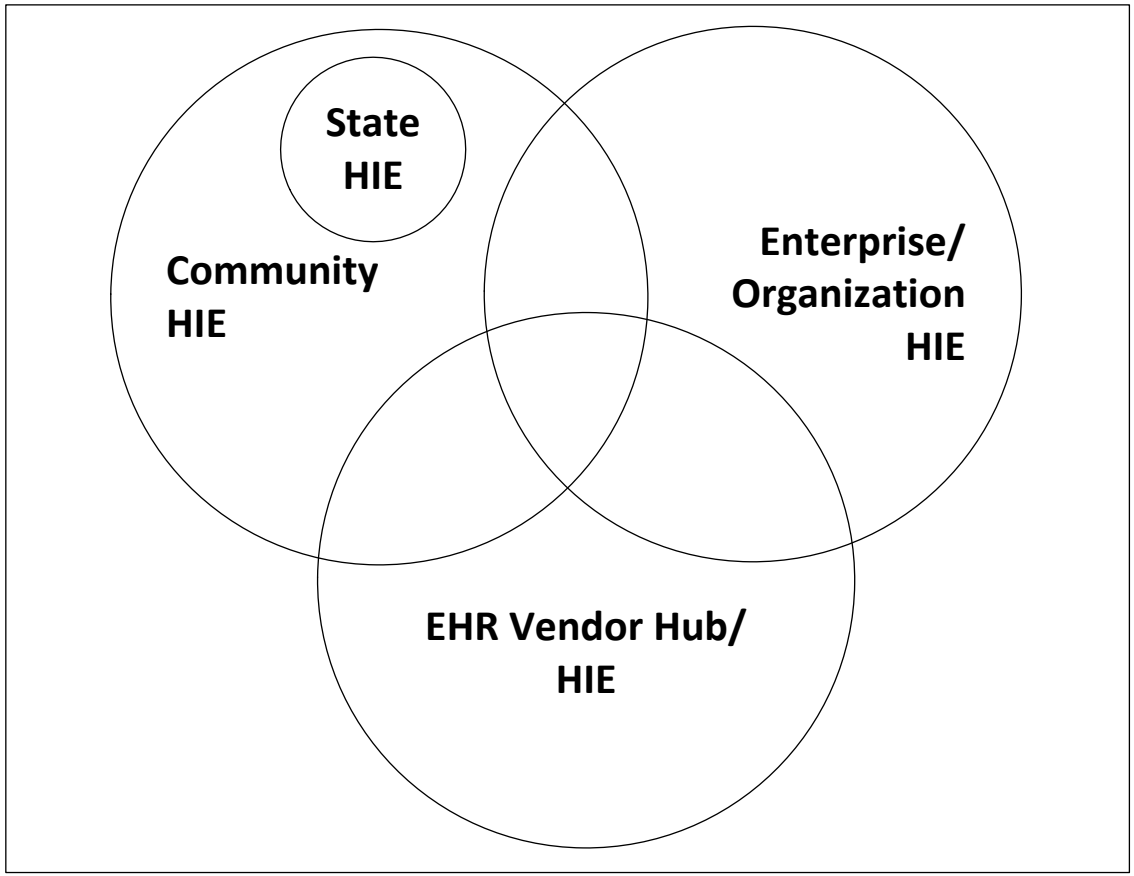
Background

- Terminal→client/server→WWW→HL7
- CMS EHR Incentive Programs
- Provider interaction: paper→web→EHR
- Increased interest in patient access
- ONC Interoperability Roadmap
- Result: Increased emphasis on IIS and interoperability

IIS Interoperability Model



Role of HIEs


State
HIE
Community
HIE
Enterprise/
Organization
HIE
EHR Vendor Hub/
HIE

Challenges with Inter-jurisdictional Information Exchange

- Patient matching
- Privacy/consent for sharing laws
- Governance/data sharing agreements
- Technical differences

Options for a National IIS Architecture

- The current ad hoc means of inter-jurisdictional IIS interoperability
- Regionalized clusters for multi-jurisdictional IIS to reduce the number of end points for connections
- An EHR-centric model for querying across jurisdictional lines
- The use of a single national hub or network
- A consumer-mediated model

Current *Ad hoc* Method

Strengths	Weaknesses
• Individual jurisdictions can proceed with plans to interoperate without the burden of national coordination • Implementation can proceed incrementally. • More realistic given current funding constraints. • Does not require any more governance than agreement between the trading partners.	• Progress to date has been slow and haphazard. • Data sharing agreements not standardized making every negotiation a unique experience. • Jurisdictional differences in privacy/ security laws continue to hinder data sharing.
Opportunities	**Threats**
• Development of model standardized inter-jurisdictional data sharing agreements will not take a lot of effort but would greatly facilitate the process. • Early adopters can provide strong models for later adopters. • Health Information Exchanges (HIEs) could fill the void and play a more prominent role in inter-jurisdictional data sharing which, if done collaboratively with IIS, could free up IIS to pursue other core activities.	• Variability in technical approaches continues to hamper progress. • No strong incentives for more standardized technical approaches. • Patient and vaccination-level de-duplication will be an even larger issue across jurisdictions than it is within IIS projects now. • HIEs may take a more prominent role in inter-jurisdictional data sharing which may reduce the role and impact of the IIS in this process.

Regionalized Clusters

Strengths	Weaknesses
• Regions can proceed with plans to interoperate without the burden of national coordination • Implementation can proceed incrementally. • Somewhat more realistic given current funding constraints. • Allows for regional differences to be recognized and exploited. • Inter-regional interoperability still possible by mutual agreement.	• Requires regional cooperation and consensus around policies and technical implementation. • Data sharing agreements not standardized nationally which potentially hampers inter-region interoperability. • Differences in jurisdictional privacy/ security laws still have to be reconciled in any data sharing agreements. • Requires a somewhat formal governance structure to set policy and to adjudicate unexpected consequences of interoperability.
Opportunities	**Threats**
• Early adopter regions can provide strong models for later adopters. • One or more regional approaches may prove to be useful models of a future national approach. • Health Information Exchanges (HIEs) could fill the void and play a more prominent role in regional data sharing which, if done collaboratively with IIS, could free up IIS to pursue other core activities.	• Regional participants may not be able to reconcile policy and legal differences between jurisdictions. • Health Information Exchanges (HIEs) may take a more prominent role in regional data sharing which may reduce the role and impact of the IIS in this process. • No strong incentives for nationally-standardized technical approach.

EHR-centric Model

Strengths	Weaknesses
• Individual jurisdictions need not worry about interoperability with other IIS directly. • Individual jurisdictions can support this strategy with little or no change to their infrastructures. • Implementation can proceed incrementally. • Consistent with focus of CMS EHR Incentive Programs on EHRs. • Does not require any more governance than agreement between the trading partners. • Individual provider sites not hampered by limitations in particular jurisdictions of interest.	• Places the burden of record consolidation on the provider. • Access to data limited by capabilities of multiple IIS of interest to a provider. • EHR-S may need to be enhanced to able to perform queries to multiple IIS and integrate the results. • Providers will have to negotiate data sharing agreements with each jurisdiction in the absence of a national model or agreement. • Providers would become even more responsible for patient and especially vaccination-level de-duplication of data as the point of integration is their EHR-S.
• Integration/de-duplication of results from multiple sources now needs to be done by the provider and not the IIS causing a potential delay in the availability of the information. • EHR-S may have insufficient CDS to assess consolidated record locally. • IIS performance capacity may be adversely impacted by an increase in query requests.	
Opportunities	**Threats**
• Health Information Exchanges (HIEs) could take a prominent role in onboarding providers for inter-jurisdictional data sharing to simplify the process for IIS projects already overwhelmed with onboarding requirements *within* their jurisdictions. • HIEs could reduce the number of end-points for IIS connectivity. • Strong incentives for standardized technical approaches to develop.	• Variability in technical approaches to interoperability may continue to hamper progress. • IIS may push providers from other jurisdictions lower in the onboarding queue which will hamper access to data.

Leverage National Networks

Strengths	Weaknesses
• Implementation can proceed incrementally as each IIS joins the network. • All IIS use a consistent technical approach for interoperability between them. • All jurisdictions agree to common DURSA and pre-established governance. Jurisdictional differences in privacy/ security laws can be accommodated within this process. • May provide point of leverage for existing (or pending) PHA connection to the national network.	• Cost to join national network may not be affordable for PHAs. • Technical expertise may not exist within PHAs to support connections to national network. • May require different technical implementation than IIS-to-provider interoperability.
Opportunities	**Threats**
• Leverage of commercial services may speed up the implementation timetable significantly. • Health Information Exchanges (HIEs) could assist in inter-jurisdictional data sharing by providing network connectivity for IIS/PHAs.	• National network may not prove in the long run to be a viable interoperability platform. • Patient and vaccination-level de-duplication of data will be an even larger issue across jurisdictions than it is within IIS projects now.

Consumer-mediated Approach

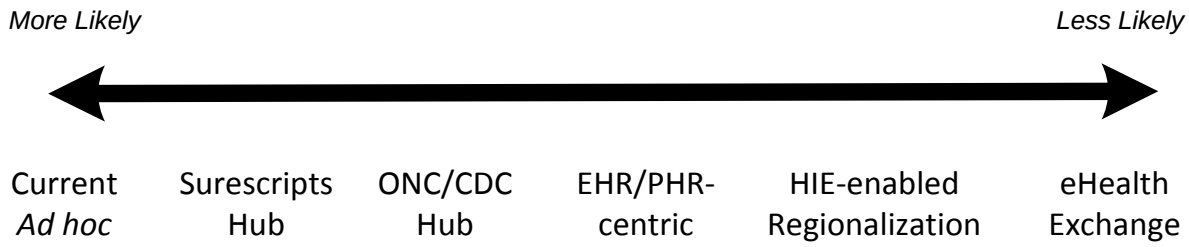
Strengths	Weaknesses
• No issues of consent management as the patient ultimately should have the right to request his/her own records. • Individual jurisdictions need not worry about interoperability with other IIS directly. • Individual jurisdictions can support this strategy with little or no change to their infrastructures. • Implementation can proceed incrementally	• Places the burden of record consolidation on the PHR. • Access to data limited by capabilities of multiple IIS of interest to the patient. • PHR-S may need to be enhanced to able to perform queries to multiple IIS and integrate the results. • PHRs will have to negotiate data sharing agreements with each jurisdiction in the absence of a national model or agreement.
• PHRs would become even more responsible for patient and especially vaccination-level de-duplication of data as the point of integration is their PHR-S. • Integration/de-duplication of results from multiple sources now needs to be done by the PHR and not the IIS causing a potential delay in the availability of the information to the patient. • PHR-S may have insufficient clinical decision support (CDS) to assess consolidated record locally. • IIS performance capacity may be adversely impacted by an increase in query requests.	
Opportunities	**Threats**
• Leverages strong patient incentive to consolidate and control his/her own record. • This provides a potential mechanism for IIS to provide patient access to immunization data with little marginal effort or cost.	• Variability in technical approaches to interoperability may continue to hamper progress. • IIS may push PHRs lower in the onboarding queue which will hamper patient access to data. • Patient and vaccination-level de-duplication of data will be an even larger issue across jurisdictions than it is within IIS projects now.

Comparison of Approaches

Measure	Current Approach	Regionalized Approach	EHR-Centric	National Network	Patient-mediated
Will achieve universal interoperability more quickly	○	◉	◉	●	○
Builds on/promotes compliance with national standards	◉	◉	◉	●	◉
Ease of governance	○	◉	◉	●	●
Builds on/consistent with existing IIS technical implementation	●	●	●	◉*	●
Provides an accurate consolidated immunization history	●	●	◉	●	◉
Provides an accurate vaccine forecast	●	●	◉	●	◉
Opportunity to Leverages HIEs	●	●	●	●	○
Likelihood of ultimate success	◉	◉	◉	◉	○
Lower overall cost	◉	◉	●	◉	●
Unweighted Total Score (1, 2, 3)	20	22	21	24	18

* Depends on approach

Towards a National Strategy



- Current approach: Path of least resistance
- Surescripts hub: Commercial solution
- ONC/CDC Hub: MOU/governance issues
- EHR or PHR-centric: MU will shape whether approaches have traction
- Regionalized hubs: Via HIEs?
- eHealth Exchange: Less likely

Resource

- HLN White Paper:

https://www.hln.com/assets/pdf/HLN-National-IIS-Architecture-White-Paper.pdf

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