



# Puerto Rico Health Information Exchange (PRHIE) Roadmap 2023 – 2026

Version 0.1

DEPARTAMENTO DE  
**SALUD**



**Submitted by:**

BerryDunn

**Charlie Leadbetter, Principal**

[cleadbetter@berrydunn.com](mailto:cleadbetter@berrydunn.com)

**Emily Richards, Program Manager**

[Emily.Richards@berrydunn.com](mailto:Emily.Richards@berrydunn.com)

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# Table of Contents

- Executive Summary ..... 3**
  - Purpose ..... 4
  - Key Definitions ..... 4
  - Background ..... 5
  - Format ..... 6
  - Assumptions and Constraints ..... 7
- Puerto Rico’s HIE Vision and Goals ..... 8**
  - HIE Vision..... 8
  - HIE Goals ..... 8
  - Guiding Principles.....10
  - Alignment With the Medicaid Enterprise .....11
- Federal Goals and Mandates.....11**
  - The Federal Health IT Operating Model.....12
  - Current and Pending Federal Rules Impacting HIE .....14
- HIE Priority Service Areas .....16**
- Advancing HIE Domains.....18**
  - PRHIE Policy Planning .....18
  - HIE Operating Models .....20
    - Public-Private Utilities .....21
  - PRMP’s HIE Workforce .....23
    - PRMP – HIE Staffing Analysis .....25
  - PRHIE Governance .....26
    - PRHIE (Health IT) Advisory Council.....27
  - PRHIE Organizational Model.....28
  - PRHIE Funding Strategies.....28
    - Cost Allocation.....29
    - FFP.....30
    - Medicaid Conditions for Enhanced Funding.....31
    - Recommended Funding Approach.....31
    - Governance of Funding and HIE Certification .....32
    - Oversight of Procurement and Contracting for HIE Operations .....32
- PRHIE Roadmap Timeline .....33**
- Risk and Mitigation Strategies .....35**

**Appendices .....37**  
Appendix A: Glossary of Acronyms .....37  
Appendix B: Roadmap Implementation Timelines.....39

## Executive Summary

For decades, there has been consensus that the use of health information can positively impact the quality and cost of care, reduce administrative burdens associated with the provision of care, and enhance population health management. To that end, the federal government has deployed several initiatives to promote the use of health data, including the establishment and development of Health Information Exchanges (HIEs) to collect, standardize, and make health data accessible through a central repository or network.

Beginning in 2004, President George W. Bush announced a 10-year goal of ensuring most Americans have electronic health records (EHRs) to avoid dangerous medical mistakes, reduce costs, and improve care. That same year, the Office of the National Coordinator for Health Information Technology (ONC) was established as the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health IT and exchange.

These efforts were followed by the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act as part of the U.S. American Recovery and Reinvestment Act (ARRA) focused on incentivizing the adoption of EHR systems. The ONC introduced the Cooperative Agreement Program, which provided grants supporting HIE implementation and expansion. States could provide additional funding to HIE initiatives through the EHR incentive program to support the interoperability and exchange goals associated with incentive requirements.

As HITECH Act funding expired in 2021, and the ONC increasingly shifted focus to the standards and agreements that facilitate interoperability, the Centers for Medicare & Medicaid Services (CMS) focused on supporting states and territories in developing modular, person-centered Medicaid Enterprise Systems (MES) that enable the effective and efficient operation of Medicaid programs. HIE services are part of the MES because they target improvements in care delivery for Medicaid beneficiaries and HIE data can support cost-reduction activities like care coordination, utilization review, and value-based care.

Puerto Rico began its journey toward interoperability care systems that support patients across the island as early as 2012 with the passage of legislation to support the establishment of a Health Information Network. After past attempts and progressions, Puerto Rico now finds itself well positioned to establish HIE capabilities for the island as technologies have matured and proved their value. CMS has created a funding pathway for sustained HIE services within the Medicaid Enterprise, and Medicaid leaders are invested in using data-driven systems to improve health and well-being. Additionally, federal incentive programs that supported the digitization of health records have encouraged progress in shifting from paper records to electronic record keeping.

“Health IT is a foundational component of healthcare in the United States and is critical to improving our health system. It has moved from being one tool in the healthcare toolbox to an integral component of healthcare delivery.”

*Office of the National Coordinator for Health IT, 2020 – 2025 Federal Health IT Strategic Plan*

## Purpose

The purpose of this Puerto Rico HIE (PRHIE) Roadmap is to provide tactical plans to support the establishment of a sustained HIE operation that satisfies federal mandates for stakeholders and focuses efforts on areas key to success such as governance, the workforce, policy, and funding.

Although the scope of the roadmap covers the period 2023 to 2026, the activities detailed in the strategy are intended to mature to support evolving needs in Puerto Rico’s health and human service communities over time.

The PRHIE Roadmap was developed for the Puerto Rico Medicaid Program in partnership with key stakeholders. The roadmap intends to unify stakeholders around a common understanding of short- and long-term strategies targeted at the establishment and sustainability of HIE services.

- The **primary audience** of the roadmap is the Puerto Rico Medicaid Program’s (PRMP’s) leadership team to provide background and direction on key focus areas to progress the HIE project into a service area that can be sustained and certified as part of the Medicaid Enterprise.
- The **secondary audiences** for the roadmap are the PRHIE Advisory Council, Puerto Rico Department of Health (PRDoH) leadership, healthcare providers, and other key stakeholders who have an interest in and/or influence over the trajectory of HIE activities in the Commonwealth of Puerto Rico.

## Key Definitions

For the purposes of this roadmap document, health IT and HIE are defined as follows:

Health IT	HIE
The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of healthcare information, data, and knowledge for communication and decision-making. <sup>1</sup> Health IT supports the <i>exchange</i> of health information and is inclusive of <i>HIE</i> technology.	HIE encompasses two related concepts: <ul style="list-style-type: none"><li>• Verb: The appropriate and confidential electronic exchange of clinical information among authorized organizations (generally spelled out as “health information exchange” in this report).</li><li>• Noun: An organization with agreed-upon operational and business rules that provides services to enable the electronic and secure sharing of health-related information<sup>2</sup> (generally referred to as “HIE” in this report).</li></ul>

<sup>1</sup> HealthIT.gov. n.d. “Glossary.” *The Office of the National Coordinator for Health Information Technology*. Accessed September 28, 2023. <https://www.healthit.gov/topic/health-it-basics/glossary>

<sup>2</sup> HealthIT.gov. n.d. “Frequently Asked Questions.” *The Office of the National Coordinator for Health Information Technology*. Accessed September 28, 2023. <https://www.healthit.gov/faq/what-health-information-exchange>

Definitions for additional terms commonly used throughout the report include the following:

- **Puerto Rico Electronic Health Information Network (PRHIN):** The nonprofit independent corporation responsible for HIE administration in Puerto Rico based on Puerto Rico Law 40 of 2012.
- **PRHIE:** The technology and supporting operations administered to enable HIE services in Puerto Rico.
- **PRMP:** The designated State Medicaid Agency responsible for operation of Medicaid, including providing oversight for the Medicaid Promoting Interoperability Program of Puerto Rico (MPPIPR). Administratively, PRHIE is now under the responsibility of PRMP.
- **PRDoH:** The cabinet-level agency under which PRMP and other public health- and health-related programs (e.g., epidemiology, immunization registry, vital statistics) fall; per Puerto Rico Law 40 of 2012, the secretary of health is an ex officio member of the PRHIN Board.

## Background

In 2012, Puerto Rico enacted Law 40 of 2012 to as the "Law for the Administration and Electronic Exchange of Information." In 2019, Puerto Rico began work to establish the PRHIN (now referred to as the PRHIE), originally called for in Law 40 of 2012, as a state-designated nonprofit focused on providing HIE services to the island, supported by a legislatively authorized board of directors. According to the law, the PRHIN was established as a nonprofit corporation to serve as the state-designated entity (SDE) and to develop and implement plans for the exchange of health data across the Commonwealth's healthcare ecosystem through operation of Puerto Rico's HIE.

In 2020, PRDoH began contracting with Health Gorilla directly (previously as a subcontractor to Intervoice to support planning services) to provide technical planning and operational HIE services. That same year, the PRDoH partnered with a health IT consultant to lead several planning activities, including performing a health IT assessment, beginning to define the future environment, identifying gaps between the current and desired future environment, and developing tactical plans for progressing health data exchange.

In early 2023, PRDoH deployed a corrective action plan to mitigate issues identified with HIE technical and operational services. That same year, the PRMP reestablished ownership of the HIE project, with a focus on maximizing benefits to Medicaid plans, providers, and patients. In accordance with Commonwealth procurement policy, PRMP will execute a request for proposals (RFP) to continue HIE services beyond June 2023—when the current vendor's contract ends.

While the roadmap is under development and procurement activities occur, PRMP has identified the following priorities through June 2024:

- Maintain continuity of HIE data services provided by the HIE vendor

- Support providers' compliance with CMS requirements
- Keep patient data safe; ensure the vendor system meets and maintains necessary security standards
- Enforce compliance with the existing vendor contract
- Develop an HIE Roadmap that clearly illustrates PRHIE operations and development plans
- Execute a PRHIE procurement based on HIE service needs, as defined by PRMP with support from the PRHIE Advisory Council, and in accordance with all federal and local data exchange and Medicaid IT standards

## Format

The roadmap is designed to illustrate essential elements required to establish functional HIE operations in Puerto Rico. To establish context for the strategies and tactics included in the roadmap, this document provides a brief overview of the history and entities that influence and inform the Commonwealth's ability to operate meaningful HIE services. **Figure 1, Strategic Elements – PRHIE Roadmap 2023 – 2026**, summarizes the areas in which the roadmap focuses to drive progress in the development and operation of the PRHIE.

**Figure 1: Strategic Elements – PRHIE Roadmap 2023 – 2026**



# Assumptions and Constraints

**Table 1: PRHIE Roadmap Development Assumptions and Constraints**

<b>Assumptions</b>	The PRHIE Roadmap provides a tactical path for the next few years (including development of an RFP for a vendor to operate the HIE and oversee technical services) and is not a longer-term strategic plan for HIE implementation. This time frame reflects the constraints listed below.
	The Health IT Assessment Report (2020) informs the PRHIE Roadmap. In several content areas, more recent conversations and decisions supplement and expand on material in the assessment report. As indicated in the assessment report, BerryDunn will use additional information about the current and desired future environment to reflect the most current information in subsequent project documents, including this PRHIE roadmap.
	The PRHIE Roadmap 2023 – 2026 will be updated with involvement from stakeholders (PRDoH leadership, CMS, the PRHIE Advisory Council, etc.) before it expires.
	The PRHIE Advisory Council is new. The group will be informed and consulted through the strategic planning process as much as possible, with consideration for the group’s stage of development. This group is expected to drive strategic planning in the future.
<b>Constraints</b>	The Health Gorilla contract expires in June 2024. PRMP is expected to develop an RFP to procure an operator of HIE IT services. The roadmap incorporates this constraint into a resulting two-year timeline.
	There is no longer-term HIE Strategic Plan to inform this two-year roadmap. The roadmap accommodates this constraint by focusing on tactics and outcomes that have a very low risk of jeopardizing any longer-term HIE developments and are foundational to sustained, more sophisticated HIE efforts.
	This is a point-in-time proposed strategy and is based upon information provided to BerryDunn at the time of development. The roadmap should quickly initiate a series of implementation projects to be completed in the next two years. Even with the dynamic nature of the environment in Puerto Rico, BerryDunn expects that the content of this roadmap will remain accurate and actionable during the time frame, except for project delays that may occur.

The assumptions and constraints detailed in **Table 1** framed the development of the roadmap. Assumptions are premises about the business, policy, technical, and/or other factors in the project environment that, for the sake of the project, are taken as fact. Constraints are known facts over which there is limited or no control.

Constraints can affect the scope, direction, planning, and implementation of a project.

# Puerto Rico's HIE Vision and Goals

The value of HIE is clear across healthcare systems, and the ways in which government participates in investing in and supporting interoperability have become commonplace. With agreement around the value of HIE, PRMP and key stakeholders designed a vision for the future of health data aggregation and use on the island.

## HIE Vision

A vision is a way to express the purpose of an activity and the ultimate desired end state. Puerto Rico took inspiration from the national conversation and movement toward leveraging HIE infrastructure designed to collect, sort, protect and standardize data to benefit care delivery, quality improvement, and population health management activities. This concept drives toward the creation of HIE as a utility that uses one shared technical resource for the public good, making data available for many uses and transforming an HIE into a Health Data Utility (HDU).



**HDUs ARE MODELS WITH COOPERATIVE LEADERSHIP, DESIGNATED AUTHORITY, AND ADVANCED TECHNICAL CAPABILITIES TO COMBINE, ENHANCE, AND EXCHANGE ELECTRONIC HEALTH DATA ACROSS CARE AND SERVICE SETTINGS FOR TREATMENT, CARE COORDINATION, QUALITY IMPROVEMENT, AND COMMUNITY AND PUBLIC HEALTH PURPOSES.**

Civitas Networks for Health, Health Data Utility Framework – A Guide to Implementation

While HIE activities tend to reflect the needs and preferences of a locality, the HDU Model commonly:

- Relies on an HIE as a single, accessible resource for health data
- Makes data from multiple sources available through user-dependent access points (e.g., patient portal, query/retrieve from EHR, aggregate data for reporting)
- Support care treatment, care coordination, quality improvement, public health, human services (community-based services) through access to a reliable, longitudinal health record
- Maintains the highest level of protections to ensure patient privacy

There are many states now either pursuing or operating an HDU as the drive for data to inform health and human services increases. Therefore, as Puerto Rico matures its HIE toward the achievement of this vision, there will be many best practices to rely upon.

## HIE Goals

Goals are a mechanism to articulate actionable, measurable achievement on which to focus. PRMP and its partners took inspiration from ONC and CMS goals, which play a significant role in driving toward national interoperability and supporting sustainable, effective Medicaid operations. PRMP also considered the quadruple aim, designed by the Institute for Health Care

Improvement, to focus health system improvements on executing a holistic approach that considers the patient experience, health outcomes, lowered costs of care, and improved staff experiences. **Table 2** compares the goals articulated by federal partners and those pursued by Puerto Rico.

**Table 2: Comparison of Puerto Rico’s HIE Project Goals with ONC and CMS Goals**

ONC	CMS	PRHIE
<ol style="list-style-type: none"> <li>Promote health and wellness</li> <li>Enhance the delivery and experience of care</li> <li>Build a secure, data-driven ecosystems to accelerate research and innovation</li> <li>Connect healthcare with health data</li> </ol>	<p>Help ensure that states/territories have the health IT capacity and infrastructure to accomplish their Medicaid program goals.</p> <p>Identify and adopt a common set of health IT standards (where federally recognized standards exist) among states to promote information sharing (interoperability).</p>	<ol style="list-style-type: none"> <li>Improve healthcare quality and safety and ease access to care</li> <li>Increase patient engagement in achieving health and wellness</li> <li>Gain operational efficiencies and reduce healthcare costs</li> <li>Streamline information access to support clinical decision making</li> <li>Enhance public health prevention, disease management, and emergency response</li> <li>Develop systems to transparently govern health data exchange</li> <li>Participate in national interoperability efforts</li> <li>Advance interoperability in Puerto Rico</li> </ol>

It is expected that PRMP’s HIE goals will continue to evolve as project strategies are evaluated, priorities shift, and the possibilities offered by an HIE become more sophisticated.

Puerto Rico’s HIE goals are depicted in **Figure 2**. All goals are underpinned by the concept of continual maturing to support evolving needs across health and human services.

**Figure 2: Puerto Rico’s HIE Goals**



## Guiding Principles

Medicaid investments are guided by operational, financial, and technical frameworks to help ensure the viability of systems and alignment with the goal of efficient, economical Medicaid operations. Additionally, PRMP developed the following guiding principles to focus HIE project efforts and transparently communicate with stakeholders about what guides project activities.

### **HIE Guiding Principles**

- Connect health systems with data to reduce burden, enhance care delivery, and reduce unnecessary costs of care
- Build with sustainability in mind, leveraging existing HIE investments whenever possible
- Meet providers where they are; provide options for accessing data that are realistic and meet their needs
- Treat data as the most valuable asset
- Contract with portability and modularity in mind
- Focus on use cases, technologies, and partners that have proven results
- Enhance the Medicaid-IT Enterprise as an outcomes-based system and service
- Work in service of the Medicaid health plan, its providers, and its beneficiaries
- Adhere to federal requirements and health IT strategies
- Support providers in meeting CMS compliance requirements

## Alignment With the Medicaid Enterprise

PRMP maintains goals to enhance data quality and improve data integration across the Medicaid Enterprise. Specifically, PRMP goals that the PRHIE will support include improving the quality of—and strengthening the trust in—data across the Medicaid and health IT enterprise by:

- Establishing interfaces for data verification (Medicaid Management Information Systems and Eligibility & Enrollment)
- Complying with Medicaid Promoting Interoperability Programs (PIP) requirements
- Aligning with standards described in the Interoperability Standards Advisory published by the ONC for Health IT
- Complying with federal reporting (i.e., CMS-64 and CMS-37)
- Improving data integration and providing tools and training-related support for PRDoH staff, healthcare providers, and Medicaid members to further understand and analyze data from across the Medicaid Enterprise

In addition, PRMP envisions that the PRHIE will promote interoperability and help Medicaid providers (i.e., eligible professionals [EPs] and eligible hospitals [EHs]) achieve and maintain Meaningful Use (MU) Stage 3 by accelerating coordination of care and providing the necessary tools for providers to comply with federal requirements. PRMP will focus on advancing data collection among Puerto Rico's Medicaid providers and, eventually, on improving interoperability across all healthcare providers and other entities, as appropriate. This data exchange will improve Medicaid members and provider access to secure, timely, accurate clinical data; improve the coordination of care; and facilitate public health reporting within Puerto Rico and with national registries.

## Federal Goals and Mandates

PRHIE efforts are guided by federal ONC and CMS/Medicaid interoperability principles, goals, and objectives that provide foundational direction and support for successful and transformative information exchange.

The federal goals provide useful input for state/regional and national infrastructure for health IT interoperability. Over time, federal HIE goals have shifted from primarily advancing technology to advancing care.

Alignment with federal directives provides greater assurance that the PRHIE can serve as a hub for connectivity and advanced health IT capabilities that support improved patient care across Puerto Rico's healthcare sector, with a focus on those serving Medicaid beneficiaries. It also increases the likelihood that the PRHIE will be able to communicate with other exchange networks used in a variety of care settings and other states and territories.

## The Federal Health IT Operating Model

The ONC and CMS have distinct, but interdependent, roles as it pertains to advancing the use of health data to benefit patient care, healthcare operations, and population health management.

The ONC is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health IT and the electronic exchange of health information. The position of National Coordinator was created in 2004, through an executive order, and legislatively mandated in the HITECH Act of 2009.

Through its work, the ONC remains focused on two strategic objectives:

1. Advancing the development and use of health IT capabilities
2. Establishing expectations for data sharing

Within CMS, the Health Informatics and Interoperability Group promotes the secure exchange, access, and use of electronic health information to support better informed decision-making and a more efficient healthcare system. CMS requires, through incentives and programs, the use of certified technology and standard techniques to access and share information.

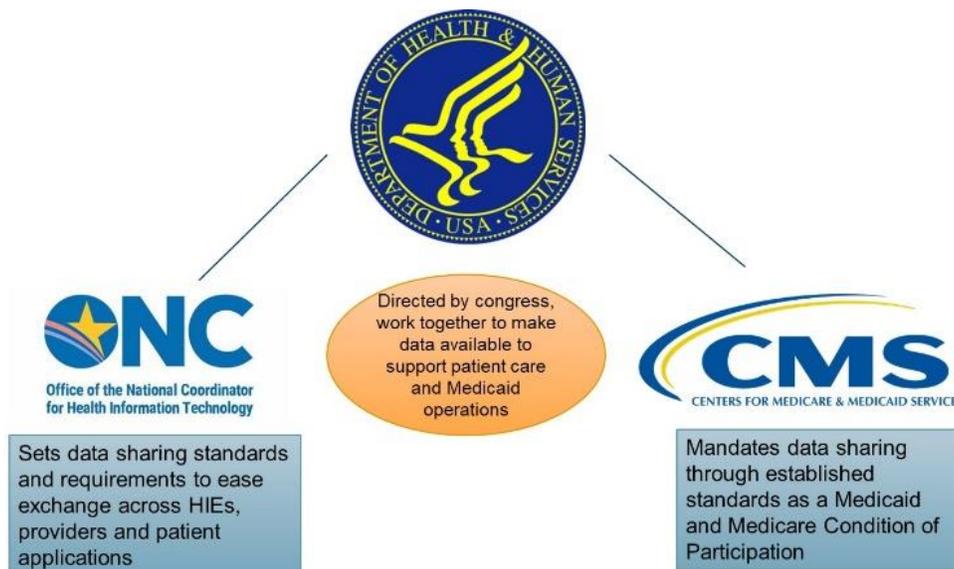
CMS has its own health IT goals and objectives for Medicare and Medicaid program providers to help enhance interoperability through targeted funding. State Medicaid programs must:

- Help ensure they have the health IT capacity and infrastructure to accomplish their Medicaid program goals
- Identify and adopt a common set of health IT standards (where federally recognized standards exist) among states to promote information sharing (interoperability)

In basic terms,

- ONC sets standards for certified EHR systems and for the exchange of health information.
- CMS requires certified technologies and standardized solutions for systems and programs accessing CMS payments.
- Providers procure certified technology or pressure vendors to enhance their systems to meet CMS requirements.

Figure 3: Federal Health IT Operating Model



CMS—which can provide significant federal financial participation (FFP) to support HIE development and operations—expects state/territories to align with the mandates, data-sharing standards, and technical requirements it has set forth. These rely upon the standards, requirements, and programs designed by the ONC. Alignment with CMS and ONC’s health IT strategies and practices is essential to retaining ongoing federal investment in HIE activities.

Other federal initiatives that inform and support state/territory programs and projects related to health data collection and health information exchange:

- The Data Modernization Initiative, called for by the Centers for Disease Control and Prevention (CDC), requires states to develop data modernization strategies and design improvements to core data and surveillance infrastructure. The CDC is also promoting the North Star Architecture as a core component of its goal to make “public health data work better” and serve as a “blueprint” for improved public health data management and sharing between state and federal systems.<sup>3</sup>
- The Gravity Project, a national public collaborative that develops consensus-based clinical data standards to improve how information on social determinants of health (SDOH) is collected, used, and shared.

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<sup>3</sup> Centers for Disease Control and Prevention. n.d. “North Star Architecture.” *Centers for Disease Control and Prevention*. Accessed September 30, 2023. <https://www.cdc.gov/surveillance/data-modernization/technologies/north-star-architecture.html#What%20is%20the%20public%20health%20ecosystem>

## Current and Pending Federal Rules Impacting HIE

Following the expiration of the Medicaid Promoting Interoperability Program, which incentivized the digitization of health records, CMS and the ONC introduced two rules to promote use and exchange of standardized health data. New federal rules focus on leveraging health data technologies to reduce burden and costs, improve care, and involve the patient in their healthcare experience and outcomes. The newly introduced health data rules are:

1. **21st Century Cures Act: Interoperability, Information Blocking, and the Health IT Certification Program (ONC)**
2. **Interoperability and Patient Access Rule (CMS)**
3. **Health Data, Technology, and Interoperability: Certification Program Updates, Algorithm Transparency, and Information Sharing (HTI-1),**

The ONC rule, **21st Century Cures Act: Interoperability, Information Blocking, and the Health IT Certification Program** establishes secure, standards-based application programming interface (API) requirements to allow patients to access and control their electronic health information via smartphones and other electronic devices. The ONC's final rule also finalized specific technical interoperability standards for payers and developers to use.

The Cures Act final rule requires the use of standards-based APIs and a new common data vocabulary. CMS then adopted the vocabulary and API technical requirements and applied them to the interoperability and patient access final rule described below.

ONC's Cures Act final rule also defines and prohibits information blocking. With information blocking, certain actors, including health care providers and HIEs, cannot refuse an authorized request for electronic health information.

Additionally, the ONC has proposed a rule called, **Health Data, Technology, and Interoperability: Certification Program Updates, Algorithm Transparency, and Information Sharing (HTI-1)**, which seeks to implement provisions of the 21st Century Cures Act and make updates to the ONC Health IT Certification Program with new and updated standards, implementation specifications, and certification criteria. Implementation of the proposed rule's provisions will advance interoperability, improve transparency, and support the access, exchange, and use of electronic health information.

The **CMS Interoperability and Patient Access Rule** requires health plans in Medicare Advantage, Medicaid, the Children's Health Insurance Program (CHIP), and on the federal health insurance exchanges to share claims and other health information electronically with patients in a safe, secure, user-friendly electronic format. It also requires hospitals to notify providers of transitions in patient care and requires payers to share data to reduce redundant billing practices.

This final rule permits and encourages the use of an intermediary, such as an HIE, that manages care relationships and routes notifications to the appropriate provider.

Table 3 summarize how these health IT policies impact specific entities, including HIEs, hospitals/providers, health insurance payers, and patients.

**Table 3: Federal Health IT Policy by Impact Entity**

HIEs	Hospitals and Other Providers	Payers	Patients
<b>ONC: Interoperability, Information Blocking, and the ONC Health IT Certification Program</b>			
<ul style="list-style-type: none"> <li>HIE Certification Standards</li> <li>Defines API-related business practices for <u>ONC-certified</u> health IT developers. – <i>certification is voluntary.</i></li> <li>Process standardized messages to extract and aggregate data for value-added use (e.g., portals)</li> <li>Subject to information blocking rule</li> </ul>	<ul style="list-style-type: none"> <li>Leverage certified features and systems to support payment reform programs</li> <li>Utilize message and exchange standards to support care coordination and alerts</li> <li>Subject to information blocking rule – must share information with patients upon request</li> </ul>	<ul style="list-style-type: none"> <li>Utilize available health information for analytics and quality reporting to participate in payment reform.</li> </ul>	<ul style="list-style-type: none"> <li>Standards support patients in accessing health information from payers, including claims and any clinical details through third-party apps</li> <li>Standards enable smart phone portability of health information</li> <li>Providers serving patients have standards-based access to health information</li> </ul>
<b>CMS: Patient Access and Interoperability Rule</b>			
<ul style="list-style-type: none"> <li>Must provide patient's access to their health records via API calls from third-party apps</li> <li>Can serve as intermediary for providers' ADT alert requirement</li> </ul>	<ul style="list-style-type: none"> <li>Must send ADT alert notifications to providing entities.</li> </ul>	<ul style="list-style-type: none"> <li>Must provide API access to individual claims and clinical information</li> <li>Must support Provider Directory access via APIs.</li> </ul>	<ul style="list-style-type: none"> <li>Empowered to access health information from payers through API calls, including use of third party applications (apps).</li> </ul>
<b>ONC-Proposed Rule: Health Data, Technology, and Interoperability: Certification Program Updates, Algorithm Transparency, and Information Sharing (HTI-1)</b>			
<p>→ Adopts USCDI V3; → updated API standards; → Electronic case reporting using HL-7 CDA and HL-7 FHIR; → clinical decision support including interfaces with predictive models or algorithms; → support to flag pieces of USCDI data to restrict from use or disclosure</p>			

# HIE Priority Service Areas

In the summer of 2024, PRMP expects to contract for continued HIE services as its current HIE services contract expires. Through that procurement, it will authorize what is expected to become a state-designated HIE operator (SDE) to oversee and support the provision of HIE services as well as procure the technology that enables such services. This short-term (2023 – 2026) PRHIE Roadmap sets PRMP on a path toward establishing a viable, sustainable HIE operation. To that end, priority services areas for implementation by the HIE operator were selected. The areas selected:

- Are foundational, meaning they must be in place to allow for more advanced HIE services to be developed.
- Are proven to add value and advance common health data-sharing goals.
- Have gained consensus from CMS as important to the Medicaid community and, therefore, eligible for Outcomes-Based Certification, opening the door to enhanced and ongoing federal funding for HIE.

**Figure 4** describes each priority focus area, with a notation for the outcome area for which the service will be of most direct benefit using the CMS Outcomes-Based Certification terminology. Each of these high-priority initiatives—identified as the focus of HIE investments through 2026—is expected to mature in capabilities and grow uses and users over time.

**Figure 4: PRHIE Roadmap 2024 – 2026 High-Priority Initiatives**

<b>1</b> <b>Data Access</b> <b>Connecting Providers to Patients' Longitudinal Health Records</b>	<b>2</b> <b>Electronic Alerting</b> <b>Notifying Providers of Patients' Admittance, Transfer, or Discharge from Care</b>	<b>3</b> <b>Public Health Reporting</b> <b>Automating Reporting to Enhance Quality and Volume and Reduce Provider Burden</b>	<b>4</b> <b>Emergency Response</b> <b>Leveraging HIE Data to Enhance Disaster Response</b>
<ul style="list-style-type: none"> <li>• HIEs allow providers to access patient health records in alignment with their current workflows, such as HIE data sent directly to the EHR</li> <li>• For providers who do not have EHR systems, a provider portal offers great value as an electronic access point to patient records from multiple care settings</li> <li>• Access to patient records is known to enhance care delivery, reduce burdens on staff and patients, and decrease instances of duplicative services/testing</li> <li>• MCOs can use clinical data to support process optimization and delivery system reforms</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic notifications of changes to patients' care status is known to positively impact outcomes and costs by reducing hospital readmissions and mitigating gaps in care</li> <li>• CMS requires Medicaid and Medicare hospital care providers to notify other providers of admissions, discharges, and transfers (ADTs)</li> <li>• ADTs are a well-standardized data transmission type supported by all certified EHRs</li> <li>• Event notifications are offered by HIEs or by third parties who work in partnership with HIEs and health systems</li> </ul>	<ul style="list-style-type: none"> <li>• HIEs can automate delivery and standardization of required public health reporting</li> <li>• Using the HIE to support automation leverages the existing connection to an HIE instead of requiring a provider to log data in an additional system</li> <li>• HIEs can normalize data to be most efficiently ingested by the public health authority</li> <li>• Quality, robust data enhances opportunities to support and manage population health</li> <li>• Mature EHRs and HIEs can support real-time electronic case reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Use the data on the HIE and associated ADT alerting infrastructure to improve health care coordination during times of disaster</li> <li>• Support care delivery by developing systems to make health data accessible to emergency responders</li> <li>• Enhance missing persons identification by using clinical records to find displaced people</li> </ul>
CMS Outcome Area: Care Coordination	CMS Outcome Area: Event Notification	CMS Outcome Area: Public Health	CMS Outcome Area: Care Coordination

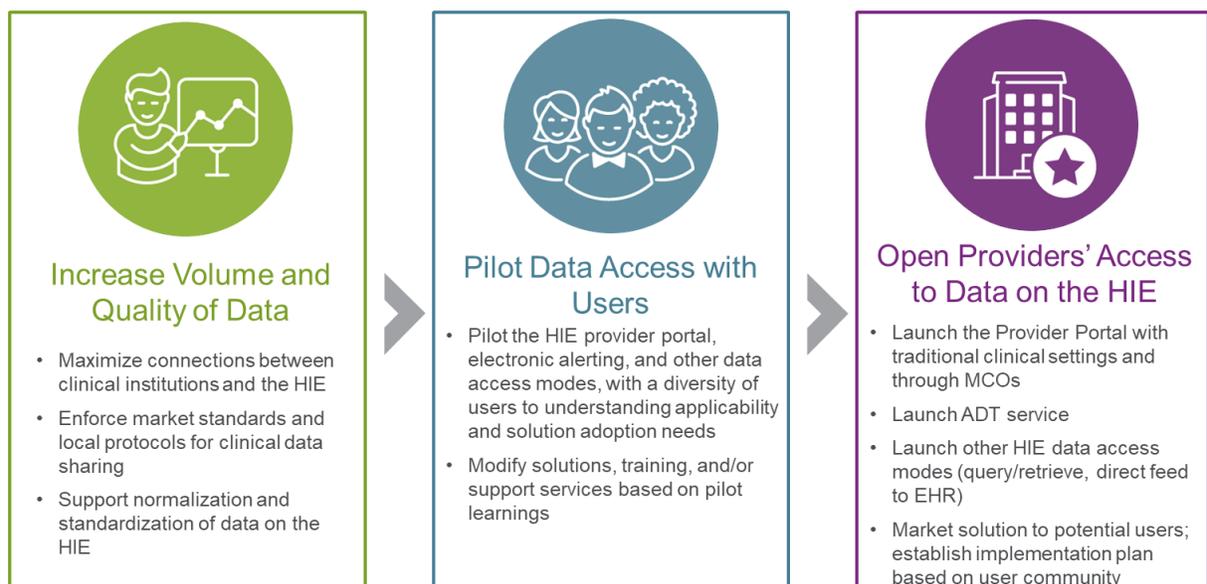
The short-term path to establishing an HIE operator that can offer data services (data access, electronic notification, etc.) relies on the aggregation of quality, reliable clinical data from clinical care settings. Since 2020, PRMP has contracted for HIE services focused on the integration of EHR data onto a central HIE repository. At the time of development of the PRHIE Roadmap 2023 – 2026, Puerto Rico’s HIE environment contains data from 72% of hospitals, 95% of lab information management systems, and 30% of Federally Qualified Health Centers (FQHCs). While data is being aggregated on an HIE platform, in 2023, data is not yet being made available beyond reporting to the PRDoH to support epidemiology.

In 2023, PRMP partnered with the HIE vendor to take several actions to improve the quality and usability of data in the HIE repository, including:

- Publishing updated Health Level Seven (HL7) specification for ADT, ORU, and CCDA (demographic, labs/observations, notes) message types to encourage standardization across data exchange through the HIE.
- Enhancing the Master Patient Index (MPI) to help ensure the best methods and data support record matching across settings.
- Improving and documenting the technical onboarding process to streamline the process for establishing a connection between electronic data systems and the HIE.
- Improving and documenting HIEs processes (e.g., interface control, data integrative, and record matching) to support adequate data management activities.

As a new contract for HIE services begins in July 2024 (planned), Puerto Rico’s HIE operator will need to focus on maximizing data flowing into the HIE central repository, ensuring data is standardized and managed for use across settings, piloting data services with real users, and thoughtfully opening data access to appropriate users. **Figure 5** details the near-term focus of an HIE operator to help ensure that HIE services set the stage for secure, meaningful access to health data in manner that can be continually expanded and built upon.

**Figure 5: A Process for Connecting Providers to Patients’ Longitudinal Health Records**

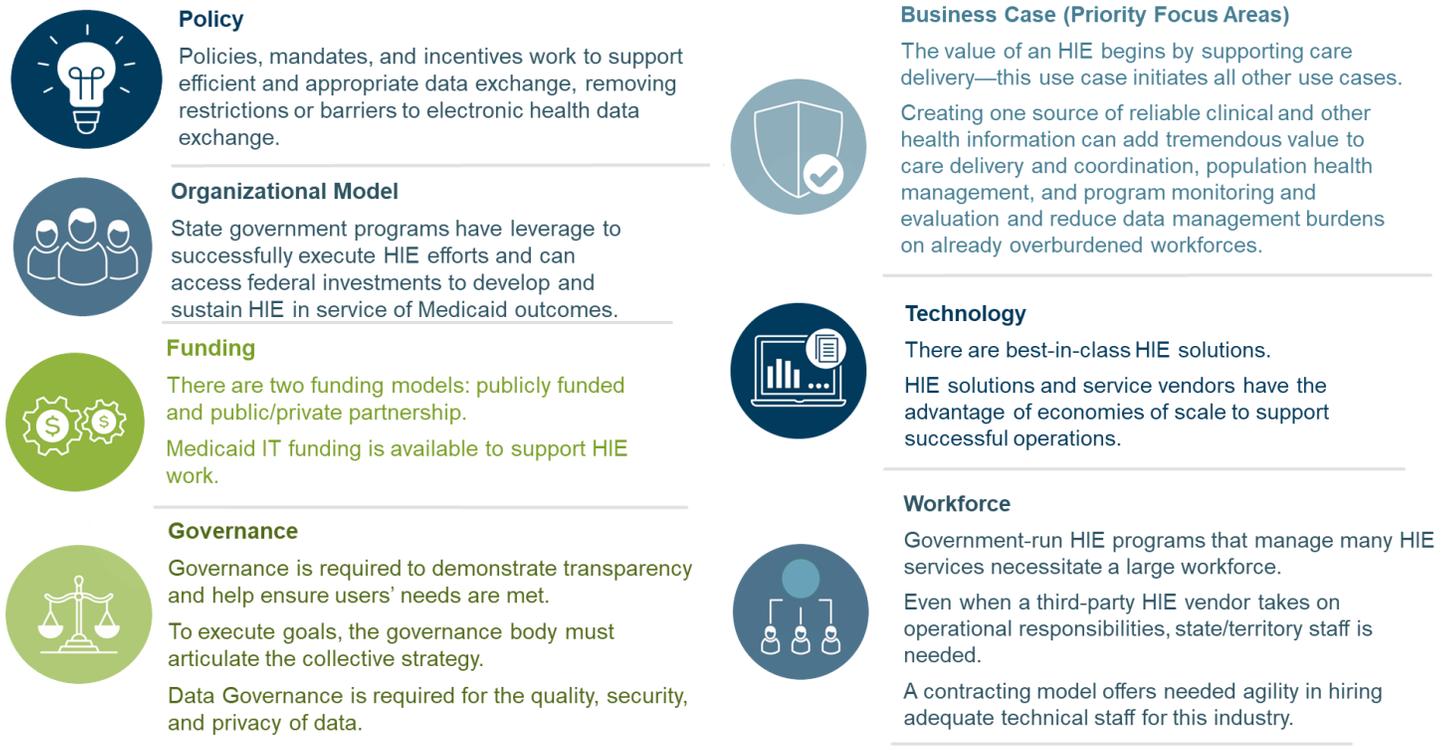


# Advancing HIE Domains

HIE is often thought of as the technology that allows for the collection and exchange of health data. However, there is considerably more needed if data are to be used and managed appropriately to enhance care delivery, streamline care coordination, reduce provider burden, support population health management, and address myriad other possibilities.

To create a utility that can serve a population, HIE requires policy, governance, financing, and an operating model to work in concert with technical services to establish the environment required to enable appropriate health data exchange. HIE technologies are made functional through the development of these domains. **Figure 6** briefly describes HIE domain areas and their importance to establishing and accelerating health data exchange.

**Figure 6: HIE Domains**



## PRHIE Policy Planning

Policies, mandates, and incentives work to support efficient and appropriate data exchange, removing restrictions or barriers to electronic health data exchange. HIE policies direct and protect data exchange and authorize the roles of those involved in effectuating data sharing.

HIE policies may include:

- Authorization of the roles and responsibilities of the HIE governance body (e.g., Advisory Council) such as defining the strategic direction of collective HIE investments.

- Designation of members for the HIE board of directors to help ensure appropriate representation in the oversight of HIE operations.
- Designation of an HIE operator as a state-designated HIE authority.
- Directives for how consent to share data is managed.
- Restrictions around who can access data on the HIE and for what purposes to include how HIE services may be sold, if at all.

Today, Puerto Rico uses mandates to direct data reporting to the PRDoH through administrative orders. Puerto Rico Law 40 of 2012 authorizes the PRHIN and its Board of Directors. As that authorization was set to expire in July 2019, the Commonwealth reestablished the PRHIN. According to the law, PRHIN was established as a nonprofit corporation to serve as the SDE and to develop and implement plans for the exchange of health data across Puerto Rico’s healthcare ecosystem through operation of the Commonwealth’s HIE, also referred to as the PRHIE. In the longer-term, Puerto Rico may consider a policy strategy that employs a combination of incentives, mandates, and/or conditions of participation to achieve the desired health data exchange environment that promotes data sharing in accordance with the goals of Medicaid Managed Care, value-based care initiatives, public health, and others. **Figure 7** describes the incentives and mandates a state/territory can use to promote HIE.

**Figure 7: Incentives and Mandates States Use to Promote HIE<sup>4</sup>**

<p><b>Medicaid Incentives</b> Health care providers/payers receive increased reimbursement for participation in an HIE</p>	<p><b>Conditions of Participation</b> Health care providers/payers must participate in an HIE to be allowed to join Medicaid or a Shared Savings program</p>
<p><b>Connection Grants</b> Hospitals and medical practices receive money for the initial integration to an HIE</p>	<p><b>Public Health Authority</b> Public health agencies collect data under state authority and share it with an HIE for specific purposes</p>
<p><b>Legislated Mandate</b> State law requires health care providers/payers to join and contribute data to one or more HIEs</p>	<p><b>Mandated Use</b> State law or regulation requires health care providers to check records when providing certain treatment</p>

In the shorter term, to progress the strategies detailed in this PRHIE Roadmap, PRMP and its partners can focus on:

- Developing a charter and associated letter from an appointed authority to authorize and specify the PRHIE Advisory Council’s role in supporting PRHIE strategic planning and development activities.
- Revising Puerto Rico Law 40 of 2012 to reflect updated language and authority related to the operation of the PRHIE and the operators board of directors.

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<sup>4</sup> Civitas Networks for Health. June 2022. *Paper IV: Incentives and Mandates States Use to Promote Health Information Exchange*. Washington, D.C.: Civitas Networks for Health. <https://www.civitasforhealth.org/wp-content/uploads/2023/01/04-Incentives-and-Mandates-FINAL.pdf>

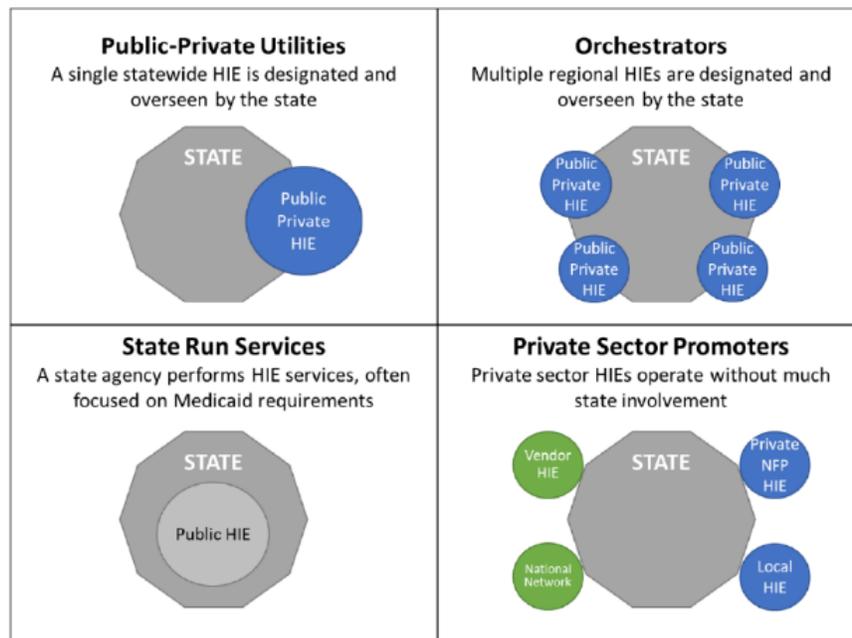
- Reviewing and revising PRDoH’s administrative orders to help ensure the data-sharing mandates best align with the current capabilities of HIE services and desires of the Public Health Authority.

These activities will progress health information exchange by appointing an authority, the Advisory Council, to represent the healthcare and public health communities in HIE evaluation and planning, making the HIE’s designation and role clear to the community it serves, and helping to ensure that reporting mandates are reflective of public health operations and act to reduce provider burden by leveraging the HIE.

## HIE Operating Models

In a recent publication, Civitas Networks for Health analyzed the current HIE landscape in the United States and determined there are four high-level HIE operating models that currently reflect HIE operations across the states, as depicted in **Figure 8**.

**Figure 8: HIE Operating Models<sup>5</sup>**



<sup>5</sup> Civitas Networks for Health. June 2022. *Paper I: Methods States Use to Organize and Promote Health Information Exchange*. Washington, D.C.: Civitas Networks for Health. Accessed September 30, 2023. <https://www.civitasforhealth.org/wp-content/uploads/2023/01/01-Methods-States-Use-to-Promote-HIEs-FINAL.pdf>

## Public-Private Utilities

In *Methods States Use to Organize and Promote Health Information Exchange*, nationwide research of HIE operating models describes common methods for organizing HIE services:

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*“The most common method by which states organize HIE services within their jurisdiction is to partner with a single private nonprofit organization, which is governed by a multistakeholder Board of Directors usually representing key HIE participants, government representatives, and community organizations. The state then relies on that organization to develop capabilities that healthcare providers, health plans, and the state itself will leverage. Twenty-two states employ this model.*

*States with Public-Private Utilities are actively funding their HIEs, almost always partnering with the organization to secure federal funding, which often flows through the Medicaid agency.*

*Most states using a Public-Private Utility model place special obligations or restrictions on their designees, often relating to how data may be used, patient privacy, or how consumers will have a voice in the functioning of the HIE. An increasingly common approach to promoting interoperability within a state is to create a mandate or strong incentive for organizations to send selected data to the designated HIE.”<sup>6</sup>*

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**Table 4** provides pros and cons of the Public-Private Utility model for HIE operations. This evaluation supported the selection of the Public-Private Utility model when contrasted with the other three HIE operating models. While there is no perfect operating model, the selected model best aligns with the Commonwealth’s goals and realities.

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<sup>6</sup>Ibid.

**Table 4: Evaluation of the Public-Private Utility Model**

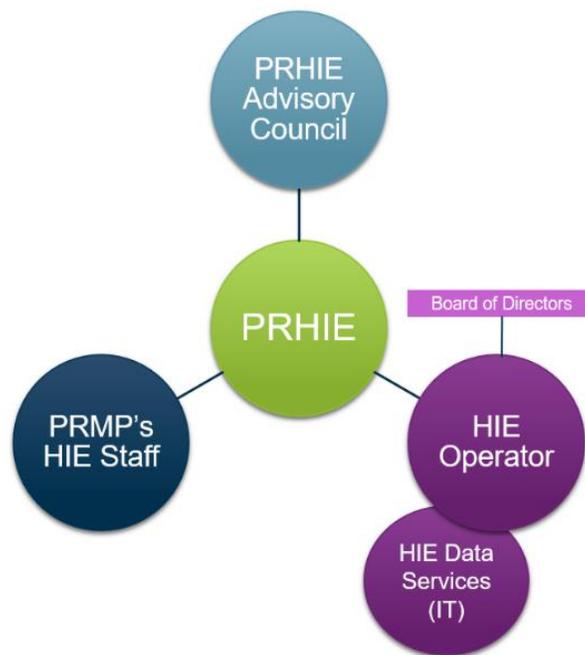
Pros	Cons
<ul style="list-style-type: none"> <li>• This is the <b>most common method for organizing HIE services</b> nationwide.</li> <li>• Leveraging <b>one HIE to support the entire population streamlines the work of institutions</b> contributing data, centralizes data access, and requires management of one entity over many.</li> <li>• <b>CMS will fund an HIE operated as a public-private utility</b> <ul style="list-style-type: none"> <li>• Cost allocation allows the state to attribute costs to the portion of the system/service benefiting Medicaid.</li> <li>• HIE systems developed as public-private utilities receive enhanced federal funding as MES-certified service providers.</li> </ul> </li> <li>• <b>This model enables government to:</b> <ul style="list-style-type: none"> <li>• Act as a neutral third party and convene public and private-sector partners through governance to help ensure HIE investments truly support users.</li> <li>• Obtain federal funding for development and operations of the system.</li> <li>• Represent the Medicaid Program and the PRDoH’s interests as users of the HIE.</li> <li>• Through contracting, ensure the HIE vendor is accountable for meeting users’ needs, adhering to clinical data-sharing standards, and complying with requirements of MES.</li> </ul> </li> <li>• There are <b>many proven organizations that work as HIE operators</b>, providing support to users and funders, who contract directly with IT vendors for technical services.</li> <li>• <b>Government has the position and authority</b> to support legislation that will enable data sharing and protect consumer data.</li> </ul>	<ul style="list-style-type: none"> <li>• Governance is required, but operating a formal cross-sector governance model is resource and time intensive.</li> <li>• Federal funding for HIE requires sustained state/territory funding as matching funds.</li> <li>• Government procurement requirements can be burdensome, which may deter valuable vendors and/or slow progress.</li> <li>• Without legislative intervention, the private sector could invest in its own HIE solutions, which may dilute public investment and diminish the volume of participants contributing useful data.</li> </ul>

## PRMP's HIE Workforce

An HIE Public-Private Utility Model shares common features:

- Clear HIE governance authorities
- Legislation to support and protect electronic health data exchange and use
- State-level staff with authorized HIE project roles
- A designated HIE operator who directly contracts for or operates IT services (e.g., data warehousing, patient matching, alerts, provider portal, data quality services)

**Figure 9: PRHIE Operating Model**



A state or territory has three fundamental roles to play in support of HIE operations: management, oversight, and planning.

- The **management** role leads the process of obtaining and budgeting public funding for HIE, most generally requesting funds from CMS in support of Medicaid Enterprise Services (see PRHIE Funding Strategies, pg. 23). This role also develops and manages the contract with the HIE vendor to fulfill HIE strategies expressed by the Medicaid agency and its partners.
- The **oversight** role helps ensure HIE service providers deliver services in accordance with contract requirements and in compliance with state and federal data-sharing and health IT protocols.

- The **planning** role directs HIE strategic planning activities with HIE users (providers, public health, etc.) and those stakeholders impacted by HIE services, notably patients and caregivers.

States are roughly categorized as having high or low levels of involvement for engaging an HIE operating model, and the level of involvement is influenced by available staffing resources in combination with risk tolerance. **Figure 10** provides descriptions of the roles of the HIE operator, and the government based on their level of involvement.

**Figure 10: HIE Government Staffing Models by Level of Involvement**

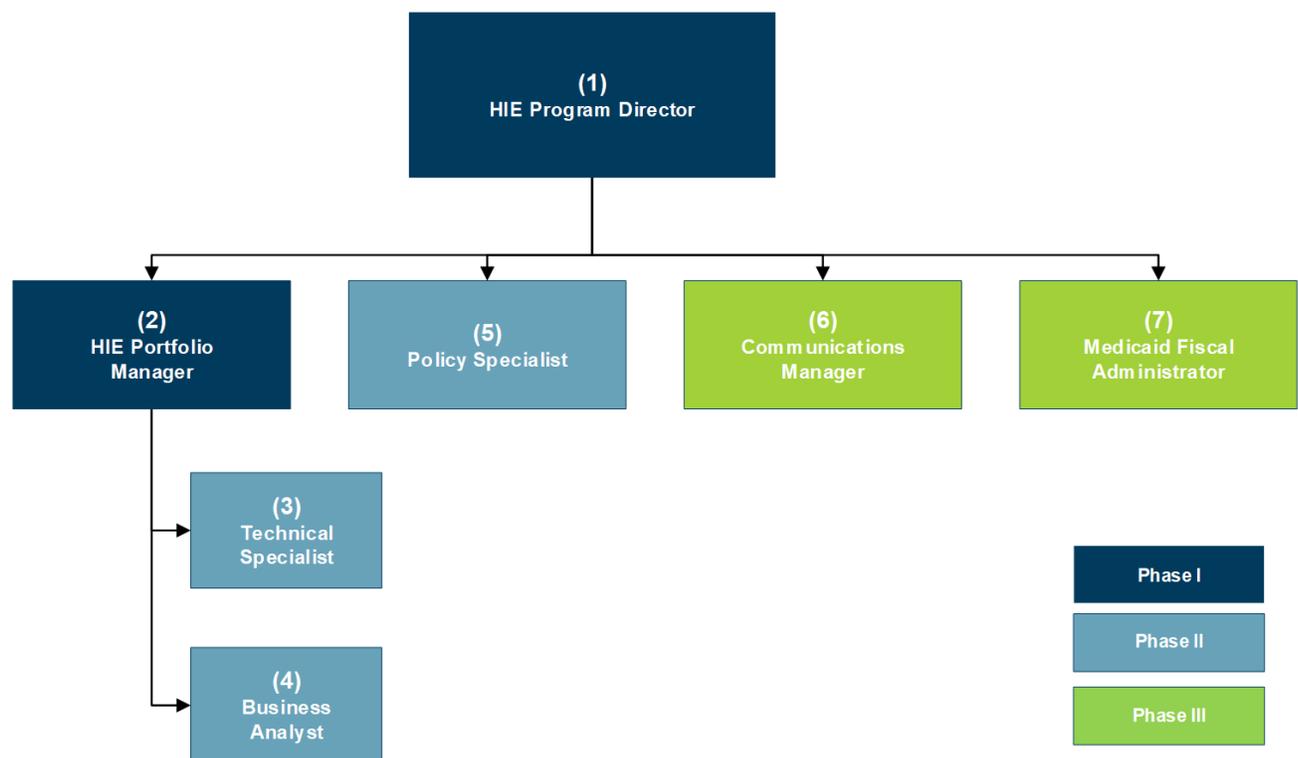
High Involvement	Low Involvement
<p><b>HIE Operator</b> HIE Operator is focused on delivering HIE services as directed by the government’s HIE Authority, often in partnership with a governance body</p>	<p><b>HIE Operator</b> HIE Operator plays a more directive role in coordinating users and designing HIE strategy; often privately run and/or developed for private interests</p>
<p><b>Government</b> Government’s HIE authority is clearly designated in policy/legislation. The government-run program is responsible for areas including strategic planning and use case gathering, IT and policy evaluation, cross-sector governance, procurement/contracting, and managing investments from the federal government and others. Requires a minimum of six to nine Full-Time Equivalents (FTEs).</p>	<p><b>Government</b> Government’s role may be decentralized, with different departments directing/contracting HIE services based on specific use cases. The Medicaid Authority focuses on managing CMS investments. Requires a minimum of 2 FTEs.</p>
<p><b>Examples</b> Connecticut Office of Health Strategy and State Medicaid Authority Vermont Agency of Human Services Maryland Health Care Commission</p>	<p><b>Examples</b> Maine, HealthInfoNet (moving to High Involvement Model) Washington Colorado, 2 private HIEs, central HIT office, Medicaid Arizona, 1 private HIE (shared services with CO)</p>

## PRMP – HIE Staffing Analysis

Based on PRMP input and previous assessment and funding work, BerryDunn developed a draft HIE program staff model for PRMP. The PRMP HIE Staffing Model covers the fundamental staff roles described above and accommodates a phased approach to evolve from low to high involvement as the HIE matures. This evolution will be necessary to achieve the goal of establishing an HDU.

**Figure 11** provides the PRMP HIE Staffing Model, indicating staff positions, a reporting structure, and three phases for developing the workforce through the addition of staff. Note that each position has an identifying number to reflect a potential hiring sequence. These numbers also cross-reference to a following table of position descriptions.

**Figure 11: PRMP HIE Project Organizational Chart and Staffing Model**



## PRMP HIE Staffing Model

### Full-Time HIE Program Staff

(1) HIE Program Director (HIT Coordinator)	Legislatively authorized to preside over HIE strategic planning, the HIE funding portfolio, and represent HIE issues to external stakeholders. Reports to the Medicaid Director. Represents HIE program issues to the Medicaid PGMO, PRDoH leadership, the legislature, CMS and other funders, and the health care community. Chair of the PRHIE Advisory Council.
(2) HIE Portfolio Manager	Responsible for coordinating activities that advance data exchange and interoperability, tracking and representing user needs, ensuring that policies are supportive of investments and strategic plans. If distributed, roles may focus on the (1) public health, (2) intra-agency coordination, and (3) provider-focused HIE services.
(3) HIE Technical Specialist	Leads the development and oversight of the HIE systems contract(s); provides subject matter expertise on health IT, including technology and data management in HIE and provider endpoint environments.
(4) HIE Business Analyst	Analyzes and develops feasible applications of data and technical components and processes to support technical innovation and use case support from the HIE; Understands and applies health IT awareness to changes in workflow in support of use cases; collaborates on health IT process changes with HIE operating staff as well as with other stakeholders including provider types, Public Health, and Medicaid data and HIE users.
(5) Policy and Governance Lead	Tracks key policy initiatives; supports the legislative process; supports Advisory Council and subcommittees with charter development and guidance on policy topics; develops new and revised policies in response to legislative or use case requirements.
(6) Communications Manager	Supports the Advisory Council with regular communications on meetings and meeting content including active meeting support (call the roll, produce minutes); is a point of contact for Council members; drafts communications for the HIE Program Director and for other members of the HIE team as needed.
(7) Medicaid Fiscal Administrator	Helps to ensure that funding and the flow of funding is aligned with PRMP policies and practices for acceptable fiscal management; provides subject matter expertise for APD development; participates in HIE contract development; reviews regular fiscal reporting from the HIE operator; collaborates with PRMP fiscal staff to reflect accurate HIE data in CMS quarterly reports and forms.

## PRHIE Governance

A cornerstone of functional HIE activities is transparent, accountable governance that makes clear how decisions are made and provides a means for impacted stakeholders to represent their group’s interests in the use and exchange of health data.

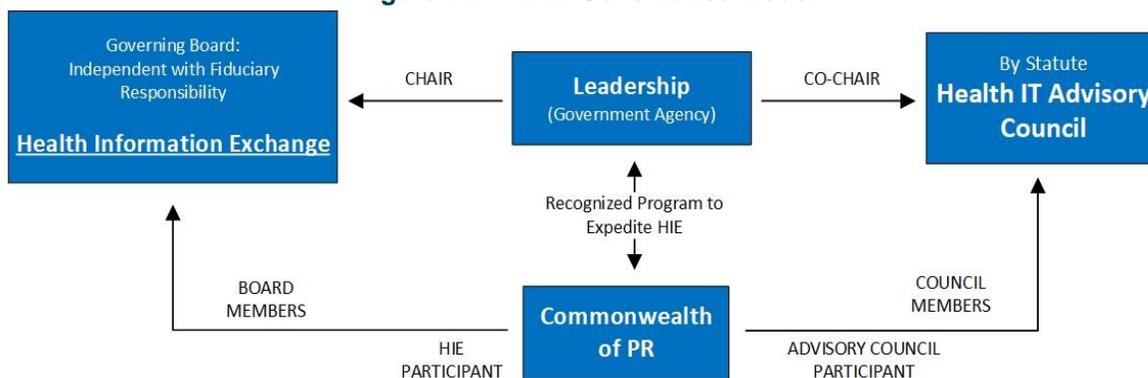
In many locations, the Medicaid agency has a special role in both orchestrating multisector governance as a neutral third party and representing Medicaid’s interests on the HIE governance body in service of using HIE data to positively impact Medicaid patients’ outcomes and the performance of the Medicaid plan(s).

**Figure 12** depicts the relationships between the entities involved in governing HIE in Puerto Rico. In pursuit of a public-private partnership model (referred to in Figure 12 as the Health IT Advisory Council), the multisector governance body partners with the board of directors of the authorized HIE. The board has a fiduciary responsibility to oversee HIE operations, inclusive of their economic incentive to meet the demand of their customers. The Advisory Council, as directed by PRMP, is responsible for:

- Representing needs and challenges related to health data use and access from across the continuum of care.
- Supporting implementation and adoption of the PRHIE Roadmap (HIE Strategic Plan).
- Using perspectives and experiences to advise PRHIE staff on the development, implementation, and evaluation of HIE activities.

PRMP is directed by and receives support from PRDoH leadership and the broader Executive Branch. As demonstrated through the effectuation of administrative orders that direct data reporting to the HIE and other clinical repositories, PRDoH has the authority to direct the roles, mandates, and sanctions associated with participating in and contributing to health data exchange activities.

**Figure 12: PRHIE Governance Model**



## PRHIE (Health IT) Advisory Council

The PRHIE Advisory Council was established under PRMP direction in August 2023. Considering the newness of the group and the state of planning and focus for PRMP, it is expected that the council’s role will mature over time. **Table 5** details three phases of maturity for the PRHIE Advisory Council.

**Table 5: PRHIE Advisory Council Maturity 2023 – 2025**

PRHIE Advisory Council Development Stages		
Phase I	Phase II	Phase III
August 2023 – April 2024	April 2024 – April 2025	April 2025 and Beyond
<ul style="list-style-type: none"> <li>The council advises PRMP on the focus of HIE strategies and HIE goals and vision.</li> <li>A charter and support from PRDoH leadership authorizes the Advisory Council’s role and authority.</li> <li>The council is briefed on PRHIE procurement efforts (publicly available) and post-procurement transition plans.</li> </ul>	<ul style="list-style-type: none"> <li>PRMP and the council collaborate to identify and establish relevant subcommittees.</li> <li>The Advisory Council membership is secured, and the council meets regularly.</li> <li>Council members may solicit third-party support to conduct research or summary reporting to elevate their HIE advisory role.</li> </ul>	<ul style="list-style-type: none"> <li>The Advisory Council is fully established.</li> <li>A process for evaluating and reporting on the council’s annual progress is established.</li> <li>Reporting structures among each entity of the PRHIE Governance Model, and the PR Legislature are clear and well established.</li> <li>The HIE operator’s participation on the Advisory Council is recognized.</li> </ul>

PRHIE Advisory Council Development Stages		
Phase I	Phase II	Phase III
August 2023 – April 2024	April 2024 – April 2025	April 2025 and Beyond
<ul style="list-style-type: none"> <li>Members act as champions of PRHIE activities, communicating relevant concepts to their constituents.</li> </ul>	<ul style="list-style-type: none"> <li>A process for involving the Advisory Council in updating legislation and/or policy is established.</li> <li>PRMP continues to focus on increasing the membership’s HIE knowledge of local and national topics.</li> </ul>	

## PRHIE Organizational Model

PRMP leadership has determined that a public-private partnership model for HIE operations is a best fit for Puerto Rico’s current HIE environment. This section explains the options considered and the reasoning behind supporting a public-private model for HIE development.

Most HIE organizations provide two main functions:

1. **HIE operations** include onboarding providers, implementing data governance, conducting public education and outreach, and representing HIE services to interested parties such as Medicaid, the governance authority, and the legislature.
2. **HIE data services (IT)** include the collection of health information, the mapping and translation of health information, the database management and back-end development of the data, front-end design and workflow development, network engineering and systems management, and security management.

The authority of Commonwealth government and the relationship with CMS for federal funding provide the state with the leverage to successfully execute HIE efforts. However, successful HIE operations require an investment in sufficient technical staff. If it is not possible to employ the needed technical staff within government, then an operating model that relies on contracted support should be considered.

Even when a third-party HIE vendor assumes greater operational responsibilities, state/territory staff are needed to establish the HIE program; provide neutral, transparent oversight; define policies; manage contracts and governance processes; and control federal investments.

## PRHIE Funding Strategies

Previous HIE-related projects in Puerto Rico were funded through options available in the HITECH Act. This funding provided 90% of the project cost, but it was only available for design, development, or implementation (DDI) aspects of the projects, and no funding was available under HITECH for subsequent ongoing operations and maintenance of the project deliverables.

Funding projects through the MES can not only provide 90% DDI funding but can also provide subsequent maintenance and operations funding at a 75% level. To achieve the 75% level of ongoing funding, the project (system, technical platform, or use case) must be certified as a component of the overall MES. During the HITECH era, such certification was considered by almost all states as a challenge to be avoided, and states opted for 90% HITECH funding for one-time DDI-related work, although they did this through a series of annual funding update requests.

With HITECH no longer an option, states are pursuing MES funding and working on certification projects. Note that administrative funding at a 50% level is always available for Medicaid funding, but that reflects a high state funding match, which is not sustainable in most cases.

## Cost Allocation

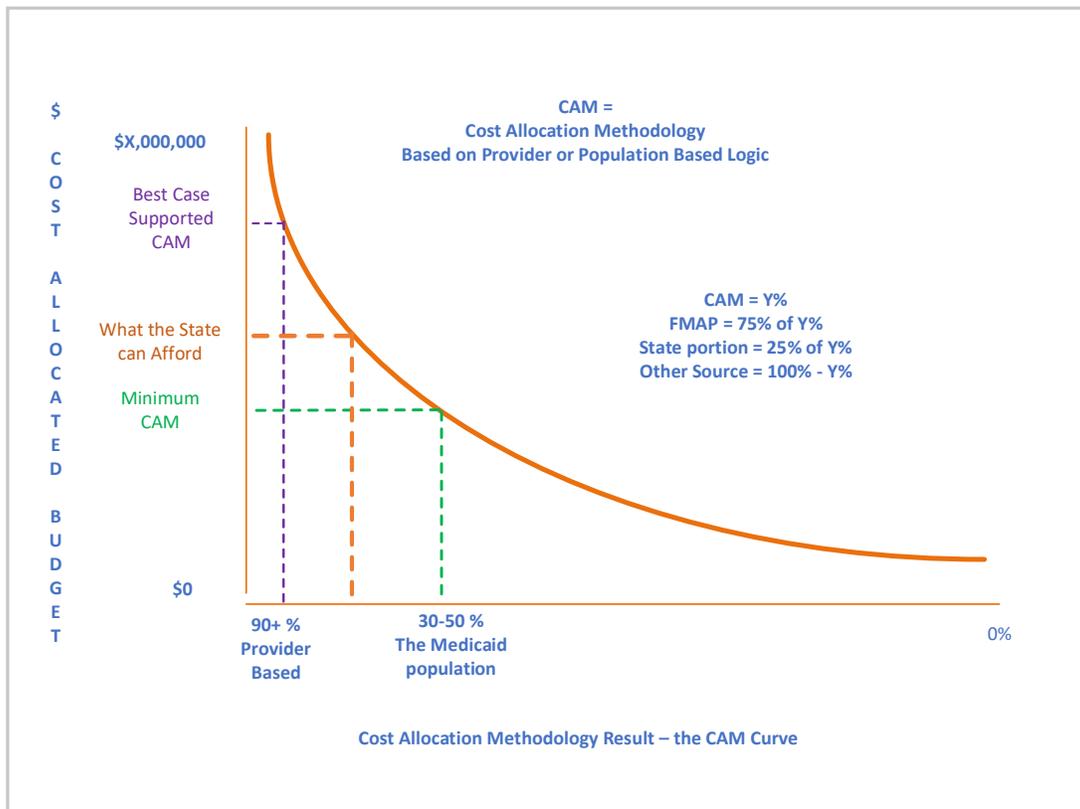
Cost allocation has always been a requirement for Medicaid funding for Health IT and HIE projects. CMS does not pay for portions of projects that may be benefiting non-Medicaid payers or beneficiaries. During the period of HITECH funding, states could petition for 100% Medicaid cost allocation because there was a link between the proposed work and HITECH's Promoting Interoperability program that awarded incentive payments to providers for adopting and using EHR systems. The Health IT projects and HIE project work supported those aspects of the incentive program that rewarded the exchange of health information; for instance, with immunization registries for public health reporting. The incentive program was a Medicaid program supporting Medicaid providers so, arguably, the cost allocation was 100%.

Moving into the MES era of funding, and especially when considering HIEs, it is probable that the Medicaid agency will not be the only entity benefiting from HIE-related projects and use cases. The state is required to develop a cost allocation methodology (CAM) with a convincing logical basis and a repeatable calculation that utilizes readily available data. CMS does not dictate a CAM approach. The state proposes a CAM and CMS responds—often after some discussion and adjustments—with approval.

Since a component can be a system, a module, a service, or a use case, there may be different CAMs for different components to reflect the level of Medicaid involvement. BerryDunn recommends treating the HIE as a single component in the MES and seeking certification and associated funding for the full platform.

A high CAM can support a higher overall budget while keeping the state portion of funding at a reasonable level. A lower CAM may result in a situation where the state cannot afford the state portion required to support the full budget. This is reflected in the CAM curve model in **Figure 13**.

Figure 23: CAM – The CAM Curve



## FFP

FFP describes the portion and amount of funding CMS provided to support MES investments. All costs for which FFP is requested are first cost allocated, and the FFP portion is then based on the Medicaid share. The administrative FFP rate is 50% and available with limited restrictions. Higher rates of FFP are available, and these are referred to as enhanced funding. Furthermore, 90% funding can be applied to DDI activities, and 75% can be applied to operating expenses.

Enhanced funding can only be applied to certified components of the MES. A component may first need to be developed and implemented, and the associated funding request should present DDI as a first step in a plan to have a certified operational component. MES requirements for certification include:

- **Outcomes:** Outcomes describe the measurable improvements to a state's Medicaid program that should result from the delivery of a new module or enhancement to an existing system. There are no CMS-required outcomes for HIE; state-specific outcomes apply.
- **Metrics:** Metrics provide evidence that the outcomes are met on an ongoing basis.
- **Required Evidence:** This includes, but may not be limited to, system demonstrations, testing results, production reports, plans for organizational change management.

- **Required Artifacts:** Major artifacts include the Master Test Plan and results, Deployment Plan, Defect and Risk List, and Independent Security Audit.

## Medicaid Conditions for Enhanced Funding

As a condition of receiving enhanced federal matching funds for state MES expenditures as described above, states must ensure the system complies with all of the 22 conditions for enhanced funding (CEF)<sup>7</sup> referenced in 42 CFR 433.112(b) and that the system remains compliant with federal Medicaid requirements for enhanced operations matching once it is in operation as provided in 42 CFR 433.116. A few of the significant CEFs are:

- (1) Supports the State Medicaid Plan
- (5) State owns any software designed, developed, installed, or improved with 90% FFP
- (6) Royalty free, non-exclusive ... license to ... authorize others to use ... software ... enhanced with 90% FFP
- (8) Agree to use for the period of time specified in the Advance Planning Document (APD)
- (12) Alignment with standards: ONC, US Health Insurance Portability and Accountability Act (HIPAA), 508 accessibility; Affordable Care Act
- (19) Through the APD, identify key state personnel by name, type, and time commitment assigned to each project

## Recommended Funding Approach

Based on the above discussion, and informed by Puerto Rico's history of health IT and HIE-related funding during the HITECH era, BerryDunn recommends the following:

- Request Implementation Advance Planning Document (IAPD) funding (90%) for the procurement and initiation of HIE Operations, based on the timeline presented in the following section of this roadmap. Note that IAPD funding was used to procure the Health Gorilla solution, and a case must now be made to justify additional DDI funding.
- Initiate the certification process with CMS in alignment with submitting this IAPD. Include proposed outcomes and metrics for certification.
- Develop a defensible CAM. A few states have had success achieving a very high CAM in support of HIE operations, and those models should be considered for applicability to Puerto Rico's environment.

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<sup>7</sup> Centers for Medicare and Medicaid Services, 42 CFR § 433.112 "FFP for design, development, installation or enhancement of mechanized claims processing and information retrieval systems." *HHS* Accessed September 30, 2023. [Link](#).

- Utilize IAPD funding for startup of the HIE Operations, any data transitions required, and operational support during a required period for acquiring metrics (six months).
- Complete the certification process with an operational funding request that can be retroactive to the initiation of metrics gathering.
- Develop a budget and timeline reflecting all of the above and showing the impact on state matching funds required.

## Governance of Funding and HIE Certification

All public-private utility versions of HIEs require significant input of FFP to support ongoing HIE operations. Federal funding considerations are discussed in Section 4 of this PRHIE Roadmap, as well as the concept of HIE certification. Certification of the HIE—whether that is treating the entire HIE as a component of the MES or treating a set of use cases as components—is essential to achieve enhanced FFP at the 75% level for maintenance and operation of the HIE or use cases, instead of accessing only the administrative 50% level of funding for uncertified components.

PRMP with PRHIE has the governance responsibility for efforts to achieve certification and funding, with the participation of the HIE operator and with contracted support as needed. The Advisory Council should be informed of funding strategies, the status of certification efforts, and associated funding requests (APDs). A significant element of the funding strategy is the development of a CAM to reflect the share of identified costs that can be rationally attributed to Medicaid as a fair share. The enhanced or administrative FFP percentages are applied to cost-allocated amounts, not to the full cost of operations.

PRMP and other internal staff are also responsible for managing approved CMS funding, although the processes and experience needed for this aspect of funding governance are well established.

## Oversight of Procurement and Contracting for HIE Operations

PRMP and PRHIE are also responsible for establishing HIE operations. Although an HIE technical platform is in place, there is a procurement policy that requires procuring these technical services again (reprocurement). This line of activity is current and time-sensitive, and there are several topics to be resolved, including:

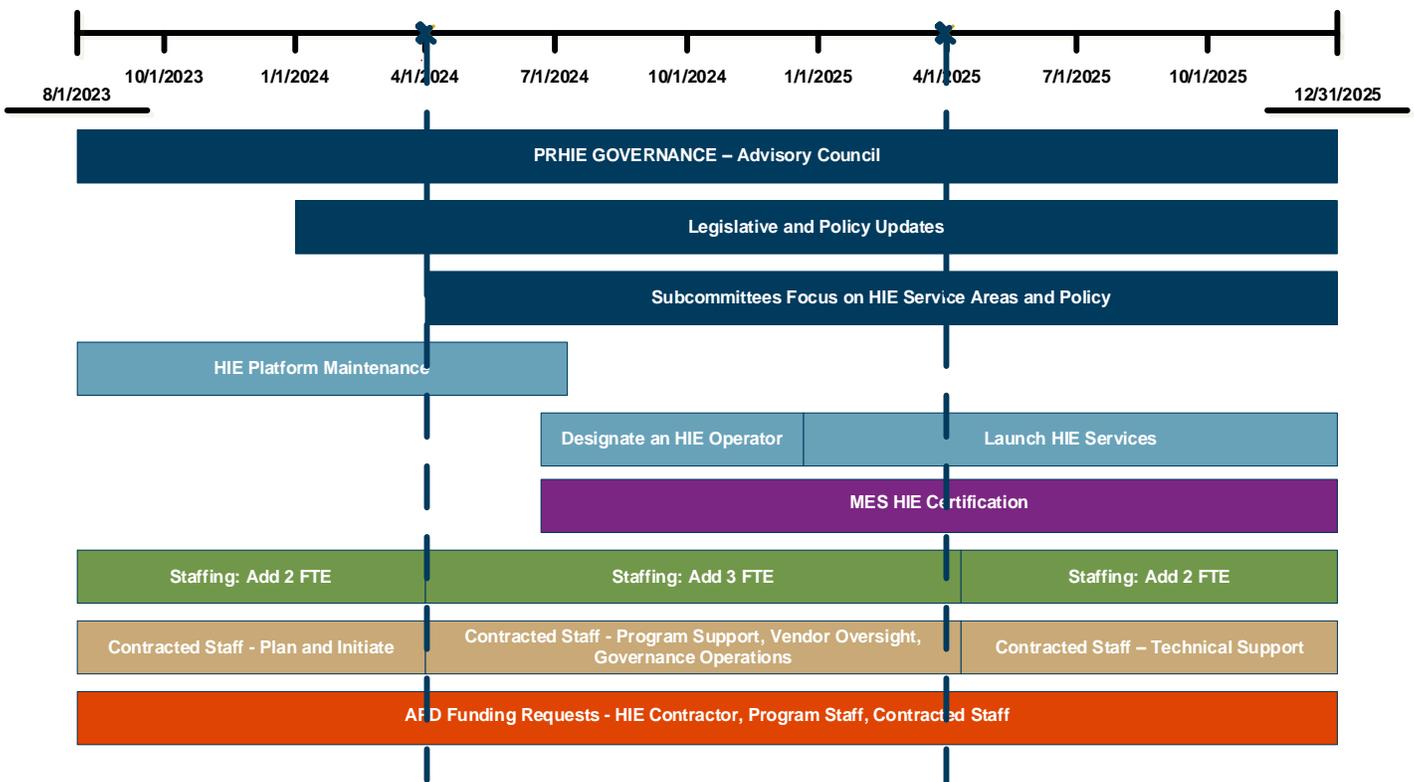
- Developing a procurement strategy that supports the possibility of the HIE operator being separate from the technical platform vendor
- Considering the implications of a forced data and services migration if a different technical platform vendor is engaged
- Clarifying roles and responsibilities between the technical platform vendor and the HIE operator if they are separate entities

- Determining to what extent PRMP and PRHIE can specify the structure of an HIE operator, e.g., if it must be nonprofit or if a fully private and for-profit entity would be considered
- Determining the governance interaction between PRMP and PRHIE with the HIE operator and including the role of the Advisory Council
- Determining if a legislative update to Puerto Rico Law 40 of 2012 is required to support the preferred outcome of all these considerations

## PRHIE Roadmap Timeline

The following timeline and tables summarize and illustrate the strategies articulated in this version of the PRHIE Roadmap. Appendix C contains additional implementation details related to the onboarding of an HIE operator, Outcomes-Based Certification, and fund management.

**Figure 14: PRHIE Implementation Timeline – Summary of Activities**



**Table 6: PRHIE Implementation Timeline by Phase and Topic**

	<b>Phase 1 Now – September 2024</b>	<b>Phase 2 October 2024 – September 2025</b>	<b>Phase 3 October 2025 forward</b>
<b>Governance</b>	<ul style="list-style-type: none"> <li>Maintain and support the Advisory Council</li> <li>Develop a Council Charter to define responsibilities</li> <li>Designation of Advisory Council from PRDoH Leadership</li> </ul>	<ul style="list-style-type: none"> <li>Council evaluates and identifies HIE use cases to drive focus</li> <li>Subcommittees designated (e.g., data governance, public health interoperability)</li> </ul>	<ul style="list-style-type: none"> <li>Annual strategic planning</li> <li>Ongoing oversight of HIE operations</li> <li>Use case monitoring and expansion</li> <li>Governance expanded to HIE Operator - Board of Directors established</li> </ul>
<b>HIE Platform</b>	<ul style="list-style-type: none"> <li>Procurement to continue HIE technical services beyond June 2024</li> </ul>	<ul style="list-style-type: none"> <li>Transition activities, if required</li> <li>Pilot and launch provider portal with MCOs and others</li> <li>Ongoing data integrations and data quality efforts</li> </ul>	<ul style="list-style-type: none"> <li>Expanded data feeds to the HIE</li> <li>Data access expanded to include direct feed and query and retrieve</li> <li>Launch ADT service</li> <li>Integrate with Emergency Response service</li> </ul>
<b>HIE Operations</b>	<ul style="list-style-type: none"> <li>Procure a vendor to operate HIE services</li> </ul>	<ul style="list-style-type: none"> <li>Transition activities, if required</li> <li>Establish processes to support user community and ensure usability and security of data on the HIE</li> </ul>	<ul style="list-style-type: none"> <li>Launch HIE services including provider outreach and support</li> <li>Participate in strategic planning and governance activities</li> <li>Support added use cases</li> </ul>
<b>Support</b>	Third-party support to enable PRMP to establish functional HIE project staff. The focus may include development of the Advisory Council, procurement and engagement support for the HIE Platform and the HIE Operator, use case evaluation and development such as public health integration, funding and certification support.		
<b>Staffing</b>	Two positions: <ul style="list-style-type: none"> <li>PRHIE Director (Coordinator)</li> <li>HIE Portfolio Manager</li> </ul>	Add three positions: <ul style="list-style-type: none"> <li>HIE Technical Specialist</li> <li>HIE Business Analyst</li> <li>HIE Policy Specialist</li> </ul>	Add two positions: <ul style="list-style-type: none"> <li>HIE Project Manager: Communications and Stakeholder Coordination</li> <li>Medicaid Fiscal Administrator</li> </ul>
<b>Funding</b>	IAPD funding, 90/10, cost allocated 100% Medicaid	IAPD funding through HIE Operator engaged and in full operations, probably cost allocated to Medicaid	Begin transition to OAPD funding with productive HIE Operations. Cost allocation to reflect a measure of the Medicaid share.
<b>Certification</b>	<ul style="list-style-type: none"> <li>Establish a plan a time frame for HIE certification</li> <li>Confirm HIE outcome measures</li> <li>Initiate discussions with CMS</li> <li>Prepare vendor to participate in Outcomes Based Certification process</li> </ul>	<ul style="list-style-type: none"> <li>Develop a certification concept paper for presentation to CMS</li> <li>Partner with vendor on certification activities</li> </ul>	<ul style="list-style-type: none"> <li>Initiate certification process with intake request</li> <li>Assemble artifacts</li> <li>Prepare for and execute certification reviews with CMS</li> </ul>

## Risk and Mitigation Strategies

The following table identifies issues and risks associated with the proposed activities presented in this PRHIE Roadmap. Mitigation strategies are proposed.

**Table 7: Identified Issues and Risks with Mitigation Strategies**

Risk or Issue	Title	Description	Mitigation Strategy
<b>Risk</b>	PRMP Resource Constraints	Resource constraints at PRMP and its vendors and contractors can impact the timely procurement and implementation of HIE operations.	A phased approach to add PRMP resources in alignment with increasing HIE functionality and governance activities is proposed. However, with simultaneous threads of activity including procurement, vendor management, potential transition to an alternative technical solution, and ongoing governance and funding activities, BerryDunn recommends partnering for trusted contracting resources that can adjust to the needs as required.
<b>Issue</b>	Funding Challenges	MES funding is at a lower level of FFP (75% for operations versus 90% for most of the HITECH funding that was previously used), and it is cost allocated for a Medicaid fair share. Certification is also required to achieve the 75% FFP versus an administrative level of 50% FFP. The state share will be a much larger amount than previously experienced.	Design a financial sustainability plan that outlines strategies for maximizing federal investment in the HIE effort. This includes establishing a certification timeline, which requires six months of measured outcomes to achieve certification on completion of the IAPD funding. Also, developing a CAM to optimize the Medicaid share (this may be challenging if Medicaid providers are not fully participating in the HIE).
<b>Risk</b>	IAPD DDI Funding Limit	CMS may hesitate to approve IAPD funding at 90% FFP for procurement and startup of the HIE operator.	The current data services solution was funded as 90% DDI. CMS may hesitate to approve 90% funding to procure a similar solution. If this occurred, PRMP could consider administrative funding (50%) with certified maintenance funding (75%) applied retroactively once certification is achieved. A high CAM becomes a more critical factor.
<b>Risk</b>	Limited Response to HIE Operator Procurement	Less than desirable field of responses for the HIE operator procurement may lead to additional procurement steps.	PRMP can leverage cross-sector partners to promote the procurement, including direct notifications to entities PRMP would welcome as responders. PRMP can also publicize the procurement through a public notice of the RFP. To generate responses, RFP should be clear on expectations and outcomes. PRMP should solicit questions

Risk or Issue	Title	Description	Mitigation Strategy
			and respond to all questions related to the procurement.
<b>Risk</b>	Timing of HIE Operator Under Contract	The HIE operator may not be under contract and prepared for the termination of the current vendor contract.	The HIE operator will be expected to negotiate for continuous operations and transfer of data directly with the current vendor, if needed. However, if the current contract is pending termination prior to the HIE operator being in place, then PRMP can consider a contingency of a short-term contract extension. If procurement policies do not allow an extension, then a plan should be in place to secure the data and to notify current users of service interruptions.
<b>Issue</b>	Delays in Certification Process	Delays in the certification process can create funding delays in securing enhanced funding and may introduce a funding gap.	All steps in the certification process should be diligently pursued to meet a timeline that correlates with procurement and startup of the HIE operator. Communications with CMS should begin early (before procurement), and a channel for ongoing communication should be maintained.
<b>Issue</b>	Compliance With CMS Interoperability and Patient Access Final Rule	The current HIE data services vendor does not have a technical solution for compliance with the CMS Interoperability and Patient Access Final Rule.	Procurement of an HIE operator and HIE data services solution should have a requirement to ensure compliance with the Interoperability and Patient Access Final Rule.
<b>Issue</b>	Compliance with State Medicaid Health Plan requirements	HITECH closeout requirements require a final SMHP submission to CMS.	The PRHIE Roadmap document can be used as Section E of the SMHP template. Review the SMHP requirement with CMS. The Roadmap reflects Sections A, B, and E of an SMHP, although the roadmap does not address specific questions included in the SMHP template. Section D of the SMHP (Audit Topic) is usually a separate submission because this topic is not intended for public disclosure. Section C of the SMHP includes results of the incentive payment program (Promoting Interoperability).
<b>Risk</b>	Potential Break in Services	BerryDunn contract expires on September 30, 2023, which will compromise development of procurement artifacts.	A contingency plan should be outlined to provide guidance for the period of the service break.

# Appendices

## Appendix A: Glossary of Acronyms

Table A1 provides a list of acronyms used in this report.

**Table A1: Glossary of Acronyms**

Acronym	Definition
ADT	Admission/Discharge/Transfer
APD	Advance Planning Document
APD-U	Advance Planning Document Update
ARRA	American Recovery and Reinvestment Act
CDC	Centers for Disease Control and Prevention
CEHRT	Certified Electronic Health Record Technology
CMS	Centers for Medicare and Medicaid Services
DDI	Design, Development, and Implementation
eCR	Electronic Case Reporting
FFP	Federal Financial Participation
HIE	Health Information Exchange
HIPAA	Health Insurance Portability and Accountability Act of 1996
HIT	Health Information Technology
HITECH	Health Information Technology for Economic and Clinical Health Act
IAPD	Implementation Advance Planning Document
IAPD-U	Implementation Advance Planning Document Update
IT	Information Technology
MCO	Managed Care Organization
MPI	Master Patient Index
MPPIPR	Medicaid Program to Promote Interoperability of Puerto Rico
MU	Meaningful Use
OBC	Outcomes-Based Certification
ONC	Office of the National Coordinator
PIP	Promoting Interoperability Programs
PRDoH	Puerto Rico Department of Health
PRHIE	Puerto Rico Health Information Exchange

Acronym	Definition
PRHIN	Puerto Rico Health Information Network
PRMMIS	Puerto Rico Medicaid Management Information System
PRMP	Puerto Rico Medicaid Program
SDE	State-Designated Entity
U.S.	United States

## Appendix B: Roadmap Implementation Timelines

**Table B1: Implementation Strategies to Establish an HIE Operator**

PRHIE Roadmap Strategies – Establishing an HIE Operator			
#	Date	Tactic	Description
1	9/29/2023 – 10/31/2023	Finalize the PRHIE Roadmap	The PRHIE Roadmap directs strategic activities through 2026, including procuring HIE services in 2024 and the focus of those services. The current schedule for the Roadmap includes a PowerPoint version and the V1.0 Draft narrative released to PRMP on 9/29/2023; reviews to be complete by 10/13/2023; final V2.0 narrative and slide deck by 10/31/2023.
2	9/1/2023 – 11/1/2023	Develop PRHIE Operational and Technical Requirements	In the standard PRMP RFP template, document requirements and expectations of a PRHIE operator responsible for the provision of HIE services and management of HIE technical functionals.
3	11/15/23	Submit an HIE RFP to CMS for Review and Approval	It is expected that CMS will fund 90% of the development costs of the HIE services contract. Therefore, CMS review and approval of the RFP is required.
4	11/15/23	Post a Public Notice of RFP	Alert interested parties of the upcoming RFP so that they have time to organize resources and communicate with PRMP with questions about the procurement.
5	2/6/2024	Release the RFP	The HIE RFP will be posted through PRMP's procurement site. Interested parties, including partners on the PRHIE Advisory Council, can be notified of the release to increase awareness of the posting.
6	2/6/2024 – 3/1/2024	RFP Response Period	This interval allows time for quality responses from interested vendors, accommodates a vendor call or meeting to discuss the procurement and answer questions, and allows time to respond to questions as they arise.
7	3/1/2024 – 3/18/2024	Evaluate RFP Responses	PRMP will coordinate a PRDoH Review Team to evaluate RFP responses. An additional step of requested system demonstrations may be added before the next step, but will result in delays to this timeline.
8	3/19/2024 – 5/1/2024	PRMP Contract Negotiation With Selected HIE Operator	Consider six to eight weeks as the minimum contract negotiation time interval. This may include establishing reasonable transition requirements in the Scope of Work.

**Table B2: Strategic Timeline for Implementation and Certification of PRHIE Operations**

Timeline for PRHIE Implementation and Certification			
#	Date	Tactic	Description
1	7/1/2024	HIE Operator under contract by July 1, 2024	This is the start date for HIE operations contract following the new procurement.
2	7/1/2024 – 9/30/2024	Q1 of HIE establishment and operations	The initial phase will focus on establishing, continuing and/or transitioning HIE services.
3	10/01/2024 – 12/31/2024	Transfer data and services	<i>The extent of this activity depends on the vendor selected.</i> Current vendor takes steps to transfer data and services, including designing and implementing a test transfer; executing the transfer; auditing the transfer to ensure it is complete and accurate; and accepting the transfer.
5	1/01/2025 – 3/31/2025	HIE Operator focuses on maximizing data collection and readying data access and reporting services	Anticipating a plan to expand the HIE with provider connections will be part of the RFP and contracting process.
6	4/01/2025 – 6/30/2025	Launch data access and reporting services	PRMP will inform CMS of progress with the HIE vendor, anticipating that the functionality of HIE services is required to progress with the Outcomes-Based Certification process.
7	7/1/2025 – 12/31/2025	Accumulate metrics data for outcomes	The HIE operator will be required to provide the required monthly reporting to CMS pertinent to fulfillment of the proposed outcomes measures.
8	1/01/2026 – 3/31/2026	HIE Operations certification achieved	This requires requesting a final Certification Review with CMS with support from the HIE vendor. Certification Review is one of the final steps to complete the process to receive a certification approval letter from CMS.
9	4/01/2026 – 6/30/2026	Prepare and submit an Operations Advanced Planning Document (OAPD)	Submit an OAPD by 4/30/2026 to accommodate the 60-day review at CMS. The OAPD is focused on gaining access to maintenance funds to sustain the HIE system post-development. Expect approval by 6/30/2026 with an effective date of 7/01/2025.

**Table B3: Timeline for PRHIE Roadmap Funding**

<b>PRHIE Roadmap Funding Timeline</b>			
<b>#</b>	<b>Date</b>	<b>Tactic</b>	<b>Description</b>
<b>1</b>	10/1/2023 – 12/1/2023	Confirm funding strategy and timeline	Confirm IAPD versus OAPD; inclusion of certification information; process for confirming staffing and contract support; timeline.
<b>2</b>	12/1/2023 – 2/1/2024	Refine IAPD components for staffing, contractor services, and cost allocation.	Align the three-phase staffing approach with the quarterly view reflected in the IAPD. Develop contract support estimates in support of staff, governance, and the procurement process. Develop a CAM and review with CMS in advance of submitting an IAPD.
<b>3</b>	2/1/2024 – 3/1/2024	Use RFP bid response information to inform IAPD	The RFP response can inform the IAPD timeline and the narrative regarding certification outcomes and metrics.
<b>4</b>	3/1/2024 – 5/1/2024	Develop IAPD	By 3/1/2024, PRMP should know the successful bidder and have an initial price proposal in hand. Other elements of the roadmap, including staffing and contracted support, can be finalized for inclusion in the IAPD.
<b>5</b>	5/1/2024	Submit IAPD to CMS	This IAPD includes a description of PRMP's certification intentions for the HIE and a description of outcomes and metrics associated with certification. A certification timeline should be developed and available for sharing with CMS. The certification timeline and outcomes/metrics should be reflected in the SOW with the HIE operator.
<b>6</b>	7/1/2024	IAPD funding approved to support HIE year 1 operations startup	The best funding outcome achieves IAPD 90/10 funding for the HIE operator startup year through certification beginning 7/1/2024. The premise for IAPD versus OAPD funding is that previous work with HG has been proof of concept. However, this funding must be cost allocated across payers.