Interoperability MATTERS
an initiative of The Sequoia Project

Public Health Interoperability Policy Roadmap

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the sequoia project

Contents

1. Background

The Public Health Workgroup (PHWG), housed within The Sequoia Project's Interoperability Matters Cooperative, focuses on interoperability challenges and opportunities for states and other public health authorities. The PHWG began its research on the creation of a Public Health Interoperability Policy Roadmap in 2024. The Workgroup solicited feedback from its members and policy and health IT experts within the public health agencies and state, tribal, local, and territorial (STLT) entities to provide concrete and real-world recommendations. The Workgroup also engaged members with direct exposure to the day-to-day complexities surrounding data sharing and interoperability. Recommendations within the Roadmap were developed based on this extensive feedback with the objective of advancing public health data interoperability and fostering alignment within policy frameworks.

2. Public Comments Process

To gather additional input from the wider public health community, the PHWG released this white paper and requested broader public health review and feedback during its 30-day comment period. After incorporating community feedback, the final version of the Roadmap was made available for download on the PHWG community page.

3. Purpose

The Public Health Interoperability Policy Roadmap equips public health leaders, policymakers, healthcare providers, health information exchange stakeholders, and data governance officials with actionable guidance to strengthen public health data interoperability and policy alignment.

It serves as a practical tool that public health entities can use to assess their current interoperability landscape, identify policy and infrastructure gaps, and prioritize modernization efforts. By translating national initiatives—such as the Trusted Exchange Framework and Common Agreement™ (TEFCA™) and emerging standards—into concrete steps, the Roadmap supports agencies in planning, sequencing, and implementing improvements in data sharing, governance, workforce readiness, and technical alignment.

Public health organizations can use the Roadmap to guide strategic planning, operational decision-making, and cross-sector coordination. It provides a structured approach for evaluating existing laws and regulations, updating data sharing policies, adopting standards, modernizing legacy systems, and strengthening partnerships with healthcare

and community stakeholders. The Roadmap also offers examples, timeframes, and implementation considerations to help agencies determine when and how to engage in national exchange frameworks, streamline interfaces, and scale connectivity with clinical data sources. Ultimately, the Roadmap enables public health entities to advance consistent, secure, and equitable data exchange practices that improve routine public health functions and emergency response readiness.

4. Executive Summary

Actionable guidance is needed to improve public health data interoperability and policy alignment. This white paper outlines policy challenges, impacts, and a proposed Roadmap to enabling more effective and equitable public health strategies.

The Roadmap aligns with national initiatives such as TEFCA, which offers public health agencies opportunities to participate in Qualified Health Information Networks® (QHINs™) to streamline data sharing, reduce custom interfaces, and scale connectivity with clinical data sources.

5. Policy Challenges

The Workgroup identified several pressing policy challenges that continue to impede effective health data exchange in the public health context.

- Lack of Standardized Interoperability Policies

Interoperability efforts are undermined by inconsistent policies across states and even among departments within the same jurisdiction. Aligning definitions, technical requirements, consent standards, and data formats reduces friction that delays and complicates timely, consistent data exchange across boundaries and partners.

- Insufficient Data Privacy Protections

Current safeguards often fail to fully align with federal and state laws or adequately protect individual health information. Strengthening privacy measures is essential to building trust among data-sharing partners and the public. Without robust protections, public confidence erodes, discouraging participation in health data initiatives.

- Weak Public-Private Collaboration

Collaboration between government and private sector stakeholders is frequently limited or fragmented. Formalizing partnerships through shared governance models and joint

funding initiatives can accelerate progress and bring diverse expertise to bear on complex challenges.

- Lack of Policies Supporting Sustainable Funding Models for Data Sharing Practices

Many tools lack long-term financial support, making them difficult to maintain, scale, or improve. Policies promoting sustainable funding mechanisms are critical to ensuring the resilience and growth of public health data infrastructure.

- Outdated Policy, Data and Infrastructure Frameworks

While data systems and technologies continue to evolve, policy modernization has lagged. Legacy policies have the opportunity to evolve and better align with today's public health priorities and technological advancements, paving the way for greater innovation and responsiveness.

- Fragmented Data Sharing at State and STLT Levels

Disjointed systems across state, tribal, local, and territorial (STLT) levels hinder coordinated responses to public health emergencies and routine care. Streamlined and consolidated data-sharing policies are needed to improve efficiency, reduce duplication, and enhance situational awareness.

6. Roadmap and Recommendations

The following are the Roadmap steps and recommendations from the Workgroup. While presented in priority order, several steps are interdependent and may need to be pursued concurrently. Advancing data sharing and interoperability among public health agencies, STLTs, and other stakeholders requires addressing a range of challenges--technical, operational, organizational and policy-related--alongside strategic planning and the adoption of standardized practices. Although the Workgroup's primary focus was on policy, the Roadmap also encompasses considerations related to technology, security, privacy, and infrastructure-all of which influence public health's ability to exchange data effectively.

While the Roadmap outlines a prioritized sequence of policy, governance, and technical actions, it is intentionally structured at a broad, strategic level to accommodate the diverse environments and maturity levels across public health agencies and STLTs. The Workgroup recognizes that jurisdictions vary widely in their legal frameworks, resource availability, and interoperability readiness. As such, the Roadmap is designed to provide a flexible foundation that agencies can adapt to their specific operational and policy contexts.

Given this intentional breadth, the Workgroup anticipates that future efforts may include the development of more tactical guidance to support implementation of the steps described in the Roadmap. This may involve producing supplemental tools such as templates, checklists, model policies, and more detailed playbooks that translate the Roadmap's strategic direction into actionable, step-by-step activities. These future resources would aim to help public health entities operationalize the recommendations, accelerate progress, and promote greater consistency in how interoperability improvements are executed across jurisdictions.

Although the Roadmap is intended to guide governance and interoperability improvements across the public health ecosystem, its emphasis is on state-level policies and regulations, which often determine the practical boundaries of data sharing and system modernization. State laws, administrative rules, and governance structures shape how public health agencies and STLT entities implement interoperability requirements and engage with partners. At the same time, national leadership from the Centers of Disease Control (CDC), the Assistant Secretary for Technology Policy/the Office of the National Coordinator (ASTP/ONC), and The Sequoia Project are essential to reducing duplication, promoting harmonization, and ensuring alignment with federal standards and nationwide exchange frameworks such as TEFCA. Sustained coordination between state policymakers and national partners will be critical to achieving consistent, scalable, and sustainable interoperability across jurisdictions.

Leadership and support for the Roadmap should be a joint effort between the Department of Health CIO and policy leadership in the state public health agency or STLT. To support implementation, the Workgroup has identified specific examples within each Roadmap area to help guide decision-making and identify starting points. Where feasible, estimated timeframes have been provided for each step to support public health organizations in effective planning and resource management.

The Workgroup recognizes that sharing data within the public health ecosystem is crucial to delivering on the public health mission. Interoperability between public health agencies, STLTs, federal agencies and others is certainly a focus.

Public Health Interoperability Policy Roadmap and Recommendations (Priority Order)

	1	ANALYZE DATA SHARING REGULATION • Documentation of interoperability policies and gap analysis		6	DEVELOP DATA SHARING AGREEMENTS • Draft Agreements • Address Privacy & Security • Legal and Regulatory Compliance		11	ENGAGE PARTNERS & FOSTER COLLABORATION • Establish Regular Communication • Create Collaboration & Knowledge Sharing • Public & Patient Involvement
	2	CREATE/UPDATE DATA SHARING POLICIES • Address Legal and Regulatory Frameworks • Update Policies		7	TRAIN PUBLIC HEALTH & IT STAFF • Develop & Deliver Training Programs • Build Capacity • Promote Best Practices		12	DEVELOP & IMPLEMENT SECURITY MEASURES • Cybersecurity Protocols • Data Encryption & Access Controls • Regular Security Updates
	3	CREATE A TECHNOLOGY NEEDS ASSESSMENT & INTEROPERABILITY/DATA SHARING • Needs Assessment: Current Capabilities/Gaps, Stakeholder Needs, Goals & Objectives, Timeline & Milestones, Funding & Resources		8	ENCOURAGE INTEROPERABILITY TESTING/PILOT PROGRAM • Implement Pilot Projects • Test Across Scenarios • Use Feedback to Refine Technical Approach		13	IDENTIFY & SCALE SUCCESSFUL MODELS • Expand Successful Solutions • Broaden Participation • Promote Best Practices
	4	ESTABLISH A GOVERNANCE FRAMEWORK • Define Roles and Responsibilities • Establish a Governance Structure		9	IMPLEMENT DATA QUALITY & DATA HARMONIZATION PROCESSES • Standardize Data Formats • Consistency & Accuracy • Data Normalization & Integration		14	ENGAGE IN CONTINUOUS INNOVATION • Explore New Technologies • Stay Informed on Trends • Invest in R&D
	5	ADOPT AND IMPLEMENT STANDARDS • Select Relevant Standards • Promote Common Data Models & Terminologies • Modernize Legacy Systems and Alignment with Standards • Strengthen existing HIEs • Integration w/Public Health Platforms		10	ESTABLISH MONITORING & EVALUATION MECHANISMS • Monitoring Systems • Track Key Metrics • Use Data Analytics for Improvement		15	COMMUNICATE PROGRESS & BUILD PUBLIC TRUST • Report on Progress • Transparency in Data Sharing • Public Dialogue

6.1. Analyze Data Sharing Regulation (up to 1 year)

Review and document public health legislation, policies and regulations to ensure they support health IT interoperability and reflect current technological advancements. This is certainly not an easy task as policies and regulations within state governments can be vast and disparate. However, documenting what currently exists is an integral first step in determining what might need to be updated, changed or sunset. Once the inventory of the current state of interoperability policies is completed, it is recommended that the agency or STLT use this information to create a needs assessment to identify areas of concern or areas within these policies, laws, and regulations that might require updates.

Examples: A public health agency undertaking a deep dive into its laws, regulations, and policies impacting the exchange of health data would begin by conducting a comprehensive legal audit. This would involve reviewing federal, state, and local laws such as HIPAA, HITECH, and other relevant privacy laws to ensure compliance and identify any potential gaps or conflicts. The agency would then assess its internal policies and data-sharing agreements with external partners, such as healthcare providers, insurance companies, and research institutions. This might include evaluating consent processes, data security protocols, and cross-border data sharing restrictions. Additionally, the agency would consult with legal experts, policymakers, and stakeholders to identify areas where current regulations may be outdated or hinder effective public health interventions. Based on these findings, the agency could propose policy reforms, enhance data governance frameworks, and develop strategies to facilitate secure, interoperable health data exchange while maintaining patient confidentiality and compliance with privacy standards.

Helpful Resources:

- Guide on Conducting an Administrative Policy Assessment and Gap Analysis
- Webinar: How State Health Agencies Can Address Gaps in the Policy Review Process
- Legal and Policy Considerations for Public Health technology Adoption: An Exploratory Guide
- Public Health Infrastructure State and Territorial Legislation
- Interoperability for Public Health Agencies: A Self-assessment Tool

6.2. Create/Update Data Sharing Policies (1-3 years)

Updating laws within states requires a great deal of time and engagement. This often involves creating new language for existing laws or creating new laws altogether. Changing or updating existing legislation or laws already on the books usually requires a government body such as a General Assembly to review and then vote on the matter. This can take several years depending on the nature of the change. However, public health agencies and STLTs might opt to modify interoperability and data sharing policies which might be an easier lift. These policies should define acceptable use, data stewardship, and accountability measures. This allows the public health entity to create new policies based on current technical capabilities to include current standards for data sharing.

Public health entities and STLTs should also review their internal data use agreement (DUA) processes to ensure they are consistent, efficient, and aligned with emerging national models. This includes evaluating existing templates, approval workflows, and legal review procedures, as well as incorporating elements from CDC's Common Data Use Agreement to promote greater standardization and reduce administrative burden. Strengthening internal DUA processes can help streamline data sharing both within the agency and with external partners.

Address Legal and Regulatory Frameworks: Conduct a thorough review of existing legal frameworks to identify barriers to data sharing and interoperability. This includes laws related to data privacy, security, and patient consent. Since the legislative process can be lengthy and time consuming, the Workgroup recommend putting forward updated legislation that addresses multiple public health laws that might be harmonized or combined.

Update Policies: Work with appropriate state officials, legal counsel, and administrative rulemaking bodies to update or create new laws and regulations that support data sharing while ensuring privacy and security. While public health agencies cannot engage in lobbying, staff can participate in policy reform by providing subject-matter expertise, sharing evidence-based insights, and collaborating with authorized policymakers who are responsible for drafting and advancing statutory or regulatory changes. Clear internal roles and processes help ensure that policy updates reflect operational realities, comply with legal requirements, and support modern interoperability and data-sharing needs.

Helpful Resources:

- Public Health Education, Advocacy and Lobbying
- Legislative and Advocacy Expertise for STLTs

6.3. Create or Update a Technology Needs Assessment that Includes Interoperability and Data Sharing (6 months)

Most public health entities have a technology needs assessment. Incorporating interoperability and data exchange strategies in this plan is key. Bringing policy and technology together creates an environment where interoperability and data sharing might progress more effectively. To understand what is lacking in both these areas requires an assessment of the gaps that need to be addressed. Given the emphasis post-pandemic on IT and data modernization, many public health agencies have already started this process. The Workgroup encourages the use of the PHII Informatics Savvy Assessment tool or the use of another DMI assessment already performed to help inform this work.

This needs assessment should address the following areas:

Current Capabilities and Gaps: Perform a comprehensive review of existing health IT systems and processes to identify strengths and areas needing improvement. This includes assessing technical capabilities, data quality, and existing interoperability between systems, HIEs and national platforms.

Stakeholder Needs: Understand stakeholder needs by grounding interoperability and modernization efforts in the day-to-day workflows, data requirements, and operational challenges of end users, ensuring that projects are driven by these needs rather than by the availability of specific technologies. This will help prioritize areas of improvement and ensure that systems meaningfully support real-world public health activities.

Infrastructure and Resources: Evaluate the current IT infrastructure and available resources, including hardware, software, staffing, and budget, to determine what upgrades or investments are necessary. STLTs, in general, have many systems to maintain which can be challenging in terms of resources and skillset. A good practice to consider would be to evaluate and leverage new IT systems that can meet multiple business needs to reduce the overall IT footprint.

Goals and Objectives: Set clear, measurable goals for what the interoperability initiative aims to achieve. Objectives might include improving data sharing for disease surveillance, enhancing patient care coordination, or enabling real-time data access during public health emergencies.

Timeline and Milestones: Create a detailed timeline with specific milestones for key activities, such as the adoption of standards, completion of pilot projects, and full implementation.

Funding and Resources: Identify the necessary funding and resources (both human and financial) needed to support the initiative. This includes utilizing existing grant funding for data and IT modernization, applying for new federal grants, and exploring additional opportunities from state and local governments, philanthropic organizations, and other non-traditional funders. Ensuring that staff are available and able to support interoperability and data-sharing initiatives is also crucial.

As jurisdictions work to refine their interoperability-focused assessments, many are also looking for ways to build on existing modernization activities without duplicating efforts or overextending limited resources. Aligning new assessment activities with prior DMI enterprise rationalization work, Informatics Savvy assessments, and other modernization initiatives can help streamline the process and ensure that interoperability needs are evaluated within the broader context of ongoing public health IT transformation.

Public health agencies and STLTs can also benefit from support provided by national partners with deep experience in public health informatics and shared services. The Association of Public Health Laboratories (APHL), in particular, can assist jurisdictions in aligning their interoperability-focused needs assessments with existing modernization work by helping translate DMI enterprise rationalization findings into more targeted insights related to data exchange, standards adoption, and system integration. APHL's experience operating national laboratory informatics platforms, convening multi-jurisdictional partners, and identifying common technical requirements positions the organization to help surface shared interoperability needs, reduce duplication of effort, and promote harmonized approaches across jurisdictions. Through this support, APHL can help public health agencies and STLTs strengthen their assessments and advance more consistent, scalable interoperability planning across the public health ecosystem.

The Workgroup also recognizes that the ability of public health agencies and STLTs to act on interoperability priorities is closely tied to the availability of sustainable funding, realistic cost expectations, and adequate staffing. Many jurisdictions face significant resource constraints that limit their capacity to undertake modernization efforts without clearer guidance on potential funding sources or the anticipated costs associated with major activities. While this Roadmap focuses on strategic direction rather than detailed financial planning, the Workgroup acknowledges the need for additional guidance in these areas. Future efforts may include developing more specific information on funding opportunities, cost considerations, and resource planning to help jurisdictions better anticipate and manage the investments required to advance interoperability.

Helpful Resources:

- PHII Informatics Savvy Assessment Tool

6.4. Establish a Governance Framework (6 months)

Define Roles and Responsibilities: Clearly outline who is responsible for various aspects of the interoperability initiative. This includes public health officials, IT personnel, healthcare providers, and other stakeholders.

Governance Structure: Establish a governance body or committee to oversee interoperability efforts. This group should include representatives from key stakeholder groups and have the authority to make decisions, resolve conflicts, and ensure alignment with strategic goals. It is important to note that this governance structure must be approached from an enterprise or agency-wide perspective and is truly foundational in terms of progressing interoperability. Siloed governance is not sustainable and, indeed, creates an environment that may discourage increased data sharing.

Executive RACI – Public Health Interoperability

Key Activity	PH Leadership	Program Leads	Legal / Privacy	IT / Interop	Partners
Set strategy & priorities	A	C	C	I	I
Define public health use cases	C	A	I	R	C
Establish policies & agreements	A	C	R	C	I
Implement & operate exchange	I	C	I	A	R
Ensure privacy & security	C	I	A	R	I

R = Responsible | A = Accountable | C = Consulted | I = Informed

Helpful Resources:

- Data Governance for Public Health
- Data Governance: Ensuring Trust and Managing Risks

6.5. Adopt and Implement Standards (1-4 years)

Select Relevant Standards: Adopt and implement consistent interoperability standards to ensure that public health data can be exchanged reliably across jurisdictions and with healthcare partners. To reduce variability and promote alignment, public health agencies and STLTs should anchor their standards decisions in nationally recognized frameworks, including TEFCA requirements, the ASTP Interoperability Standards Advisory, and CDC implementation guides. These resources provide clear expectations for message formats, vocabulary standards, transport mechanisms, and reporting workflows, and should serve as the foundation for standards selection.

Selecting relevant standards requires identifying the specifications that best support public health program needs and align with the systems used by healthcare providers and laboratories. Examples include HL7 Fast Healthcare Interoperability Resources (FHIR) for data exchange, ICD-10 for disease classification, and LOINC for laboratory data. Tools such as the ASTP Interoperability Standards Advisory offer a curated list of recommended standards and implementation specifications, while ASTP-certified interoperability engines can help jurisdictions integrate HL7 messages and other structured data into systems of record. Referencing these nationally supported standards within policy, procurement, and data-sharing agreements helps ensure consistency and reduces the need for custom interfaces or one-off data transformations.

Leaving standards selection open-ended increases the risk of fragmentation, as jurisdictions may adopt divergent approaches that complicate data exchange and increase the burden on healthcare organizations and public health partners. Clear expectations around the use of specific standards and implementation guides help create predictable exchange patterns, reduce duplicative development and validation work, and support more efficient onboarding of new data flows.

The Workgroup also recognizes the implications of the draft HTI-5 Rule, which proposes reduced standardization requirements for certified health IT. Earlier proposals would have required EHRs and other health IT systems to reliably generate standards-based public health reporting, significantly reducing the time and effort needed to implement and validate new data flows. The shift away from these requirements may increase variability in how systems produce data and place greater responsibility on public health agencies and STLTs to enforce standards through their own policies, agreements, and procurement processes. This direction is inconsistent with the recommendations of the Public Health Interoperability Policy Roadmap, which emphasizes the need for consistent, standards-based exchange to reduce burden and improve data quality.

Given this environment, it is increasingly important for public health agencies and STLTs to adopt clear, consistent standards expectations and incorporate them into governance structures, system requirements, and data-sharing agreements. Doing so helps mitigate the variability introduced by HTI-5, supports more scalable and sustainable interoperability, and strengthens alignment with national exchange frameworks.

Common Data Models and Terminologies: Promote the use of standardized data models and terminologies across all systems to ensure consistency in data exchange and interpretation. This includes using common definitions for data elements, coding systems, and reporting formats. Public health common data models-such as OMOP and Sentinel-provide structured formats for organizing and analyzing health data consistently, facilitating large-scale research and public health surveillance. Standardized terminologies such as SNOMED CT (Systematized Nomenclature of Medicine), LOINC (Logical Observation Identifiers Names and Codes), and ICD (International Classification of Diseases) ensure uniformity in the naming and coding of medical conditions, procedures, and test results.

Public health agencies should also align with the U.S. Core Data for Interoperability (USCDI) and USCDI+ for Public Health, which define the minimum standardized data elements that certified EHRs must capture and exchange. Because EHR certification requirements determine what data is consistently available for public health reporting, aligning public health data needs with USCDI and USCDI+ helps ensure that jurisdictions can reliably receive structured, standards-based data from healthcare organizations. These foundational datasets provide a consistent baseline for interoperability, reduce variability in reporting, and support more efficient onboarding of new data flows.

By adopting common data models and terminologies, public health organizations can improve data interoperability, enhance the quality of health research, and streamline the response to public health challenges, ultimately leading to more coordinated and efficient health interventions.

Modernize Legacy Systems and Alignment with Standards: Ensure that all health IT systems used by public health organizations and their partners are capable of supporting modern interoperability standards, including HL7 FHIR, USCDI, USCDI+ for Public Health, and standardized terminologies such as SNOMED CT, LOINC, and ICD. This may require upgrading or replacing legacy systems that cannot meet current interoperability expectations, as well as configuring or integrating systems to reliably exchange structured, standards-based data. Modernization efforts should prioritize replacing outdated technologies, reducing technical debt, and adopting scalable architectures that can evolve with emerging standards. By aligning systems with nationally recognized specifications and modernizing legacy infrastructure, public health

agencies can improve data quality, reduce variability in reporting, and support more efficient onboarding of new data flows.

Strengthen Existing HIEs: Health Information Exchanges (HIEs) play a critical role in facilitating data sharing across diverse organizations. Strengthening existing community, regional, and state HIEs will increase their effectiveness and broaden their benefits for public health needs. Prioritize funding, technical assistance, and policy levers to improve their functionality, sustainability, and reach. Promote alignment among HIEs, public health agencies, providers, and federal partners through clear expectations, performance metrics, and incentives.

Integration with Public Health Platforms: Ensure that new interoperability solutions are seamlessly integrated with existing public health platforms, such as immunization registries, disease surveillance systems, and electronic health records (EHRs).

Public health agencies and STLTs may also benefit from national capacity-building initiatives designed to support the adoption of modern interoperability standards. CDC has funded the Association of State and Territorial Health Officials (ASTHO), the National Network of Public Health Institutes (NNPHI), and the Public Health Accreditation Board (PHAB) to establish Public Health Data Modernization Implementation Centers. These centers were created to help state, territorial, local, and tribal public health departments adopt standards such as HL7 FHIR, USCDI, and USCDI+ for Public Health by providing technical assistance, training, and implementation support. Although the program is currently on hold (as of February 1, 2026), it represents a potential future resource for jurisdictions seeking to strengthen their standards adoption efforts and accelerate alignment with national interoperability expectations. Public health agencies should monitor the status of the Implementation Centers and leverage available offerings as they become active.

Helpful Resources:

- Public Health FHIR® Playbook
- United States Core Data for Interoperability
- Public Health Data Modernization Implementation Centers

6.6. Develop Data Sharing Agreements (1-3 years)

Developing data sharing agreements is a foundational component of strengthening interoperability across public health agencies and STLTs. These agreements establish the terms under which data can be exchanged, clarify roles and responsibilities, and ensure that privacy, security, and legal requirements are consistently applied. As jurisdictions work to modernize their data exchange capabilities, it is increasingly important to consider not only the content of individual agreements but also the broader infrastructure and partnerships that can streamline and support this work.

Public health agencies and STLTs may benefit from leveraging trusted intermediaries that provide standardized, scalable mechanisms for data exchange. National shared services—such as APHL's AIMS platform—can help reduce the interface and maintenance burden on individual jurisdictions by offering a centralized, standards-based infrastructure for routing, validating, and exchanging data. These intermediaries support consistent implementation of technical and policy requirements, promote adherence to national standards, and offer shared governance structures that reduce the need for each jurisdiction to negotiate and maintain its own agreements independently.

Trusted intermediaries can also provide reusable data-sharing templates and common legal frameworks that streamline the development of DUAs and reduce the workload on local legal and policy teams. For resource-limited jurisdictions, these shared services offer critical operational support by handling core exchange functions and enabling STLTs to focus on their unique local data needs and programmatic priorities. By concentrating national-level reporting and exchange functions within a common platform, public health agencies can avoid a fragmented "every STLT for themselves" approach and instead benefit from coordinated, harmonized data flows that strengthen interoperability across the public health ecosystem.

Draft Agreements: Create formal agreements that outline the terms and conditions for data sharing between public health entities and their partners. These agreements should cover data ownership, access rights, and responsibilities. Resources for the CDC's Common Data Use Agreement is recommended to streamline the approach here.

Address Privacy and Security: Ensure that data sharing agreements include provisions for protecting patient privacy and securing data during transmission and storage. This may involve adhering to HIPAA regulations and other relevant laws.

Legal and Regulatory Compliance: Work with legal experts to ensure that all data sharing agreements comply with applicable laws and regulations, both at the state and federal levels.

Helpful Resources:

- CDC's Common Data Use Agreement

6.7. Train Public Health and IT Staff

Training Programs: Develop and deliver training programs for public health professionals and IT staff to help them understand and effectively use new interoperability standards and systems. This includes training on data exchange protocols, security practices, and troubleshooting. Public health workgroups, training programs, and other tools play a vital role in building skills in health data interoperability. Workgroups, such as those organized by the Public Health Data Standards Consortium (PHDSC) or HL7, bring together experts to develop best practices and guidelines for data sharing. Training programs, like those offered by the CDC or ASTP, focus on educating public health professionals in using interoperable systems, data standards, and health information exchanges (HIEs). Additionally, tools such as online courses, webinars, and hands-on workshops provide practical skills in implementing standards like HL7 FHIR and enhancing public health systems' ability to communicate effectively across different platforms, ensuring better data flow and improved public health outcomes.

Build Capacity: Invest in building the capacity of public health staff to manage and utilize the new systems effectively. This may involve hiring additional personnel, providing advanced training, or partnering with external experts.

Best Practices: Promote the adoption of best practices for data management, sharing, and use among all stakeholders. This includes encouraging consistent use of standards, data quality checks, and secure data handling procedures.

Helpful Resources:

- Public Health Data Modernization Implementation Centers

6.8. Encourage Interoperability Testing and Piloting Program

Pilot Projects: Implement pilot projects to test the interoperability of systems in real-world scenarios. These pilots should involve multiple stakeholders and cover various use cases, such as disease reporting, patient data exchange, and emergency response. Pilots should align with other frameworks already in place such as the Helios FHIR Accelerator, HL7 FHIR Connect-a-thons and HIMSS Interoperability Showcases and CDC Sponsored events.

Test Across Scenarios: Conduct interoperability testing across different scenarios to ensure that systems can effectively communicate under various conditions. This includes testing data exchange during routine operations and public health emergencies.

Refine Technical Approach: Use feedback from pilot projects and testing to refine the technical approach. Address any issues identified during testing, such as data mismatches, delays, or security vulnerabilities.

6.9. Implement Data Quality and Data Harmonization Processes

Standardize Data Formats: Develop and implement processes for standardizing data formats across systems. This ensures that data exchanged between systems is consistent, accurate, and easy to interpret.

Consistency and Accuracy: Work to ensure that data shared between public health systems and their partners is consistent in terms of structure, coding, and meaning. This reduces the risk of errors and misinterpretations.

Data Normalization and Integration: Implement processes for normalizing and integrating data from different sources to create a unified view. This is particularly important for combining data from multiple systems or jurisdictions.

6.10. Establish Monitoring and Evaluation Mechanisms

Monitoring Systems: Set up systems to monitor the performance of data exchange and interoperability efforts, including tracking data exchange volume, system uptime, and the speed and reliability of data transfer. Monitoring should also include processes for identifying, resolving, and tracking data quality issues and processing errors, as these are ongoing elements of interoperability and essential to maintaining system performance.

Track Key Metrics: Identify and track key metrics that reflect the success and impact of the interoperability initiative. Examples include the percentage of data exchanged using standardized formats, the number of participating organizations, and measurable improvements in public health workflows or outcomes. Access to clear, quantitative metrics can also help demonstrate progress to leadership and support requests for additional resources or sustained investment.

Data Analytics for Improvement: Use data analytics to assess performance and identify opportunities to strengthen interoperability. Analyzing trends, detecting bottlenecks, and uncovering new opportunities for data sharing should directly inform continuous improvement efforts and guide future enhancements to systems and processes.

6.11. Engage Partners and Foster Collaboration

Regular Communication: Establish regular communication channels between public health agencies, healthcare providers, IT vendors, and other partners.

Collaboration and Knowledge Sharing: Create opportunities for stakeholders to collaborate and share knowledge. This could include joint projects, workshops, or training sessions that focus on best practices for interoperability and data exchange.

Public and Patient Involvement: Involve patients and the public in discussions about data sharing. This helps build trust and ensures that their concerns and preferences are considered in the design and implementation of interoperability solutions.

Helpful Resources:

- The World Health Organization's Stakeholder Mapping Guide

6.12. Develop and Implement Security Measures

Cybersecurity Protocols: Develop and implement robust cybersecurity protocols to protect data during exchange. This includes encryption, secure data transmission methods, and access control mechanisms.

Data Encryption and Access Controls: Ensure that all data exchanged between systems is encrypted both in transit and at rest. Implement strict access controls to ensure that only authorized personnel can access sensitive data.

Regular Security Updates: Keep security practices up to date to address emerging threats. This includes regularly updating software, conducting security audits, and providing ongoing training for staff.

6.13. Identify and Scale Successful Models (tied to the pilot step)

Expand Successful Solutions: Scale successful interoperability solutions to additional public health programs, regions, or healthcare providers. This might involve expanding the use of HIEs, adopting new standards, or integrating more data sources.

Broaden Participation: Encourage broader participation from healthcare providers, payers, and other stakeholders in the interoperability initiative. This might involve outreach efforts, incentives, or partnerships.

Promote Best Practices Nationwide: Share lessons learned and best practices from successful models with other public health organizations across the country. This can help accelerate the adoption of interoperability solutions nationwide.

6.14. Engage in Continuous Innovation

Explore New Technologies: Continuously explore emerging technologies, such as blockchain, artificial intelligence (AI), and machine learning, to enhance data sharing and interoperability. Pilot new technologies in controlled settings before full-scale implementation.

Stay Informed on Trends: Keep abreast of the latest trends and developments in health IT and interoperability. This might involve attending conferences, participating in research, or collaborating with technology innovators.

Invest in R&D: Invest in research and development to explore new ways to improve interoperability and data exchange. This might involve partnering with academic institutions, technology companies, or other organizations focused on health IT innovation.

Public health innovation requires sustained investment, yet most STLT agencies lack dedicated research and development budgets, making it difficult for them to independently explore emerging technologies or test new data exchange approaches. To avoid widening disparities between well-resourced and resource-limited jurisdictions, STLTs should be encouraged to pursue innovation through partnerships with academic institutions, private-sector innovators, and federal research programs rather than relying solely on internal capacity. National platforms and shared services can further support equitable innovation by providing common infrastructure, reusable components, and scalable services that reduce the need for each jurisdiction to build or procure its own solutions—a paradigm that has historically reinforced an “every STLT for themselves” environment. As the Workgroup considers future opportunities, it may be valuable to explore how a national public health platform could offer shared testing environments, implementation support, and modern capabilities that place all jurisdictions on more equal footing and accelerate nationwide progress in public health data modernization.

6.15. Communicate Progress and Build Public Trust

Report on Progress: Regularly communicate the progress of the interoperability initiative to stakeholders and the public. This might involve publishing reports, hosting public meetings, or using social media to share updates.

Transparency in Data Sharing: Maintain transparency about how data is shared, who has access to it, and how it is protected. This helps build public trust and supports the sustainability of data sharing efforts.

Public Dialogue: Engage the public in ongoing dialogue about the benefits and challenges of interoperability. This might involve public forums, surveys, or partnerships with patient advocacy groups.

7. Conclusion

Addressing outdated public health data sharing policies is foundational to enabling more effective and equitable population health strategies. Public health agencies must modernize laws, policies, and regulations to support standards-based, secure, and timely interoperability. By implementing this Roadmap's recommendations—including aligning with TEFCA, investing in workforce and infrastructure, and adopting common standards—public health entities can increase their readiness for future emergencies and improve everyday public health outcomes.

Outdated policies, regulations, and laws may greatly influence how public health and STLTs are able to share data in a meaningful way to impact population health outcomes. During its emergency response to the pandemic, public health struggled with overcoming data sharing challenges pertaining to meaningful use, privacy and security, and governance. Creating public health policies, laws, and regulations that are modernized and based on current interoperability standards and capabilities is a critical step toward achieving more effective, equitable, and responsive public health systems. By systematically addressing governance, infrastructure, standards, and stakeholder collaboration, public health organizations can overcome current barriers and unlock the full potential of data-driven decision making to influence population health outcomes. This effort requires a coordinated approach, ongoing investment, and a commitment to innovation. The rewards of this effort however are great including improved public health outcomes, more efficient use of resources, and a stronger ability to response to emerging health threats. By embracing these suggested strategies along this Roadmap, public health can lead the way in creating a more connected and informed health ecosystem that better serves communities and populations.

About The Sequoia Project

The Sequoia Project is a non-profit, 501c3, public-private collaborative chartered to advance implementation of secure, interoperable nationwide health information exchange. The Sequoia Project focuses on solving real-world interoperability challenges and brings together public and private stakeholders in forums, such as the Interoperability Matters cooperative and the Data Usability Taking Root Movement, to overcome barriers.

About Interoperability Matters

Interoperability Matters is a Public-Private Cooperative that solves discrete health information sharing challenges through consensus-building workgroups that identify and

prioritize barriers and develop solutions and implementation guidance for the healthcare sector. Launched by The Sequoia Project in 2018, Interoperability Matters engages experts from across the healthcare and healthcare IT communities to identify, prioritize, and collaborate on the most pressing, discrete challenges to nationwide health information sharing. This program, over time, has created, convened, and facilitated cross-industry stakeholder workgroups to address interoperability challenges on a national scale. These workgroups have advanced Information Sharing, Data Usability, Privacy & Consent, Consumer Engagement, Public Health, and more.

About the Public Health Workgroup

About the Authors

The Public Health Workgroup (PHWG), housed within The Sequoia Project's Interoperability Matters Cooperative, focuses on interoperability challenges and opportunities for states and other public health authorities. The PHWG specifically aims to support Public Health departments, as well as other STLT entities with public health responsibilities through its community of practice and targeted deliverables. Key areas of focus include policy and regulatory misalignment, programmatic challenges, modernization needs, data and data privacy, funding, resources (both human and financial), security, and communications. Given the prioritization of public health modernization, the PHWG aims to collaborate with other public health organizations and workgroups (ASTHO, CSTE, NACCHO and others) throughout the country who might have a similar mission. Collaboration among these groups to elevate public health is essential. This Workgroup has an acute focus on driving forward pragmatic recommendations and practical solutions that public health entities and stakeholders can use near and long-term as it relates to interoperability, data exchange and health IT modernization challenges. The PHWG serves as a community of practice for states and other entities to learn about public heath innovations anchored in health IT modernization and interoperability throughout the country.

Finally, the PHWG provides Sequoia with implementable strategic insights tailored to relevant and evolving public health challenges.

The Workgroup composition includes deep public health subject matter experts with real-life experience providing services to their communities and states. Membership has expanded to include state representation, Health Information Exchange Organizations, public health entities, federal, state, and local partners. While there are several ongoing efforts pertaining to public health happening throughout the industry, this Workgroup provides an intersection between health IT modernization, interoperability, and key public health stakeholders nationwide.

A full list of the PHWG membership can be found here: Membership

Background on the Public Health Workgroup

In 2022, under The Sequoia Project's Interoperability Matters Cooperative, the Emergency Preparedness Information Workgroup (EPIW), created a white paper detailing the pros and cons of the EPIW's response to the COVID-19 pandemic. Utilizing the expertise of the Workgroup's public health members, along with others who played a key role in emergency preparedness and response, the white paper provided "boots on the ground" examples and suggestions to improve or change the Workgroup's response to emergencies that will arise in the future. These recommendations stand out for their applicability across a broad spectrum of emergency response and preparedness strategies-from hyper-local efforts within the individual states to initiatives implemented on a national scale.

A key emerging area of focus centered on health data interoperability policy, specifically its impact on the conditions and mechanisms governing data exchange between entities. In response, the Emergency Preparedness Information Workgroup considered a transition to a broader scope to facilitate and progress health IT interoperability in other areas within and across the public health sector, not just emergency response and preparedness. As a result, the Emergency Response Preparedness Information Workgroup expanded and was changed to the Public Health Workgroup (PHWG).

Helpful Resources

- Interoperability Matters: Public Health Workgroup
- Public Health Workgroup Charter
- Pandemic Response Insights and Recommendations White Paper
- ASTHO's Data Modernization Primer and Tactical Guides